PLANNING DOCUMENT

Regional Sewer District Study

Prepared for: Dubois County, Indiana

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Professional Consulting and Design Services

Clark Dietz

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EXECUTIVE SUMMARY

Dubois County has a few towns scattered throughout a predominately rural countryside and like many areas throughout the Midwest, has both private septic systems and public wastewater treatment facilities. There are conditions where a private septic system makes more sense than a public wastewater treatment facility; however, a comprehensive strategy would better guide the county towards the wastewater treatment approach that would most benefit local communities as well as the county overall.

This study will identify the communities where public wastewater infrastructure is needed to convert private septic system service areas to public sanitary sewers. These communities have been identified by the county as they are most likely to provide environmental benefits, have minimal implementation constraints and would cost effectively benefit a relatively large population. Potential current/future issues within these communities include:

- High one-time capital costs for private septic system replacement
- Failed or failing septic systems are more likely to discharge untreated domestic waste to waterbodies
- Private septic systems are not a viable option in some areas due to unfavorable soil conditions

The county retained Clark Dietz to assist in developing a high-level plan aimed at identifying and prioritizing unsewered communities to connect to a public sanitary sewer system and recommending long-term solutions to convert target communities from private septic systems to a public sewer system. The goal of this plan is to identify several unsewered areas and eliminate old and failing private septic systems to better serve the community, protect environmentally sensitive areas, and improve water quality. The results of this analysis will guide the county in selecting/prioritizing unsewered communities to include in their Regional Sewer District (RSD) plan. This report aims to address a few of the questions to guide the county in planning for the RSD and are listed below:

- Is it feasible to connect rural, suburban, and urban unsewered communities to existing WWTPs?
- What is the public input on the county's future infrastructure plan (Regional Sewer District)?
- Which unsewered communities fall in the feasible to somewhat feasible categories and why?
- What potential funding opportunities are available?

Current Infrastructure

Dubois County is divided into seven sewer districts – Birdseye, Ferdinand, Holland, Huntingburg, Ireland, Jasper, and Patoka. The existing sanitary sewer collection system is composed of six (6) wastewater treatment facilities, sewers, manholes, pump stations, and forcemains. The Ireland Conservatory District consists of collection system only and the sewage is transported to Jasper WWTP facility for treatment. There are over 700 properties within 15 unsewered communities that are not connected to any of the existing sewer systems and rely on private septic systems for wastewater treatment needs. Clark Dietz utilized several public and Dubois County data sources in reviewing and evaluating existing public and private infrastructure.

Selected Plan

The evaluation matrix and conceptual analysis of top scoring communities were crucial in developing an implementation plan for the county. The Early Action Projects consist of the top five communities: Haysville, Dubois Crossroads, St Henry, Portersville, and Kellerville, and are expected to cover up to half of the current suburban/urban unsewered properties (needs to be verified during design) in the county.

Once those projects have been implemented, the recommendation is to generally prioritize projects listed in the evaluation matrix and follow the ranking system of the matrix. The evaluation matrix prepared in this report must be revised and updated periodically as progress is made. Despite the prioritization identified in this study, there may be reasons to deviate from the ranked order such as:

- If funding is available for a large project that can target a high number of unsewered properties
- If roadway or other infrastructure projects are being planned near a proposed project area
- If opportunities to bundle sewer projects of several communities are found

- If illicit connections to water bodies or neighboring properties are found

Environmental Impacts

This report includes a discussion of the potential environmental impacts, permitting requirements, and agency coordination for the recommended projects. Generally, the environmental impacts are expected to be positive but, permitting, agency coordination, and environmental review will be required and performed during the preliminary engineering phase of each sewer project.

Cost Analysis and Early Action Projects

The overall score, rank, and opinion of probable construction costs (in 2021 dollars) for the sewer projects grouped by sewer district are shown in Table 1. The **Early Action Projects** are shown in bold. Value engineering opportunities are available and may be employed for sewer projects as each project enters design phase.

Table 1 Opinion of Probable Project Costs & Score Summary

Description	Project Cost	Score	Rank
Patoka Service Area			
Crystal	$12,752,500	9	13
Cuzco	$9,215,000	11	11
Dubois Crossroads	**$8,130,000**	**17**	**2**
Hillham	$13,995,000	8	14
Kyana	$22,420,000	10	12
Mentor	$14,920,000	13	7
Kellerville	**$9,615,000**	**14**	**5**
Thales	$11,875,000	12	8
Huntingburg Service Area			
Duff	$10,140,000	12	8
Johnsburg	$9,075,000	14	5
St Henry	**$10,915,000**	**16**	**3**
Jasper Service Area			
Haysville	**$11,380,000**	**25**	**1**
Portersville	**$12,515,000**	**16**	**9**
Maltersville	$7,785,000	12	8
Millersport	$12,315,000	8	14
Total Estimated Project Cost (in 2021 dollars)	**$177,047,500**		
Early Action Project Estimated Project Cost (in 2021 dollars)	**$52,555,000**		

A life cycle cost estimate is shown in Table 2 comparing two options – Option 1 considers installation of sanitary sewer infrastructure for all 15 unsewered communities and Option 2 considers only the top 5 communities, to determine if the program makes sense over a 20-year planning period. The 20-year present value of top-scoring communities is expected to be about 33% of the overall cost of providing relief to all the unsewered communities, highlighting that full adoption of a county-wide sanitary sewer collection system is not feasible and that the infrastructure should target the areas that would benefit the most.

Table 2 Life Cycle Cost Summary

Description	Option 1 – All communities	Option 2 – Top 5 communities
Capital Costs	$177,047,500	$52,555,000
20-Year Power Costs	$13,723,000	$8,234,000
20-Year Chemical Costs	$7,002,000	$4,201,000
Total	**$197,772,500**	**$64,990,000**

Due to the high overall infrastructure cost and the diminishing rate of return for lower-ranked projects, the top 5 projects are the primary projects to target; however, the full program implementation may only include one or two more communities before reaching a meaningful target. Once these initial projects are constructed, it is beneficial to reassess the remaining communities and identify if any beneficial projects remain.

A summary of Early Action Projects identified in this report is shown in Table 3.

Table 3 Early Action Projects

Service Area	Unsewered Community	Score	Pros	Cons
Jasper	Haysville	25	This is the highest scoring area, a large community located about 9 miles from Jasper WWTP and a high priority area for the county.	The county will need to investigate this area further regarding the treatment capacity, possible connection points/nearby sewer etc, before finalizing the RSD project.
Patoka	Dubois Crossroads	17	This is a fairly small community located about 6 miles from Patoka WWTP.	Same as above.
Huntingburg	St Henry	16	This is a fairly small community located about 8 miles from Huntingburg WWTP.	Same as above.
Jasper	Portersville	16	This is a small community located about 8 miles from Jasper WWTP and located 5 miles west of Haysville.	Same as above.
Patoka	Kellerville	14	This is a small community located about 7 miles from Patoka WWTP.	Same as above.

Chapter 1 CURRENT SITUATION

This chapter discusses the existing sanitary collection system and wastewater infrastructure in Dubois County. Population statistics, evidence of water pollution, and ongoing public health concerns faced by the unsewered communities are also presented in this chapter.

1.1 Project Location

Dubois County is located in Southern Indiana with Interstate 64 running along the southern border of the county. The county is approximately 432 square miles, has 12 townships, and includes incorporated communities of Jasper, Huntingburg, Birdseye, Ferdinand, and Holland. The project map showing existing sewer districts and treatment facilities is shown in Appendix A.

1.2 Existing Collection System and Treatment Facilities

Dubois County is currently served by six wastewater treatment facilities, with service areas of varying sizes and capacities as shown in Table 1-1. The six facilities have a current total design flow rate of 6.3 MGD with average daily flows closer to 4.0 MGD. The treatment facilities vary in their treatment processes with Holland and Birdseye utilizing controlled discharge lagoons and Ferdinand, Huntingburg, Jasper, and Patoka utilizing an activated sludge treatment process. In addition to these six existing treatment facilities, Ireland also operates a wastewater collection system for its municipality but utilizes the capacity of the Jasper Municipal WWTP to treat the collected wastewater.

Table 1-1. NPDES WWTPs in Dubois County, IN

NPDES ID	Permit Name	Size (sq.miles)	Design flow	Treatment method	Accepting Waters
IN0039748	BIRDSEYE WWTP	0.42	0.08	WSL - Controlled Discharge	Anderson River via Waddle Branch
IN0020648	FERDINAND WWTP	8.58	0.70	Activated Sludge	Patoka River via Hunley Creek and Holey Run
IN0023108	HOLLAND WWTP	0.34	0.10	WSL - Controlled Discharge	Ohio River via Little Pigeon and Sugar Creeks
IN0023124	HUNTINGBURG WWTP	21.75	1.11	Activated Sludge	Patoka River via Hunley Creek Tributary
IN0020834	JASPER MUNICIPAL WWTP	50.63	3.60	Activated Sludge	Patoka River
IN0052698	PATOKA LAKE REGIONAL WATER & SEWER DISTRICT	110.49	0.70	Activated Sludge	Patoka River

These six permitted treatment facilities currently service approximately 192 square miles within the county. Of that, residents account for approximately 80% of the total connections and the remaining 20% are attributed to industrial or commercial connections. The existing service areas and WWTPs are shown in Figure 1 of Appendix B.

The City of Jasper, the largest community in Dubois County, has the largest collection system. The city currently operates and maintains a total of 27 miles of forcemain and 131 miles of gravity sewer serving an estimated population of 16,703, per the US Census Bureau (2020). This includes lift stations located throughout the service area and a 3.6 MGD treatment facility located in the center of the service area, with approximately 60% of their treatment capacity utilized during dry weather. The WWTP has a current master plan that identifies several opportunities for expansion.

The City of Huntingburg, with an estimated population of 6,362 per US Census Bureau (2020), serves an area of nearly 22 square miles. This includes approximately 50.0 miles of sanitary sewers (6-15 inches in diameter), 15.7 miles forcemains (2-16 inches in diameter), 939 manholes, and 16 lift stations, in addition to the wastewater treatment facility. The current 1.1 MGD treatment facility is at 90% capacity during dry weather flows and so the City is currently designing a new 3.3-3.5 MGD WWTP at a new site to allow for future growth

and additional flows.

The Patoka Lake Regional Water and Sewer District has the largest service area within the county at just over 110 square miles; however, most of the residents within this area utilize private septic systems and not public infrastructure for their wastewater treatment needs. The Patoka Lake Regional Water and Sewer District currently operates and maintains approximately 71.0 miles of sanitary sewers/forcemains and 24 lift stations discharging wastewater to their 0.70 MGD wastewater treatment facility. The facility is 40 years old and in need of upgrades.

Ferdinand is a town of approximately 2,065 people and is located on the southern border of the county, just north of Interstate 64. Ferdinand maintains and operates a 0.70 MGD activated sludge wastewater treatment plant along with lift stations, sanitary sewers, and forcemains. There are plans to build a new WWTP north of town; however, this is in the preliminary planning stages.

The communities of Holland and Birdseye have nearly the same statistics in the categories being evaluated for this study. Both towns are similar in population (between 550 and 650 per the US Census Bureau) along with nearly the same service area (0.42 sq.mi for Birdseye and 0.34 sq.mi for Holland) and type of wastewater treatment facility and collection system. Holland maintains and operates a 0.1 MGD sludge lagoon along with lift stations, sanitary sewers, and forcemains. Birdseye maintains and operates a 0.08 MGD sludge lagoon along with 5 lift stations, 36 manholes, sanitary sewers, and forcemains, serving approximately 240 users.

1.3 Description of Communities

Looking at population growth trends for Dubois County (further discussed in 2.1), it appears that relatively steady growth has occurred for a 90-year period beginning in 1930. Growth where a sanitary sewer collection system was not established due to its remote location or difficultly to access, led to the use of private septic systems. While connecting to the public sanitary sewer collection system is always the preferred alternative, private septic systems do have a place within the Dubois County wastewater treatment approach. There are several populated areas that could benefit from the incorporation of sanitary sewers, primarily being Haysville and Portersville.

Haysville – Haysville is an unincorporated community located near the northern border of Dubois County within Harbison Township. Haysville is located around the intersection of State Road 56 and US Highway 231.

Portersville – Like Haysville, Portersville is also an unincorporated community located near the northern border of Dubois County; however, Portersville lies within Boone Township and is reportedly the oldest community in Dubois County also having held the county seat before Jasper.

Currently, there is no available population information with the US Census Bureau for Haysville or Portersville.

There are also several incorporated areas within some of the existing service areas. For instance, St Henry and Johnsburg are located west of Ferdinand whereas Mentor and Schnellville are located north of the Birdseye facility. These incorporated areas could potentially benefit from utilizing the existing treatment facilities within the county. These would be the primary areas currently served by the Holland, Birdseye, and Ferdinand WWTPs; however, permitting restrictions and treatment capacity would need to be evaluated in greater detail for these facilities.

Holland – The town of Holland is located in the far southwest corner of Dubois County just off of State Road 161 in Cass Township. The estimated population for Holland is 673 which is an increase of 7.5% from the 2010 census when it was recorded at a population of 626.

Birdseye – The town of Birdseye is located in the southeast corner of Dubois County surrounding the intersection of State Road 145 and State Road 64. The 2010 census identified that Birdseye had a population of 415. With a current estimated population of 529, the town of Birdseye has grown by 27% over the past ten years.

Ferdinand – Nearly halfway between Holland and Birdseye, Ferdinand is the largest of these three towns. Ferdinand is located around State Road 162, just north of Interstate 64, within Ferdinand Township. The population of Ferdinand is currently estimated at 2,065 which is a decrease of 4.3% from the 2010 census which was 2,157.

1.4 Water Pollution and Public Health Hazards

This section presents direct evidence of water pollution within Dubois County and discusses public health concerns within the region due to the failing and/or lack of septic systems.

1.4.1 Existing Water Quality Assessment – TMDL Report

The only existing water quality assessment available within Dubois County is the Total Maximum Daily Load (TMDL) Report for the Lower East Fork White River Watershed. This report was completed in 2019 for the Environmental Protection Agency (EPA) Region 5, by the Indiana Department of Environmental Management (IDEM), due to local interest in addressing water quality issues by determining a local baseline for monitoring and sampling streams impaired by E. coli, impaired biotic communities (IBC), nutrients, and dissolved oxygen.

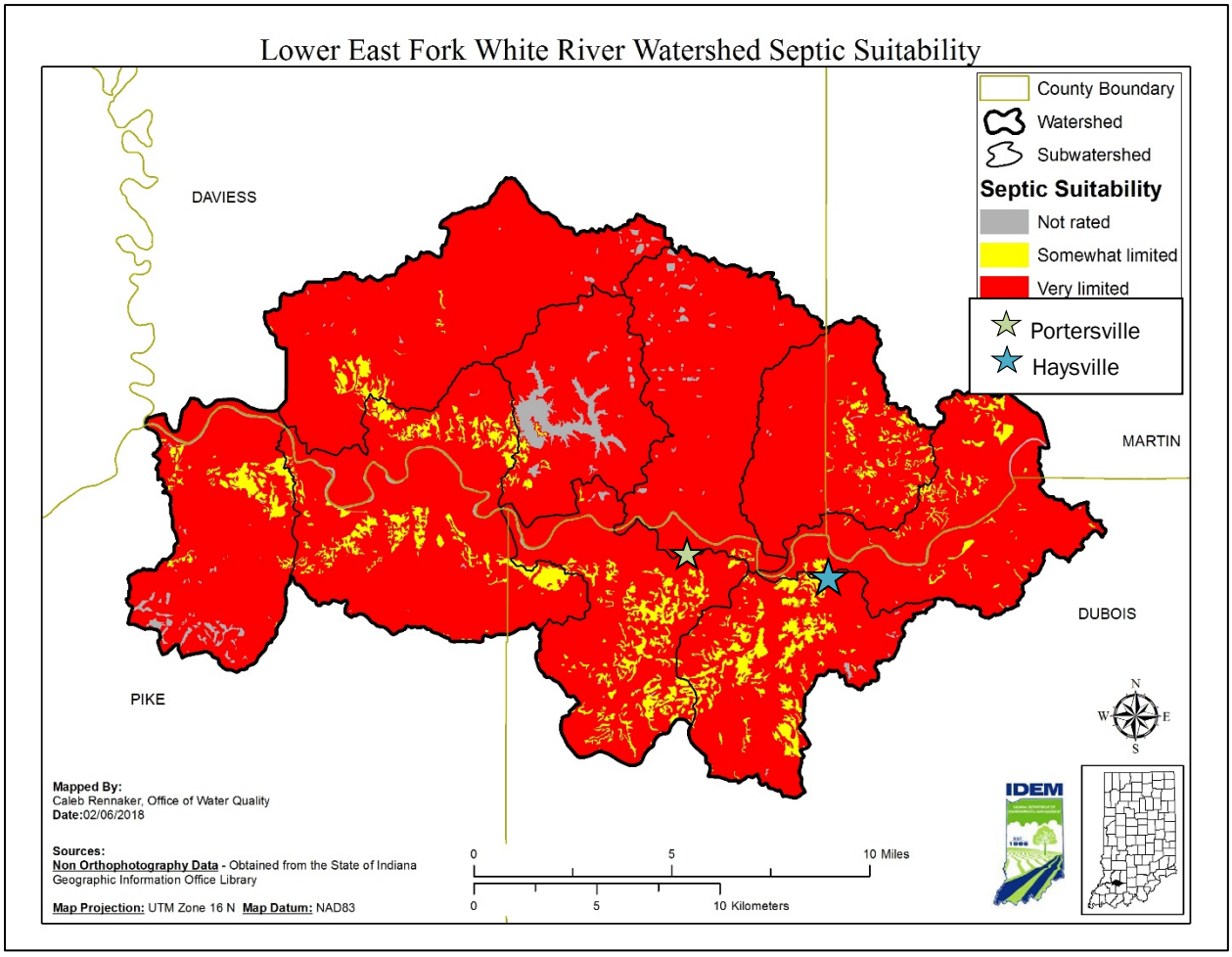


Figure 1-1. Suitability of Soils for Septic Systems in the Lower East Fork White River Watershed

This watershed and corresponding report lie mostly in Daviess County, but also dips into Pike, Martin, and the northwestern portion of Dubois County. This watershed encompasses two of the larger known areas of concern in Portersville and Haysville. While the report covers a wide variety of topics related to the local water quality, the main takeaway from this study is found in Section 2.3.2 *Septic Tank Absorption Field Suitability.* In this section, the soil characteristics and geology were evaluated for allowing gradual seepage of wastewater into

surrounding soils and the effects on the local groundwater quality. Figure 1-1 (Figure 16 of the TMDL Report) gives a good indication of the extent to which the soils (between 24-60 inches in depth) are suitable for septic systems within the watershed. Soils labeled "very limited" indicate that at least one variable is unfavorable for private septic systems. These unfavorable conditions account for approximately 91% of the watershed.

1.4.2 Water Quality Standards, Water Quality Targets, and E-Coli Findings

Water Quality Standards

Under the Clean Water Act (CWA), every state must adopt water quality standards to protect, maintain, and improve the quality of the nation's surface waters. These standards represent a level of water quality that will support the CWA's goal of "swimmable/fishable" waters. Water quality standards consist of three different components:

- **Designated Uses** reflect how the water can potentially be used by humans and how well it supports a biological community. Examples of designated uses include aquatic life support, drinking water supply, and full body contact recreation. Every waterbody in Indiana has a designated use or uses; however, not all uses apply to all waters.
- **Criteria** express the condition of the water that is necessary to support the designated uses and are of two types – numeric and narrative. Numeric criteria represent the concentration of a pollutant that can be in the water and still protect the designated use of the waterbody. Narrative criteria are the general water quality criteria ("free froms…") that apply to all surface waters. Numeric criteria for E. coli, Impaired Biotic Communities (IBC), and Dissolved Oxygen were used as the basis of the Lower East Fork White River Watershed TMDLs.
- **Antidegradation** policies provide protection of existing uses and extra protection for high-quality or unique waters.

Water Quality Targets

Target values are needed for the development of TMDLs because of the need to calculate allowable daily loads. For parameters that have numeric criteria, such as E. coli, the target equals the numeric criteria. Three target values – Total Phosphorus, Total Suspended Solids, and E-Coli were used for the development of the Lower East Fork White River Watershed TMDLs.

E.coli Data and Findings

The following section describes the water quality standards of E.Coli, target values used, related *E. coli* Data and findings.

1. E. coli

E. Coli is an indicator of the possible presence of pathogenic organisms (e.g., enterococcal E. coli, viruses, and protozoa) which may cause human illness. The direct monitoring of these pathogens is difficult; therefore, E. coli is used as an indicator of potential fecal contamination. E. coli is a sub-group of fecal coliform; the presence of E. coli in a water sample indicates recent fecal contamination is likely. Concentrations are typically reported as the count of organisms in 100 milliliters of water (count/100 mL) and may vary at a particular site depending on the baseline E. coli level already in the river, inputs from other sources, dilution due to precipitation events, and die-off or multiplication of the organism within the river water and sediments.

2. E. coli TMDL

The target value used for the Lower East Fork White River Watershed TMDL was based on the 235 counts/100 mL single sample maximum component of the water quality standard (i.e., daily loading capacities were calculated by multiplying flows by 235 counts/100 mL).

3. E. coli Data

For pathogens, 17 sites in the Lower East Fork White River were sampled. Table 1-2 (extracted from the TMDL Report) below provides a summary of pathogen data for all the subwatersheds in the Lower East Fork White River.

Table 1-2. Summary of Pathogen Data in Lower East Fork White River by Subwatershed

Subwatershed	Station #	AUID	Period of Record	Total Number of Samples	Percent of Samples Exceeding *E. coli* WQS (#/100 mL)		Geomean (#/100 mL)	Single Sample Maximum (SSM) (#/100 mL)	Percent Reduction Based on Geomean (125/100mL)	Percent Reduction Based on SSM (235/100mL)
					125	235				
Mill Creek	WEL-15-0011 (T05)	INW08F1_01	4/9/18-10/15/18	10	50	40	722.1	51,720	82.69	99.55
	WEL-15-0012 (T06)	INW08F1_03	5/21/18-10/15/18	9	100	100	1,739.93	41,060	92.82	99.43
Hoffman Run (US)	WEL-14-0003 (T01)	INW08E7_01	5/21/18-10/15/18	9	11.11	11.11	41.46	1,732.9	0	86.44
Slate Creek	WEL-15-0008 (T02)	INW08F3_02	4/9/18-10/15/18	10	80	60	431.86	15,150	71.06	98.45
	WEL-15-0007 (T04)	INW08F3_03	4/9/18-10/15/18	10	70	50	262.8	4,550	52.44	94.84
	WEL-15-0021 (T03)	INW08F3_T1002	4/9/18-10/15/18	9	55.56	33.33	235.03	>2,419.6	46.82	>90.29
Sugar Creek	WEL-15-0010 (T07) [Hoffman Run (DS)]	INW08F4_01	4/9/18-10/15/18	10	30	20	75.46	>2,419.6	0	90.29
	WEL-15-0018 (T08)	INW08F4_T1004	4/9/18-10/15/18	9	77.78	66.67	320.16	>2,419.6	60.96	>90.29
	WEL-15-0022 (T09)	INW08F4_T1006	4/9/18-10/15/18	10	60	40	233.28	>2,419.6	>46.42	>90.29
	WEL-15-0009 (T10)	INW08F4_T1003	4/9/18-10/15/18	9	88.89	44.44	446.89	12,110	72.03	98.06
Dogwood Lake	WEL-15-0019 (T13)	INW08F5_02	ND	ND	ND	ND	ND	ND	ND	ND
Birch Creek	WEL-15-0013 (T11)	INW08F6_T1006	4/10/18-10/16/18	9	88.89	88.89	767.69	2,419.6	83.72	90.29
	WEL-15-0014 (T12)	INW08F6_T1003	4/10/18-10/16/18	10	80	30	279.24	>2,419.6	>55.24	>90.29
Aikman Creek	WEL170-0008 (T16)	INW08F7_04	4/10/18-10/16/18	10	60	60	360.95	5,910	65.37	96.02
Bear Creek	WEL-15-0015 (T14)	INW08F8_T1008	4/10/18-10/16/18	10	100	80	461.91	>2,419.6	>72.94	>90.29
	WEL-15-0016 (T15)	INW08F8_T1010	4/10/18-10/16/18	10	90	80	698.56	5,200	82.11	95.48
Mud Creek	WEL-15-0020 (T18)	INW08F9_03	4/10/18-10/16/18	10	30	20	115.82	>2,419.6	0	>90.29

Subwatershed	Station #	AUID	Period of Record	Total Number of Samples	Percent of Samples Exceeding *E. coli* WQS (#/100 mL)		Geomean (#/100 mL)	Single Sample Maximum (SSM) (#/100 mL)	Percent Reduction Based on Geomean (125/100mL)	Percent Reduction Based on SSM (235/100mL)
					125	235				
	WEL-15-0017 (T17)	INW08F9_T1001	5/22/18-10/16/18	9	88.89	44.44	258.09	3,230	51.57	92.72

Notes: ND=No Data, SSM = Single Sample Maximum

The pathogen data for the Lower East Fork White River Watershed presented in the Table 1-2 above indicates that 90-99% or greater reductions are required to meet the TMDL target values for E.coli in Mill Creek, Slate Creek, Sugar Creek, Birch Creek, Aikman Creek, Bear Creek, and Mud Creek.

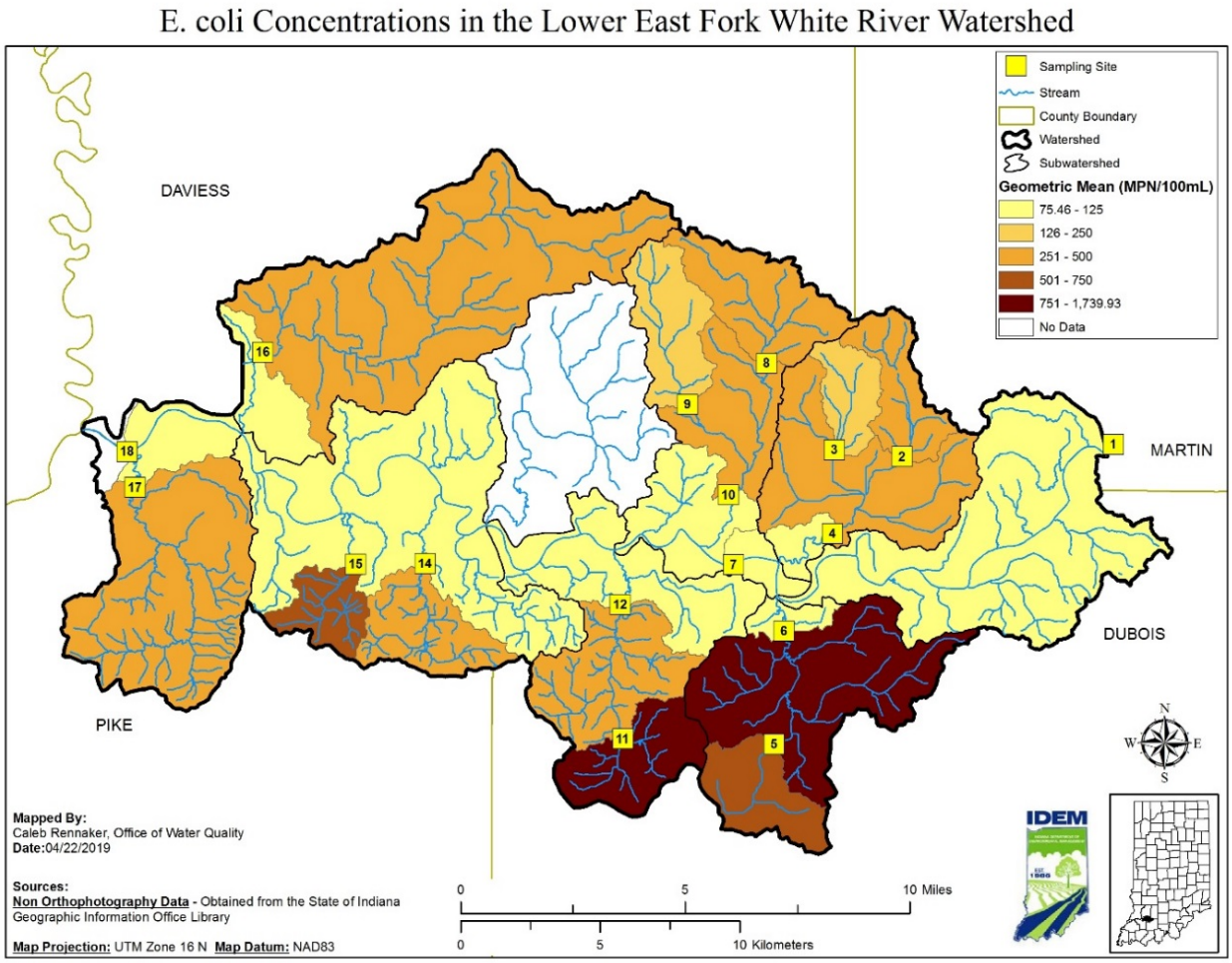


Figure 1-2. E. coli concentration in the Lower East Fork White River Watershed

Figure 1-2 shows E. coli concentrations based on 5-week geometric mean (MPN/100 mL) and sampling site drainage areas for 2017-2018. A significant part of Dubois County watershed including Haysville and Portersville have values over 250 MPN/100 mL and is therefore not in compliance with the current WQS for E.Coli.

Linkage Analysis and Conclusions

A linkage analysis connects the observed water quality impairment to what has caused that impairment. An essential component of developing a TMDL is establishing a relationship between the source loadings and the resulting water quality. Though a descriptive analysis for all target pollutants is included in the TDML report, this discussion will focus primarily on E.Coli.

E. coli sources typically associated with high flow and moist conditions include failing onsite wastewater systems, urban stormwater/CSOs, run-off from agricultural areas, and bacterial re-suspension from the streambed. E. coli sources are typically associated with low flow conditions and include a large number of homes on failing or illicitly connected septic systems that would provide a constant source. Elevated E. coli levels at low flow could also result from inadequate disinfection at wastewater treatment plants or animals with direct access to streams. With a significant portion of the Dubois County watershed (including Haysville, Portersville) having elevated E. coli levels, it can be concluded that failing and/or absence of private septic

systems is one of the major contributing reasons as several communities are unsewered and/or rely on private septic systems.

1.4.3 Public Health Concerns and On-Site Treatment System Requirements

Problems/Failures of On-Site Systems

Properly designed and maintained on-site wastewater treatment systems (e.g., septic systems) are not a source of contamination to surface water. The problem arises when these on-site treatment systems fail. These failures occur for a variety of reasons such as soil type limitations, hydraulic failures (surface breakouts), hydrogeological failures (inadequate soil filtration), etc., and when they do occur, there can be adverse effects on the surrounding surface waters. These are likely to be some of the issues surrounding the Haysville and Portersville communities.

Most of the residential and business structures in Haysville were built before the 1978 On-Site Sewage Disposal Rule was established and do not have permitted or inspected septic systems. These systems typically only have some form of septic tank, but no sewage disposal field to dispose of the effluent. As such, the straight discharges of sewage and ongoing septic failures have caused raw sewage discharges into neighboring creeks and drainage ditches. This sewage discharge is also a public health concern as disease organisms can be transmitted to humans by direct contact or can be carried into homes by insects, rodents, and animals. In addition, water quality testing conducted by the Indiana Department of Environmental Management (IDEM) has proven elevated E. coli levels in this area watershed as described in the previous section. The Dubois County Health Department has received numerous public complaints on sewage disposal issues in Haysville, which are currently being addressed on a case-by-case basis; however, the repair of existing sewage disposal systems is very difficult due to very small lot sizes and poor soil quality.

Dubois County Health Department

To further understand ongoing private septic issues in the region and the process used to address these issues by the Dubois County Health Department, we contacted Mr. Shawn Werner, Director of the Dubois County Public Health Department. The following section summarizes the information from that discussion related to complaints, the system used by the health department to manage private septic systems, and the county health department's responsibilities:

- **Local Complaints:** A majority of the received sewage complaints are related to failing septic systems with the number of complaints varying each year, typically from 30 to 50 complaints. These complaints come from various regions of Dubois County, with problem areas being Haysville, Beaver Creek Lake, Idlewild Lake, Duff, St. Henry, and areas with poor soils as shown in Figure 1-1. Most septic complaints that originate in these regions are either "direct discharge of waste to the surface" or related to general septic failures of permitted systems.
- **Procedure for Complaint Follow-up:** All sewage complaints must be submitted through the complaint form found at the County Health Department's website, which are then investigated by county staff to verify if it is a violation. The owner is then contacted by either phone, email, or certified mail depending on the situation. A deadline is given and if not followed, further legal action is sometimes taken by the department's attorney.
- **Private Septic System Management System:**
    - Permits: Typically the permit filing process includes submission of the property owner's information, system specifications and plans, and backfill inspection drawings. The county maintains permit submittal information on each private septic system. Newer systems are GPS located and included on the county's GIS mapping system.
    - Data Management: The information is saved both on paper and digitally.
    - County Responsibility: All residential and commercial septic systems are permitted and inspected by the Dubois County Health Department. This information is kept in perpetuity, with the earliest records dating back to 1978.

On-Site Treatment System Requirements

While public gravity sewers and wastewater treatment facilities are the preferred methods for wastewater treatment, they cannot be the county-wide solution. New on-site treatment systems will be a necessary part of the overall solution. There is currently no comprehensive database for on-site private treatment systems within

Dubois County; however, a plan for ensuring the systems that do exist are maintained and functioning properly needs to be an integral part of the overall solution. The Indiana State Department of Health (IDSH) regulates through the local health department the residential on-site sewage disposal program. The key requirements per the 410 Indiana Administrative Code (IAC) 6-8.3: Residential on-site sewage treatment systems are listed below:

Section 52 - General Sewage Disposal Requirements

- No person shall throw, run, drain, seep, or otherwise dispose into any of the surface waters or ground waters of this state, or cause, permit, or suffer to be thrown, run, drained, allowed to seep, or otherwise disposed into such waters, any organic or inorganic matter from a dwelling or residential on-site sewage system that would cause or contribute to a health hazard or water pollution.
- The design, construction, installation, location, maintenance, and operation of residential on-site sewage systems shall comply with the provisions of this rule.
- Any dwelling that is not connected or cannot be connected to a public sewerage system shall be provided with an on-site sewage system consisting of septic tank and a soil absorption system.

Section 55 - Violations; Permit Denial and Revocation

- Should a residential on-site sewage system fail, the failure shall be corrected by the owner within the time limit set by the health officer.
- If any component of a residential on-site sewage system is found to be defective, malfunctioning, or in need of service; the health officer may require the repair, replacement, or service of that component. The repair, replacement, or service shall be conducted within the time limit set by the health officer.
- The health officer may deny an application for a construction/operating permit, or may revoke a permit previously issued, for reasons including, but not limited, to the following:
    - On-site treatment system does not meet the minimum requirements of this rule or local sewage ordinances.
    - Failure to comply with any provisions of this rule and/or limitations, terms, conditions of a permit/misrepresentation/any unapproved change related to design, construction, or usage of an on-site system.

LOCAL SEWER ORDINANCE

Dubois County **Ordinance No. 2018-1** regulates the design, construction, installation, maintenance and operation of private sewage disposal systems in Dubois County, Indiana. Most of the sections contained in this ordinance refer to 410 Indiana Administrative Code (IAC) 6-8.3. The Dubois County Sewer Ordinance is included in Appendix E.

Chapter 2 FUTURE SITUATION

Current development trends, 30-year population projections, and the future infrastructure needs of Dubois County are discussed in this chapter.

2.1 Future Population Projections and Growth

Dubois County is a community that has experienced a fair amount of growth over the last 60 years as shown by the federal census data in Figure 2-1. The average growth rate over the last 30 years is about 6% and appears relatively consistent. The historical data indicates that a year-over-year growth rate of about 2% to 6% could be possible for the next 30 years, with sanitary sewer infrastructure being a significant factor impacting that growth rate. Utilizing the aggregated data from STATS Indiana, a public data utility, a small leveling off of population growth could also occur over the next 20-30 years. This indicates a total population in the range of 41,000 to 51,000 by 2050. Note that the data aggregated and analyzed by STATS Indiana does not factor in the possibility of new, large-scale businesses the county may be able to attract. It is merely a service provided to monitor the movement and health of populations. Additionally, this data mainly serves as an important metric in predicting shortcomings or successes in attracting business and workers.

Sanitary sewer systems are an important resource that contributes to the quality of life and a community's long-term viability, growth, and prosperity. Well-maintained sewer infrastructure not only protects the public health of a community but also helps drive economic development in the nearby area. The lack of planned wastewater infrastructure is a major impediment in creating economic opportunities for the county. As such, transitioning unsewered communities in Dubois County from private septic systems to public sewer systems would improve the growth around the region, which would otherwise be on the lower end of the expected growth rate.

As the population continues to grow over time, the county's wastewater infrastructure needs will also increase. Wastewater demand is a direct function of the population including the number of service connections and per capita water usage coupled with industrial and commercial water demands. As the county continues to attract industrial development and an increasing population to work in these facilities, the number of service connections and resulting overall flow will increase over time. Additionally, as water efficiencies continue to improve, these water usages may not be directly proportional to those currently being realized today.

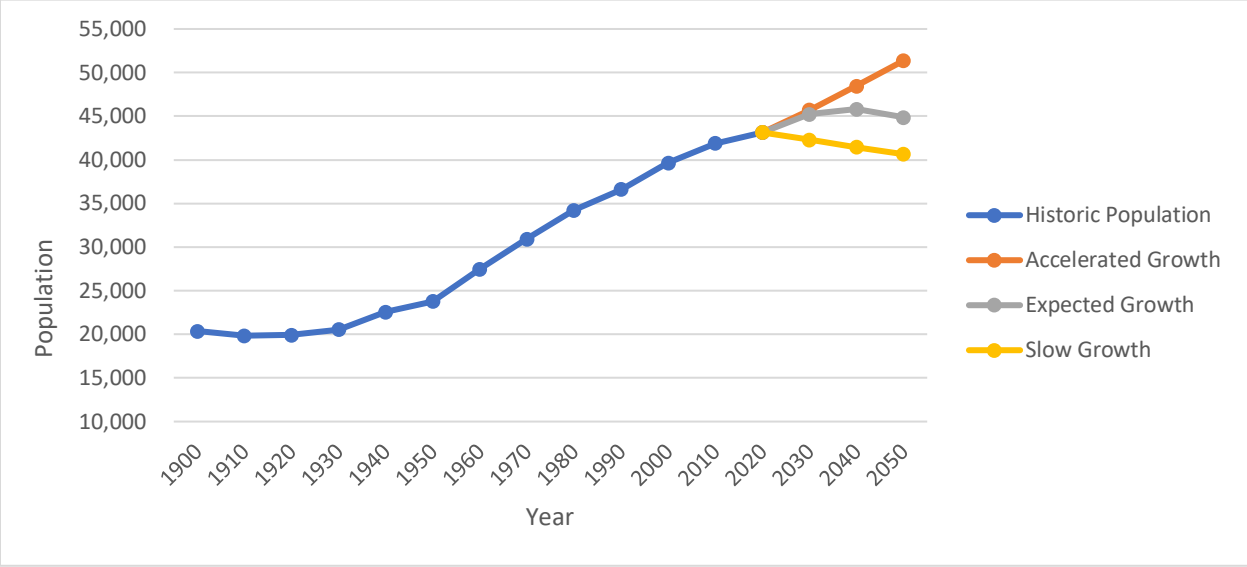


Figure 2-1. Population Data for Dubois County, IN

2.1.1 Mid-States Corridor Project

The Mid-States Corridor Project examines the concept of an improved highway connection in southern Indiana. The project is anticipated to begin at SR 66 near the William H. Natcher Bridge crossing of the Ohio River at Rockport, continue through the Huntingburg and Jasper areas and extend north to connect to Interstate 69. The project includes an evaluation of the existing 26-miles of four-lane US 231 from the Natcher Bridge. The study is also evaluating the US 231 corridor through Dubois, Martin, and Daviess counties and corridors to the east and west to provide an improved connection to I-69/SR 37. The Mid-States Corridor Regional Development Authority (RDA) and Indiana Department of Transportation (INDOT) are conducting the required Tier 1 Environmental Study to identify a preferred corridor. A preferred corridor will be identified in the Tier 1 Draft Environmental Impact Statement (DEIS), which is expected to be completed in late 2021. Though this project is currently under study and analysis phase, the completion of the Mid-States Corridor would significantly increase growth and economic development within the project area and would benefit from a public sewer system. The potential economic and urban development related to this project would be restricted if no sanitary sewer service is available.

2.2 Information Sources

The objective of this study is to perform a high-level analysis of the existing private on-site treatment and public sanitary sewer collection systems and target the areas in the county where insufficient or failing infrastructure exists. To better focus the resources, this initial effort will predominately focus on existing available data. This will help avoid diverting efforts on data collection and evaluation of areas that may never be converted from private septic systems to the public sanitary sewer system, at least not in the foreseeable future. Field data collection efforts such as: survey, site visits, public meetings, and District staff interviews, etc. will predominately occur during specific project development as funding becomes available. Below is a list of studies, reports, plans, and other information utilized for this effort:

- Taylor, Siefker, Williams Design Group, SLE Analytics. August 16, 2019. *Dubois County Quality of Life Workforce Attraction Plan*.
- Indiana Department of Environmental Management, December 16, 2019; *Total Minimum Daily Load Report for the Lower East Fork White River White River Watershed*.
- Pike County Soil and Water Conservation District (SWCD), July 2020, *Watershed Management Plan for the Lower East Fork White River Watershed*.
- Taylor, Siefker, Williams Design Group, VS Engineering, GRW Inc., February 28, 2020, *Huntingburg Comprehensive Plan (Draft)*.

Chapter 3 EVALUATION OF ALTERNATIVES

This chapter discusses the two alternatives evaluated for the RSD project.

3.1 No Action

The "No Action" alternative consists of taking no actions concerning the private septic system problems facing the unsewered communities in Dubois County. Sewer infrastructure is essential to protect public health and drive economic development. Therefore, this alternative is not a viable option and if chosen will result in public health concerns, impede economic development, and concede illicit septic discharges in the downstream water body.

3.2 Regional Sewer District

This alternative consists of the formation of a Regional Sewer District (RSD) to handle the various septic issues within the county and provide public wastewater infrastructure to the unsewered communities. Over the past twenty years, the City of Jasper, City of Huntingburg, and Patoka Lake Regional Water and Sewer District have conducted studies to incorporate several of the unsewered communities into their treatment facilities. The results of those studies often indicated that the inclusion of rural communities would not be feasible due to sparse population, remoteness, and other factors. Therefore, the RSD alternative was selected as it would provide a long-term feasible solution for addressing economic and health concerns beyond the capabilities of the individual WWTP Districts.

Chapter 4 INFRASTRUCTURE PLANNING

This chapter discusses the methodology used to evaluate unsewered areas and the criteria applied to develop a scoring system to prioritize sewer projects for various communities. This chapter concludes with a discussion on recommended service areas boundaries for the proposed projects and a feasibility evaluation of existing WWTPs.

4.1 Identification of Unsewered and Under Sewered Areas

The most common reason for a developer or homeowner to select a private septic system over connecting to a public sanitary sewer is simply that there are either no sanitary sewers for a connection or the nearest sanitary sewer is not feasibly reachable. This typically occurs in rural areas of the county. Unsewered areas are typically areas that have developed faster than the county can install infrastructure, areas where homes came before the sanitary sewer collection system was established, or areas that simply never grew large enough to warrant the installation of a public sanitary sewer collection system.

Many of the existing private septic systems in the county are past their design life. The county has identified that widespread issues of private septic system failures is great enough to warrant a need to be addressed through a systematic program. The approach for addressing these issues is the development of a county-wide RSD to develop a strategic, county-wide approach for addressing these concerns and providing a means for applying and securing State/Federal money to aid in potential infrastructure improvements.

The first step is to identify areas of concern that are currently unsewered. Based on preliminary discussions with the county and available information, it was determined that communities/areas most likely to be impacted by the formation of a county-wide RSD be included for evaluation. Using this input, a list was prepared and is shown in Table 4-1. Note that this list does not include all areas of the county which may need to be addressed long-term; however, it is a first step in identifying the potential areas that could get targeted for future improvements. Since the US Census Bureau population information of these communities was not available, the population of the communities was predominately determined based on a preliminary overview of the communities and counting properties from aerials. From the initial overview, these communities were then divided into three categories: small, medium, and large communities.

Table 4-1. Identification of Potential Impacted Areas/Unsewered areas

Town/Village/Area	Service Area	Estimated size
Crystal	Patoka	Small
Cuzco	Patoka	Small
Dubois Crossroads	Patoka	Medium
Duff	Huntingburg	Small
Haysville	Jasper	Large
Hillham	Patoka	Small
Johnsburg	Huntingburg	Small
Kellerville	Patoka	Small
Kyana	Patoka	Small
Maltersville	Jasper	Small
Mentor	Patoka	Small
Millersport	Jasper	Small
Portersville	Jasper	Medium
St. Henry	Huntingburg	Medium
Thales	Patoka	Small

4.2 Flow Rates and Treatment System Capacity

The flow rates and additional system capacity available at the existing treatment plants identified in Table 1-1 are currently being analyzed, with several WWTP expansion projects in the design or planning stages.

Therefore, this planning level study assumes that the existing plants have or will have in the future, the capacity to accept additional flows from unsewered areas, which will need to be evaluated and verified during design. All existing treatment plants have stated that they are agreeable to receiving additional flows from other areas of the county and are open to performing the necessary capacity expansion of their treatment system.

The excess capacity evaluation of existing treatment plants was not performed at this point since implementation of the projects described in this report would take years before the projects are completed and therefore would not be applicable during the project design and construction phase.

It is anticipated that existing treatment plants requiring upgrades such as an additional lift station or increasing the influent forcemain size to accept additional flows from unsewered communities, would be part of the selected sewer improvements project for both design and construction phase and the required treatment upgrades and/or capacity expansion would be a major component of the same sewer project as well.

4.3 Evaluation of Unsewered Areas

A priority ranking of each of the 15 unsewered communities was developed using a systematic scoring system. The scoring system ultimately had 7 individual evaluation criteria, with a corresponding weighted value. The combination of the evaluation and scoring values assigned to different criteria allowed the development of an overall rank for each area.

The evolution of the evaluation criteria is described below:

4.3.1 Evaluation Criteria

Initial Evaluation Criteria

- Number of Impacted Properties
  - This is an approximate count of the number of properties in each unsewered community. (the more properties the higher the score)
- Proximity to Wastewater Treatment Facility
  - This is an approximate distance measurement to the nearest WWTP. (the closer to the WWTP the higher the score)
- Proximity to Environmentally Sensitive Areas
  - This is an approximate distance measurement to the nearest waterway, wetland, floodplain or other environmentally sensitive area. (the closer to these environmentally sensitive areas, the higher the score; additional environmental consideration are included in this scoring as well)
- Potential Sanitary Sewer Connection Options
  - This looks at pumping versus gravity sewer connections to the existing sanitary sewer collection system/WWTP. (gravity connections are a higher priority and so are assigned the higher score)
- Potential for Regional Improvements
  - This looks at unsewered communities that could potentially be added to another community's sewer project and/or an existing sanitary sewer. (the closer a community is located to another community the higher the score)
- Level of Magnitude Cost
  - This is an approximate planning level cost based on length of pipe, surface restoration and pumping requirements. (a higher score is applied to shorter pipe lengths and smaller construction disruptions)
- Implementation Constraints
  - Factors such as traffic impacts, industrial/commercial property impacts, railroad/roadway impacts and other restrictive items are quantified in this category. (a higher score has little to no implementation constraints)

Criteria that were not Utilized

- Proximity to Sanitary Sewer System
  - This would be a distance measurement to the nearest sanitary sewer; however, without

additional information on the various collection systems it would be difficult to determine the potential to utilize existing infrastructure. Therefore, the distance to the nearest treatment facility was determined to be the more conservative approach.
(the closer to the sanitary sewer system the higher the score)

- Downstream Sewer Capacity
  - A size of pipe versus service area comparison would be performed for the target sanitary sewer connection(s). This will occur for potential connection points identified during preliminary design.
    (the larger the target sanitary sewer size and the smaller the service area the higher the score)
- Average Lot Size and Leachfield Availability
  - This includes the approximate lot size of identified properties; however, additional information would be needed in order to include this evaluation criteria.
    (the smaller the lot size the higher the score; lot size categories are used to score points)
- Future Development/Redevelopment Potential
  - This would be a distance measurement to the nearest development areas and areas where redevelopment could occur. This was not included as county-wide data was not available.
    (this is a subjective criteria, but a higher score reflects that the sanitary sewer infrastructure benefits more than the current unsewered areas)
- Soil Permeability/Quality (high sand/silt, low clay content)
  - Soil survey information could be used for this category and, while this is not indicative of the full soil envelope for a septic system it is the best information that is available; however, it was determined that most areas within the county would score similarly and would therefore not add any value to the scoring matrix.
    (a higher score reflects poor soils for optimal septic system operation)
- Approximate Age of Impacted Structures
  - The approximate age of structures would be documented in this category, which should reflect the approximate age of the septic system; however, maintenance and replacement of septic systems would not be accounted for in this evaluation criteria.
    (a higher score is applied to older homes with a category system likely used for the scoring)
- Groundwater Elevation
  - This would have included information on groundwater level impacts that could negatively impact septic system operations. This would likely only be a minor impact; however, insufficient information was available to include this in the scoring criteria.
    (a lower groundwater table would score higher with categories likely used)
- Private/Public Partnership Potential
  - This would have attempted to evaluate the potential for a joint county-and-property owner funded project; however, that would require additional information from the property owners, which was simply not available at this time. The county could benefit from discussions with property owners after this study is complete to identify areas were a private/public partnership could exist.
    (a higher score is applied to areas where a private/public partnership could be established)

<u>Final Evaluation Criteria</u>

After an analysis was performed, several of the initial evaluation criteria were altered based on the available information, observations in data trends, and distribution of the collected data. For example, the Level of Magnitude Costs are planning level cost estimates; however, comparing the cost of an area with 5 homes to a one with 50 homes is not an equitable comparison and so the costs were normalized using the approximate number of impacted properties. The number of impacted properties was already an evaluation criterion, but the costs need to be normalized for a more meaningful comparison of the data sets. The final set of evaluation criteria are listed here:

a.) Number of Impacted Properties – Approximate count of the number of unsewered properties within each area.
b.) Proximity to Treatment Facility - This is an approximate distance measurement to the nearest WWTP.
c.) Pumping versus Gravity – Preferred sewer routes were identified and pumping requirements determined based on topography and invert of the receiving sewer/WWTP.

d.) Environmental Impact – The approximate distance from the unsewered properties to the nearest natural water feature was identified and additional considerations were included in this criterion including suspected surface discharge of septic systems.
e.) Potential for Regional improvements – Unsewered communities that could either be bundled with another community's sewer project and/or be connected to an existing sanitary sewer system was identified. The higher scores are applied to the smaller communities that would benefit from combining proposed infrastructure improvements with larger communities.
f.) Cost per Property – The approximate cost was determined based on the length of pipe/force main, as well as the need for a pumping station. These costs include excavation, pipe, backfill and surface restoration, but were not broken up into detailed depth classes or surface restoration/backfill categories as that requires finalized alignment determination, which is not available at this stage of the project planning and analysis. A pump station cost of $300,000/$200,000/$100,000 was used (based on the size of community) that includes property acquisition, as well as all construction and equipment of the facility. A 30% contingency was added to the total cost estimates. Facility sizing and pump equipment requirements were not determined at this stage of project planning and analysis. These costs were normalized based on the approximate number of impacted properties so that costs could be compared on a per property basis.
g.) Implementation Constraints – The difficulty of implementing a sanitary sewer collection system was assessed, including unique considerations such as impacts from roadways, railroads, waterways, and other challenges.

4.4 Scoring Criteria

Once the data was compiled into a matrix with 7 categories for each of the 15 evaluated areas, a scoring system was developed to compare the various criteria. A numeric scale was applied to each of these categories so that each column could contribute to a total score for each evaluated area, but also so that different weights could be applied to each criterion. Each of the 7 categories contribute to the overall score of each area; however, a customized scoring system provides a much more accurate and unbiased comparison of each of the evaluated areas. The project scoring system is as follows:

Table 4-2. Scoring Criteria

Parameter	Scoring Scale				
1) Number of Impacted Properties	1	3		5	
	1 - 55 properties	*56 - 85 properties*		*85+ properties*	
2) Proximity to Treatment Facility	1	3		5	
	> 9.0 miles	*4.0 - 9.0 miles*		*< 4.0 miles*	
3) Pumping VS Gravity	1	3		5	
	Pumping required	*Pumping likely*		*Gravity*	
4) Environmental Impact	1	2		3	
	No	*Minimal*		*Significant*	
5) Regional Improvement Opportunities	1	2		3	
	No	*Minimal*		*Significant*	
6) Cost Per Property	1	2	4	7	9
	>$260k per property	*$111k - $260k per property*	*90k - $110k per property*	*<$90k per property*	*<$60k per property*
7) Implementation Constraints	1	2		3	
	*Significant impact**	*Moderate impact**		*Minimal impact**	

* to private property, roads, railroad crossings, waterway crossings, as well as other potential construction difficulties.

4.4.1 Evaluation Matrix

Based on these evaluation criteria the resulting evaluation matrix is shown in Table 4-3. The individual cells have been conditionally formatted to show the top-scoring criteria in green, average scores in yellow, and low scoring criteria in red. Each community was ranked based on the total score across all criteria.

Table 4-3. Final Evaluation Matrix

Service Area	Unsewered Area/Community	Number of Impacted properties	Distance to WWTP	Pumping Required	Environmental Impact	Regional Improvement	Cost per Property	Implementation Constraints	Total Score	Rank
Jasper	Haysville	5	3	1	3	1	9	3	25	1
Patoka	Dubois Crossroads	3	3	1	3	1	4	2	17	2
Huntingburg	St Henry	3	3	1	2	1	4	2	16	3
Jasper	Portersville	3	3	1	2	3	2	2	16	3
Patoka	Kellerville	1	3	1	2	3	2	2	14	5
Huntingburg	Johnsburg	1	3	1	2	3	2	2	14	5
Patoka	Mentor	1	1	1	1	3	4	2	13	7
Jasper	Maltersville	1	3	1	2	1	2	2	12	8
Huntingburg	Duff	1	3	1	2	1	2	2	12	8
Patoka	Thales	1	3	1	2	2	1	2	12	8
Patoka	Cuzco	1	3	1	2	1	1	2	11	11
Patoka	Kyana	1	1	1	1	3	1	2	10	12
Patoka	Crystal	1	1	1	2	2	1	1	9	13
Patoka	Hillham	1	1	1	2	1	1	1	8	14
Jasper	Millersport	1	1	1	2	1	1	1	8	14

The results of this scoring matrix are entirely dependent on the scoring categories, with varying impacts on the overall score. The pumping requirement category has no impact on the overall rankings because all of the communities have the same score, while the number of impacted properties, cost per property and implementation constraints have the greatest impact on the overall scores. The regional improvement category is unique in that not all of the highest scores in this category are at the top of the overall rankings as community size and cost-effectiveness are weighted more than the regional improvement category. This shows that the weight of the category can be manipulated to emphasize certain categories depending on the priorities of the RSD. The real benefit of the regional improvement category is therefore not to identify the top areas, but to separate the scores in the middle. Some of the smaller communities that have lower individual scores are

elevated to a higher rank due to the opportunity to group areas into a larger regional project. The difference between the second highest score and the tenth highest score is only 5 points and so it would benefit the RSD to identify additional regional infrastructure improvements during preliminary engineering, for example Portersville and Haysville appear to be one instance where a regional infrastructure improvement could be designed to serve both communities.

4.5 Recommended Service Area Boundaries for the Regional Sewer District

The goal of this project is to create a new, county-wide RSD to address the needs of those areas in the county currently experiencing septic or sanitary sewer issues. The county currently has six NPDES permitted wastewater treatment facilities. The objective is to determine the best fit service areas surrounding the existing treatment facilities to provide relief to those areas in need of sanitary sewer services. In doing this, dividing the county into three services areas – Patoka, Jasper, and Huntingburg was determined to be the best alternative for the proposed RSD regional service boundaries due to the following:

- The Patoka Service Area, located on the east side of the county, has the potential for future growth and expansion due to the vast network of existing sanitary infrastructure. The service area could accommodate many of the unsewered communities, making the transition to a public sewer system relatively easier and simpler.
- The Jasper Service Area covers the northwest third of the county and is well situated for future growth and expansion due to the location of the Jasper Municipal WWTP. The city has completed a Master Plan to perform capacity upgrades of its treatment facility, which makes it a best-fit district to incorporate additional flows from several medium-sized and high priority unsewered areas such as Haysville, Portersville, and other communities.
- The Huntingburg Sewer District is currently designing an expansion of their treatment facility. The district has already made an agreement with Holland to treat their flows once the capacity upgrades have been completed.

4.5.1 Proposed Service Regions

The following sections describe each service area in detail:

Patoka Service Region

The Patoka Service Region will expand the Patoka Lake Regional Water and Sewer District to cover nearly the entire east half of the county as shown in Figure 2 of Appendix A. This will encompass approximately 182 square miles which accounts for nearly 42% of the entire county. The Patoka Service Region will discharge wastewater to the treatment facility located approximately 2.5 miles southeast of the unincorporated community of Dubois. The existing treatment facility located approximately a mile south of Birdseye will remain in service and will only take additional flows if expansion plans are implemented.

UTILITIES:

Patoka Lake Regional Water and Sewer District provides water and treats wastewater for southern Indiana counties including the communities of Dubois, Celestine, Schnellville, and St Anthony.

Jasper Service Region

The Jasper Service Region will serve the largest volume of customers given the size and population of the City. This service area encompasses nearly 130 square miles, covering 30% of the county as shown in Figure 2 of Appendix A. With only one treatment facility centrally located in the City of Jasper, this facility is easily the largest in the county and will handle the entire northwestern region of the county.

UTILITIES:

The Jasper Municipal Utilities, under control of the Utility Service Board, provides Electric, Water, Natural Gas, and Wastewater services to the City of Jasper and, in some cases, the surrounding area. The list below describes these utilities:

1) Electric Utility - The Electric Utility provides electricity to approximately 5,800 Residential, 1,000 Commercial, 200 Institutional and Governmental, and 100 Industrial customers.
2) Water Utility - The Water Utility, located east of the city consists of two divisions - Treatment and Distribution, which provides potable water to approximately 5,500 Residential, 780 Commercial, 150

Institutional and Governmental, and 100 Industrial customers. Water is drawn from the Patoka River and treated before it enters the distribution system.

3) Natural Gas Utility - The Natural Gas Utility consists of two divisions – Distribution and Administration. The Distribution division provides natural gas to approximately 3,500 Residential, 550 Commercial, 75 Institutional and Governmental, and 55 Industrial customers. The Administration division handles multitudes of Federal and State regulations, as well as public education and safety, and all gas purchasing. Natural gas is purchased from various suppliers and is transported across the Spectra Energy (Texas Eastern) and Trans Canada (ANR) transmission systems.

Huntingburg Service Region

The Huntingburg Service Region will service an area of approximately 120 square miles accounting for 28% of the county as a whole as shown in Figure 2 of Appendix A. This service area utilizes three separate wastewater treatment facilities evenly spread across the service area. The largest of these three wastewater treatment facilities is the Huntingburg WWTP located on the eastern edge of the Huntingburg corporate limits. This facility will serve the majority of customers in the unsewered communities and the entire town of Huntingburg, as it currently does. The Holland treatment facility is located approximately half a mile from the town limits and will remain unchanged. Lastly, the Ferdinand WWTP Service Area will continue to provide treatment at the facility located on the western half of the town.

UTILITIES:

Huntingburg Municipal Utilities is a significant provider of Electric, Water, and Natural Gas services, with a total of 4,200 residential, commercial and industrial customers. The list below describes these utilities:

1) Electric Utility – The Electric Division of the Huntingburg Municipal Utilities provides electric service to over 3,300 accounts within its 16-square-mile service area. This includes most of Huntingburg, St. Henry, the Huntingburg Airport, and other surrounding rural areas. The utility maintains nearly 63 miles of primary and secondary lines, over 630 street lights and 1,100 pole/pad-mounted transformers.
2) Water Utility - The Huntingburg Water Works, located in Huntingburg, IN, provides public services to Huntingburg residents.
3) Gas Utility - The Huntingburg Gas Utility maintains services for over 3,300 accounts.

Service Region Unsewered Communities

As described in the previous section, the distance from each community to the treatment facility was estimated and used as one of the key evaluation criteria to identify and prioritize sewer projects for various unsewered communities. Table 4-4 presents a summary of the approximate distance to the treatment facility grouped based on the three service regions.

Table 4-4. Unsewered Community to WWTP

Unsewered Area	Distance to WWTP (mi)
To Patoka Lake Regional Water and Sewer District	
Thales	8.7
Kellerville	7.0
Dubois Crossroads	5.9
Crystal	9.4
Cuzco	6.7
Hillham	10.4
Mentor	11.0
Kyana	17.0
To Jasper WWTP	
Portersville	8.0
Haysville	9.0
Maltersville	5.4
Millersport	11.2
To Huntingburg WWTP	
Duff	7.4
Johnsburg	6.6

St Henry	8.1

4.5.2 Feasibility Evaluation of Existing WWTPs Operation

Of the existing six wastewater treatment facilities, though all the facilities could potentially continue to operate and treat flows as configured, a few of the smaller WWTPs would have certain limitations as identified and discussed here:

- **Holland WWTP** – This is a sludge lagoon facility and will remain in operation as configured. Due to its small size and type of treatment (lagoon), this facility has limited growth potential and is therefore not feasible for long-term use and future expansion. There have been discussions to connect the Holland WWTP Service Area to the Huntingburg Service Area and abandon the Holland WWTP.
- **Birdseye WWTP** – This is a sludge lagoon facility and will remain in operation as configured. Due to its small size and type of treatment (lagoon), this facility has limited growth potential and is therefore not feasible for long-term use and future expansion.
- **Ferdinand WWTP** – This is a small activated sludge treatment plant and will remain in operation as configured. This facility has limited growth potential and therefore may not be feasible to perform capacity upgrades/expansion for long-term use. There are preliminary plans to construct a new WWTP on the north side of town, just outside the town limits and if that occurs, it could provide an opportunity to bring this WWTP into the RSD long-term plans. Preliminary discussions between Ferdinand and St Henry have occurred that would bring St Henry into the Ferdinand WWTP Service Area (similar discussions between St Henry and Huntingburg have also occurred).
- **Patoka Lake Regional Water & Sewer District/Jasper WWTP/Huntingburg WWTP** – These three facilities will continue to operate and have the potential for future expansion to incorporate additional unsewered communities as discussed above.

The existing sewer districts as shown in Appendix A will not expand to include only the three identified districts of Patoka, Jasper, and Huntingburg. The proposed sewer district boundaries, as shown in the Dubois County RSD Figure in Appendix A, will treat all the flow from the unsewered communities and allow existing WWTP districts to remain unchanged. The RSD will own, operate, and maintain the collection systems in the areas that are outside of each district's legal boundaries.

Chapter 5 SELECTED PLAN

This chapter expands on the prioritization matrix summarized in Chapter 4. Additional analysis is provided for why some communities scored highly and become high priority projects, while other communities scored low. The chapter concludes with both the identification of Early Action Projects (EAPs) as well as recommendations for further implementation once the EAPs are complete.

5.1 Prioritization of Infrastructure Improvements

Based on the evaluation matrix, the top five scoring communities are:

Table 5-1. Top Five Scoring Communities

Service Area	Unsewered Community	Score	Pros	Cons
Jasper	Haysville	25	This is the highest scoring area, a large community and a high priority area for the county.	The county will need to investigate this area further regarding the treatment capacity, possible connection points/nearby sewer etc, before finalizing the RSD project.
Patoka	Dubois Crossroads	17	This is a fairly small community located about 6 miles from Patoka WWTP.	Same as above.
Huntingburg	St Henry	16	This is a fairly small community located about 8 miles from Huntingburg WWTP.	Same as above.
Jasper	Portersville	16	This is a small community located about 8 miles from Jasper WWTP and located 5 miles west of Haysville.	Same as above.
Patoka	Kellerville	14	This is a small community located about 7 miles from Patoka WWTP.	Same as above.

The top five scoring communities are essentially interchangeable for sewer project prioritization. The top-scoring communities typically have the following in common:

- are in close proximity to the treatment system
- are medium to large-sized communities
- can be bundled with another community sewer project/sewer system. This possibility will be considered during the preliminary engineering phase of each sewer design project. During that phase, several feasible alternative solutions will be evaluated and reviewed to identify the potential economic benefits of bundling sewer projects. (For instance, Portersville may be bundled with the Haysville project if feasible, which will be evaluated during the preliminary engineering phase.)

Based on the scoring system, these communities score at the top or nearly at the top in most of the categories, except for pumping requirements (all communities scored poorly in this category).

The difference between a high-scoring community and the lowest scoring community typically comes down to the distance between the community and nearby treatment facility, the number of impacted properties, and project cost. The more basic, straightforward alternatives typically cost less, while the more properties that can benefit from a particular infrastructure project the better. The top-scoring projects have multiple benefits to the local community and county as a whole, while the lowest scoring areas typically represent the most remote areas of the county. The lowest five scoring communities are shown in the table below.

Table 5-2. Bottom Scoring Communities

Service Area	Unsewered Community	Score	Pros	Cons
Patoka	Cuzco	11	Eliminate old private septic systems and provide environmental and public health benefits.	The remoteness of the area coupled with few properties makes connecting to the system very difficult and costly.
Patoka	Kyana	10	Same as above.	Same as above (remoteness and size).
Patoka	Crystal	9	Same as above.	Same as above (remoteness and size).
Patoka	Hillham	8	Same as above.	Same as above (remoteness and size).
Jasper	Millersport	8	Same as above.	This area scored the lowest since it is the least populated and located farthest from Jasper WWTP. (>10 miles)

For several mid and low-scoring communities, combining a couple of small communities that are geographically close to any of the top-scoring regions would be a viable option. For instance, Crystal is a low-scoring community that is located 3.5 miles east of Dubois Crossroads. It would be economical to include this community as part of the Dubois Crossroads sewer project. Similarly, Portersville, Johnsburg, Mentor, and Kyana communities scored high in the potential for regional improvement criterion since they are either situated somewhat close to a top-scoring community and/or located near an existing sanitary sewer system. Therefore, it is recommended that as the RSD decides to proceed with preliminary engineering and design of a specific sewer project, smaller communities located near the selected community be evaluated as part of the preliminary engineering process to determine the feasibility of including one or more nearby communities.

5.2 Early Action Project (EAP) Recommendations

For the initial set of projects, five areas are targeted for improvement. Providing sanitary services to these communities will connect approximately 400 properties (need to be verified during design), or over 50% of the current urban/suburban unsewered properties in the county. These areas, their main selection criteria, and conceptual design conditions are discussed in this Section.

5.2.1 Haysville

Haysville, located northeast of the Jasper WWTP, is a large community with around 150-175 properties in the community. This area received top scores across all criteria except for pumping requirements and just missed the top mark on the distance from the nearest treatment facility. The cost per property is estimated to be around $57,000, which is the lowest cost per property.

5.2.2 Dubois Crossroads

Dubois Crossroads is a community located northwest of the Patoka Lake Regional Water and Sewer District Treatment Facility and is a slightly smaller community with around 75 properties in the region. This area is one of the top-scoring communities by receiving top or nearly top scores in all categories except for pumping requirements. The cost per property is estimated to be around $109,000 which is the second lowest cost per property.

5.2.3 St Henry

St Henry, located west of Ferdinand WWTP, is a medium sized community with over 50 properties in the region. This area scored slightly better than other communities due to its proximity to Huntingburg WWTP, although there may be a possibility to take sanitary flow to the Ferdinand WWTP. The cost per property to connect to the Huntingburg WWTP is estimated to be around $199,000, which is close to many of the top-scoring areas.

5.2.4 Portersville

Portersville, located west of Haysville, is a medium-sized community with over 65 properties in the region. This community scored high in the potential for regional improvement criterion since it is less than 5 miles from Haysville. With Haysville being one of the top priorities of the county, it would be economical to bundle the Portersville project with the Haysville sewer project. The cost per property is estimated to be around $209,000, which could be lowered when grouped with the Haysville project due to the possibility of sharing a forcemain or trunk line to the WWTP.

5.2.5 Kellerville

Kellerville is a community located west of Patoka Lake Regional Water and Sewer District Treatment Facility and is a small community with just under 50 properties in the region. This community also scored high in the potential for regional improvement category since it is relatively close to Dubois Crossroads community. The cost per property is estimated to be around $214,000, which could be lowered when grouped with the Dubois Crossroads project due to the possibility of sharing a forcemain or trunk line to the WWTP.

5.3 Long-Term Project Implementation Strategy

- The EAPs have been selected based on the prioritization matrix combined with the knowledge and history of these areas identified by county staff. The prioritization of project implementation once these initial projects have been completed can then generally follow the prioritization matrix identified in Table 4-3 as funding allows. Deviations from this general progression would typically include:project size and funding considerations as some areas target dozens of properties and include several miles of new sewer, while other smaller projects target fewer properties and are easier to fund and construct
- development plans, proposed roadway improvements, and other infrastructure projects that could coincide with a sanitary sewer infrastructure project
- potential to group several communities into a single regional pumping station and forcemain
- environmental issues, illicit connection identification, or any number of other factors that requires a more immediate response from the county

Of the various factors discussed above, it is possible that providing sanitary sewer connections to the remaining communities (10 communities) may never be feasible regardless of the implementation schedule and funding availability. This is mainly due to several limitations such as rural location, distance from nearby facilities, low population density, and costs. The county's plan for the development of a RSD will therefore have to be a two-pronged approach that involves including most to moderately feasible communities in their overall regionalization plan, while encouraging rehabilitation of old septic systems that are currently being used in the low scoring, more remote communities.

5.4 Suggested Implementation Timeline

A preliminary implementation timeline was developed for the RSD project, following the ranking system developed in Chapter 4 with one sewer project being implemented every other year and is shown in Table 5-3. Since the project schedule for the formation of RSD is dependent on numerous factors such as the county's selection of target communities, funding availability, and prioritization of several potential infrastructure projects, a definite implementation timeline cannot be identified at this point and deviations from the suggested timeline are expected.

Table 5-3. Project Timeline

Projects	Year
Haysville	2023
Dubois Crossroads	2025
St Henry	2027
Portersville	2029
Kellerville	2031
Johnsburg	2033
Mentor	2035
Maltersville	2037
Duff	2039
Thales	2041
Cuzco	2043
Kyana	2045
Crystal	2047
Hillham	2049
Millersport	2051

Chapter 6 – EVALUATION OF ENVIRONMENTAL IMPACTS

Environmental impacts are defined as direct or indirect. Direct impacts are those that result from the implementation, improvement, or maintenance processes. Indirect impacts are those resulting from the completion of the project, such as changes that ultimately have negative effects on the local environment. As sewer projects are designed and implemented, environmental waivers will be requested from the appropriate entities. The following section discusses specific environmental issues related to the proposed sewer projects in accordance with the published guidance documents.

6.1 Disturbed and Undisturbed Land

The sewer projects identified in this study will be located within Dubois County. The Project Area map is included in Appendix A. A topography map showing existing land uses is not available at this point.

6.2 Historic/Architectural Resources

The proposed projects will typically be constructed along county roads and right of ways and on previously disturbed grounds. It is anticipated that no historic, architectural, or archaeological sites will be affected by the project, as all work activities will occur within the county limits. Records of the National Register of Historic Places and Indiana Property Listings of the State and National Registers will be reviewed during the preliminary engineering phase of every sewer project.

6.3 Wetlands

A National Wetlands Inventory Map of the Dubois County is provided in Appendix A. The wetland map for each region will be reviewed and evaluated during the preliminary engineering phase of every sewer project.

6.4 Surface Waters

The proposed sewer projects are not anticipated to adversely affect waters of high quality listed in 327 IAC 2-1-11(b), Natural, Scenic and Recreational Rivers and Streams listed in 312 IAC 7-2, Salmonid Streams listed in 327 IAC 2-1.5-5(a)(3), or waters on the Outstanding Rivers list (Natural Resources Commission Non-Rule Policy Document). Any nearby surface waters for each region will be reviewed and evaluated during the preliminary engineering phase of every sewer project.

6.5 100-Year Floodplains and Floodways

One of the National Flood Insurance Rate Maps (FIRM Panel) of Dubois County is included in Appendix A. 100-year floodplains and floodways for each project region will be reviewed and evaluated during the preliminary engineering phase of every sewer project.

6.6 Ground Water

The proposed projects are not anticipated to impact a drinking water supply or sole source aquifer.

6.7 Plants and Animals

The proposed sewer projects are not anticipated to negatively impact state or federal listed endangered species or their habitat. The projects will be implemented to minimize impact to non-endangered species and their habitat.

6.8 Prime Farmland and Geology

Several of the Unsewered Areas are adjacent to farmland; however, it is anticipated that all sanitary sewer infrastructure will be placed under or immediately adjacent to the roadway and so it is not anticipated that any

of these project areas will involve the conversion of prime agricultural land.

Soil Characteristics
The soil map of Dubois County is included in Appendix A.

Geology
Soil types of every project region will be reviewed during the preliminary phase of every sewer project.

6.9 Air Quality

Dust, fumes, and noise are typical byproducts of the construction process. Wetting the construction surface before and during operation will help minimize negative impacts associated with dust and airborne particulates. The regulation of construction to normal daytime operating hours will minimize the effects of noise and fumes in the area. These impacts are short-term, terminating upon the completion of the construction process. Construction activities should not impact ozone, airborne pollutants, or other current or future air quality concerns.

6.10 Open Space and Recreational Opportunities

The projects are neither anticipated to create nor destroy open space and recreational opportunities.

6.11 Lake Michigan Coast Program

The projects are not located in and are not anticipated to affect the Lake Michigan Coastal Zone.

6.12 National Natural Landmarks

The projects are not anticipated to impact natural national landmarks.

6.13 Secondary Impacts

Dubois County, through the authority of its Council, planning commission, or other means will ensure that future development, as well as future collection system or treatment projects connecting to these facilities, will not adversely impact wetlands, archaeological/historical/structural resources, or other sensitive environmental resources. The county will require new development and treatment works projects to be constructed within the guidelines of the U.S. Fish and Wildlife Service, Indiana Department of Natural Resources, and other environmental review authorities.

Chapter 7 – COST ANALYSIS

The engineer's estimate of probable construction costs presented in this chapter are planning level cost estimates. All costs identified are in 2021 dollars as cost projections would not be possible without a firm implementation schedule. Value engineering measures may be employed as each community enters design. These costs are an attempt to present conservative costs. Funding discussion follows these cost tables.

7.1 Planning Level Opinion of Probable Construction Costs for Early Action Projects

Several cost estimating assumptions were used to develop planning level Opinion of Probable Construction Cost (OPCC) estimates for each area and are described below:

- Construction costs were developed based on preliminary sizing and familiarity with similar project construction costs.
- The linear feet of gravity/forcemain includes all the collection lines throughout the community required to connect existing properties with structures currently on them and the footage from the project area to the WWTP that is expected to treat the flow and not just to boundary limits of the district that will accept the flow.
- The estimated total costs of the project may decrease during preliminary engineering for that specific project due to numerous factors such as – available capacity of the system accepting the flow, and/or any planned capacity expansion projects of the accepting sewer district's that would shorten the length of forcemain or trunkline going from the project area to receiving WWTP as it would allow the use of an existing manhole or lift station of the accepting district's system as a receiving point instead of the WWTP.
- Miscellaneous costs include connection to existing manholes, road cuts and pavement replacement, traffic maintenance, tree removal costs, and manhole and gravity sewer testing costs.
- Project expenses include mobilization/demobilization costs, overhead and profit, and bonds and insurance.
- Total costs include general project expenses, planning level contingency, and design/construction engineering services fees.
- All OPCC estimates were based on 2021 dollars. Projection of future construction costs should take inflation into consideration.

Table 7-1. Preliminary Opinion of Probable Costs – Top Scoring Communities

ITEM #	Description	Quantity	Unit	Unit Price	Total Cost
	Haysville				
1	New Lift Station	1	LS	$300,000	$300,000
2	Gravity Sewer/Forcemain	42,200	LF	$150	$6,330,000
3	Miscellaneous Cost Items	1	LS	$400,000	$400,000
				Project Expenses (17%)	$1,190,000
				Contingency (30%)	$2,110,000
				Design/CES Engineering (15%)	$1,050,000
				Total	**$11,380,000**

	Dubois Crossroads				
1	New Lift Station	1	LS	$100,000	$100,000
2	Gravity Sewer/Forcemain	31,000	LS	$150	$4,650,000
3	Miscellaneous Cost Items	1	LS	$270,000	$270,000
				Project Expenses (17%)	$ 850,000
				Contingency (30%)	$1,510,000

ITEM #	Description	Quantity	Unit	Unit Price	Total Cost
				Design/CES Engineering (15%)	$750,000
				Total	**$8,130,000[1]**

St Henry					
1	New Lift Station	1	LS	$100,000	$100,000
2	Gravity Sewer/Forcemain	42,800	LF	$150	$6,420,000
3	Miscellaneous Cost Items	1	LS	$225,000	$225,000
				Project Expenses (17%)	$1,140,000
				Contingency (30%)	$2,020,000
				Design/CES Engineering (15%)	$1,010,000
				Total	**$10,915,000**

Portersville					
1	New Lift Station	1	LS	$200,000	$200,000
2	Gravity Sewer/Forcemain	47,500	LF	$150	$7,125,000
3	Miscellaneous Cost Items	1	LS	$400,000	$400,000
				Project Expenses (17%)	$ 1,310,000
				Contingency (30%)	$2,320,000
				Design/CES Engineering (15%)	$1,160,000
				Total	**$12,515,000[2]**

Kellerville					
1	New Lift Station	1	LS	$100,000	$100,000
2	Gravity Sewer/Forcemain	37,100	LF	$150	$5,565,000
3	Miscellaneous Cost Items	1	LS	$270,000	$270,000
				Project Expenses (17%)	$1,010,000
				Contingency (30%)	$1,780,000
				Design/CES Engineering (15%)	$890,000
				Total	**$9,615,000[3]**

Total Cost for five top-scoring communities:	**$52,555,000[4]**

Notes:
1. Costs could be reduced by about 50% if connected to existing system at Dubois.
2. Costs could be reduced by about 40% if combined with Haysville.
3. Costs could be reduced by about 70% if combined with Dubois Crossroads.
4. Costs could be as low as $36,754,000 if combined projects are employed.

7.2 Planning Level Opinion of Probable Construction Costs for Remaining Projects

Table 7-2. Preliminary Opinion of Probable Costs for Remaining Projects

Description	Total Cost
Mentor	$14,920,000*
Maltersville	$7,785,000
Duff	$10,140,000*
Johnsburg	$9,075,000*
Thales	$11,875,000*
Cuzco	$9,215,000*
Kyana	$22,420,000*
Hillham	$13,995,000*
Crystal	$12,752,500*
Millersport	$12,315,000*

* Value Engineering opportunities available.

The opinion of probable construction costs for the remaining sanitary sewer infrastructure projects are shown in Table 7-2 and have not been adjusted for inflation as the dates for project implementation are yet to be identified. All costs presented here are in 2021 dollars. The detailed cost estimate tables of the projects are included in Appendix C. These large capital costs are mainly due to the remoteness of the various communities from the existing treatment systems and the need for pumping facilities at these remote locations.

7.3 Life Cycle Cost Considerations and Analysis

Life cycle costing is a method of economic analysis directed at all costs related to constructing, operating, and maintaining a construction project over a defined period of time. This technique can help make decisions within large capital projects based on the time value of money. Life cycle costs are particularly useful for estimating total costs in the early stage of a project.

To make the best use of the county's infrastructure dollars, a life cycle cost estimate (Table 7-3) was prepared comparing two options – Option 1 considered installation of sanitary sewer infrastructure for all 15 unsewered communities and Option 2 considered only the top 5 communities, to determine if the project makes sense over a 20-year planning period. The 20-year present value of top-scoring communities is about a third of the overall cost of providing relief to all the unsewered communities, highlighting that full adoption of a county-wide sanitary sewer collection system is not feasible and that the infrastructure should target the areas that would benefit the most.

The top five sewer projects represent about half of the overall unsewered properties, making this a feasible alternative. The adoption of the county-wide regionalization system (Table 4-3, Option 1 - including all communities) is not feasible mainly due to remote location, topography (that will not allow for a large percentage of the collection system to be gravity), and sparse population of several low scoring areas. For example, Hillham and Millersport are located more than 10 miles from their nearest treatment facilities and their topography will simply not allow their collection system to be gravity, requiring at least one or more pump stations and several thousand feet of forcemains.

Table 7-3. Life Cycle Cost Summary

Description	Option 1 – All communities	Option 2 – Top 5 communities
Capital Costs	$177,047,500	$52,555,000
20-Year Power Costs	$13,723,000	$8,234,000
20-Year Chemical Costs	$7,002,000	$4,201,000
Total	**$197,772,500**	**$64,990,000**

Due to the high overall infrastructure cost and the diminishing rate of return for lower-ranked projects, the top 5 projects are the primary projects to target, but the full implementation may only include one or two more communities before reaching a meaningful target. Once these initial projects are constructed, it would be beneficial to reassess the remaining communities and identify if any beneficial projects remain.

7.4 Preliminary Rate Schedules

This section of the report provides a summary of financial planning, rate setting policies, and an introduction to the general principles, techniques, and economic theory used to set sewer rates.

7.4.1 Background

Sewer systems are essential to public health, business, and quality of life. With everything a properly functioning sewer system delivers – a safe waste disposal method; support for the economy, environment and public health safety; and quality of life; it is easier to compare sewer utility costs with that of other expenditures to get a perspective on what it costs to have these utility services that are often taken for granted.

The American Water Works Association (AWWA) and several other utility associations have documented the quantity of our aging sewer infrastructure and have determined that many communities must significantly increase their investment in repair and rehabilitation of system components to protect public health and safety

and to maintain environmental standards.

As the county moves forward with a RSD, it is integral to perform a preliminary sewer rate study and analysis to determine necessary sewer rate adjustments which would allow the RSD to fully fund and manage their utility operations and maintain infrastructure renewal and operation in a prudent and responsible manner for the three sewer regions (Patoka, Jasper, and Huntingburg).

7.4.2 Rate Setting Principles

The District should consider setting their rates around some generally accepted guidelines. Utility rates should be:

- Cost-based, equitable, and set at a level that meets the utility's full revenue requirement
- Easy to understand and administer
- Designed to conform with generally accepted rate-setting techniques
- Stable in their ability to provide adequate revenues for meeting the utility's financial, operating, and regulatory requirements
- Established at a level that is stable from year-to-year from a customer's perspective

7.4.3 Financial Planning & Rate Setting Policies

The establishment of financial planning and rate-setting policies guide in the financial planning and rate-setting process, and the day-to-day financial management of the District's utilities. The following provides a summary of the recommended financial policies and practices:

1. **Establishing Minimum Operating Reserve Balance** – The District must maintain a cash balance for each utility sufficient to meet the day-to-day cash flow requirements and operating expenses of that utility. A minimum balance equal to 10% to 20% of annual O&M expenses is the District's targeted fund or the equivalent of approximately 55 days of O&M. This provides revenue to maintain adequate levels of service even when cash flows run short or don't exactly track times of increased expenses.
2. **Establishing Minimum Capital Reserve Funds –** Capital reserves are established to fulfill the cash flow requirements of capital infrastructure construction costs, which vary significantly annually, depending on each year's projects and the funding sources available. The District should attempt to maintain a capital reserve approximately equal to one year of renewal/replacement type projects, or a minimum of 5% of capital assets. This allows the utility to plan for renewal and replacement of the infrastructure.
3. **Rate Stabilization and Debt Service Funds** - This is another reserve to meet certain requirements of outside funding agencies. It is must to meet a minimum of debt reserve requirements. Additionally, some revenue should be reserved to provide rate stabilization for future years.
4. **Debt Service Coverage Target Ratio** - The annual debt service coverage ratio (DSC) should be greater than or equal to a minimum 1.25 on all outstanding debt that carries a legal bond covenant. Targeting a higher DSC provides the District with greater flexibility in meeting this rate covenant (legal requirement) should revenues fluctuate from year to year.
5. **Rate Funding Renewal and Replacement Capital Projects –** The funding of on-going renewal and replacement capital projects should primarily be funded from rates. The use of long-term debt issues to fund renewal and replacement projects should be minimized. In order to adequately support this funding method, each utility should budget and fund, at a minimum, an amount equal to or greater than annual depreciation expense. It should be noted that depreciation expense is not the same as replacement cost, but by providing funding at an amount at least equal to annual depreciation expense should provide a steady funding source to help fund replacement capital infrastructure.

7.4.4 Determining Revenue Requirement

The revenue required to fund, operate and maintain the RSD will be based on the expenses incurred by the District. These expenses include:

- Operating Expenses (personnel, office space, equipment, etc.)
- Other Expenses
- Sewer Depreciation Fund
- Capital Projects and Debt Service

These expenses will be the primary costs needed to operate the District. Planning and some adjustments in the early years will be required to determine the actual expenses, but an example rate schedule has been prepared and can be found in Appendix D. The capital project costs are from the previous cost estimates and include a 50% grant to fund these initial projects. These capital projects also assume a 30-year, 2.5% loan to fund the initial construction costs. Other costs are estimates based on established Districts and so initial startup costs will likely exceed these initial estimates. Projected revenues assume an initial rate collection of $2,000,000 in the first year and then a 1% increase in the first 6 years and then 1.5% increase in subsequent years.

7.4.5 Developing Sewer Rates

The final step of any rate study process is the development of rates to collect the desired levels of revenues. In reviewing rate designs, consideration is given to the level of the rates and the structure of the rates.

Rate Design Criteria and Considerations

Several rate design criteria must be considered when setting utility rates as listed below:

- Rates which are easy to understand from the customer's perspective
- Rates which are easy for the utility to administer
- Consideration of the customer's ability to pay
- Continuity, over time, of the rate making philosophy
- Policy considerations (encourage conservation, economic development, etc.)
- Yield the total revenue requirements
- Provide long-term revenue stability
- Promote efficient allocation of the resource
- Equitable and non-discriminatory (cost-based)

It is impossible to achieve all of these rate design goals and objectives in a single rate. Given that, these rate design goals and objectives need to be prioritized in order to be able to achieve the utility's overall rate goals. The District should focus on establishing rates which are cost-based, equitable and generate sufficient revenues from year-year.

7.5 Funding Options

7.5.1 Tax Increment Financing (TIF)

One of the ways to fund a Regional Sewer District Project is by Tax Increment Financing (TIF). TIF is a government finance mechanism for development and redevelopment that captures increases in taxable assessed value within a defined area and then uses property tax revenue derived from these increases to finance public improvements within the specified area. A TIF is a powerful financing tool used to fund economic development and investment in infrastructure. The principle behind TIF is based on "capturing" future increased tax dollars that are generated due to the development.

Basic Process and Types of Eligible Costs
The basic process involved in TIF is as follows:

- Freeze property assessments at pre-development level in a designated area (an "allocation area").
- Issue municipal bonds to finance portion of redevelopment.
- As property values (and assessments) in area increase, use increment in tax revenues to meet debt service on issued bonds.
- All public bodies benefiting from the redevelopment share the costs of public improvements associated with the redevelopment. When the redevelopment costs have been paid, the tax allocation is discontinued and all public bodies enjoy the benefits of increased property tax values.

Bonds payable from TIF may be used to finance the cost of redevelopment and the construction of public improvements in the project area or projects that directly serve or benefit that area. The eligible uses for TIF funds are provided in Indiana Code 36-7-14. The Indiana Code for TIF generally authorizes that TIF funds be

used for:

- Paying expenses of Redevelopment Commissions for the public improvements
- Paying principal and interest on bonds or leases
- Funding roads, streets and sidewalks for access to new development
- Construction of water and sewer lines
- Acquisition of real estate
- Construction of parking facilities
- Implementation of street lighting
- Parks or recreational areas

Procedure for Implementation

Implementation of TIF involves the following:

1) **Creation of Redevelopment Commission** – Any city, town, or county establishes a Department of Redevelopment controlled by a board of five members.
2) **Redevelopment Plan** – Redevelopment Commission prepares a Redevelopment Plan that describes the redevelopment or economic activities to be undertaken and provides information required by statues.
3) **Declaratory Resolution** – On completion of the Redevelopment Plan, the Redevelopment Commission passes a "Declaratory Resolution" which describes the "redevelopment project area" or economic development area and makes this area an allocation area. A "redevelopment project area" must be an "area needing redevelopment", which is defined in IC 36-7-1-3 as an area in which normal development and occupancy are undesirable or impossible because of a number of factors. Note that an economic development area is different from an "area needing redevelopment". The key findings in an "economic development area" relate to the plan. The plan must:
    - Promote significant opportunities for the gainful employment of its citizens
    - Attract a major new business enterprise or retain or expand a significant business enterprise
    - Meet other purposes of IC 36-7-14-2.5, IC 36-7-14-41, and IC 36-7-14-43.
4) **Plan Commission** - The city, town or county then determines by resolution whether the Declaratory Resolution and the Redevelopment Plan submitted by the Redevelopment Commission conform to the plan of development for the community and approves or disapproves them.
5) **Public Hearing -** A public hearing is held and the Confirmatory Resolution is adopted.
6) **Bond Issuance -** A bond issue is structured with the help of a financial advisor who will do a feasibility study of the available tax increment. Additional approval of the legislative body will be required (by resolution) of any financing if the total principal amount exceeds $3 million.

Additional Information

Huntingburg has utilized TIF funds in the past few years and undertaken transformational projects through public-private partnerships that triggered investments by a private developer. These projects include housing, downtown redevelopment, and workforce housing development with plans to fund additional projects over the coming years. The RSD project described in the previous chapters could be funded similary by leveraging TIF funds to transform/convert a few unsewered communities and utilize revenue in an effective way. Note that at the current time the County does not have an active TIF that could contribute to the RSD.

Sources:

https://www.cdfa.net/cdfa/cdfaweb.nsf/ord/f8211ff4e982d89a88257936006787eb/$file/banddtifindiana.pdf
https://boonecounty.in.gov/Offices/Auditor/Abatements-Tifs
http://iga.in.gov/static-documents/9/2/b/5/92b5e9dc/TITLE36_AR7_ch14.pdf
https://aimindiana.org/terminal/tif-plays-big-role-huntingburgs-stellar-transformation/

7.5.2 Indiana Office of Community and Rural Affairs (OCRA) Programs

The Indiana ORCA is a separate agency that works with the local, state, and national partners to provide resources and technical assistance to aid communities. OCRA has a variety of programs, covering four main areas of competencies: Infrastructure, Quality of Plan, Economic Development, and Capacity Building. Of the various programs, RSD projects could be partially funded through OCRA's Community Development Block Grants (CDBG) – Wastewater/Drinking Water Program. This program aims to finance water and sewer

infrastructure for communities and counties that have planned and set priorities for long-term development.

Grant Amount:
Grant amounts for communities constructing new systems will be based on a verified rate study included in a Preliminary Engineering Report (PER) and those of existing systems will be based on the current rates at the time of application. Once the study phase of this project is transitioned into the preliminary engineering phase, a report with a sewer rate study could be performed, which would allow the county to apply for this grant. The maximum grant amounts are based upon user rate information and are shown below:

Table 7-4. CDBG Maximum Grant Amount

Maximum Grant	User Rates[1]		
	>$50	$30-$50	< $30
Total Project Cost > $1 million	$700,000	$600,000	$550,000
Total Project Cost < $1 million	$600,000	$550,000	$500,000

Notes:
1. User rates/4000 gallons are shown.
2. Source information: https://www.in.gov/ocra/cdbg/wastewater-and-drinking-water-program/

7.5.3 American Rescue Plan Act (ARPA)

The ARPA is another potential funding opportunity for the county. This program is designed to provide relief to families, workers, businesses and governments impacted by the COVID-19 public health emergency. The Coronavirus Local Fiscal Relief Funds, or CLFRF, are a product of ARPA and define the $1.28 billion given to Indiana's communities. CLFRF are delivered to cities and counties directly and to non-entitlement units by way of the State in two tranches: the first was allocated in May, and the second will be delivered in Spring 2022. The four broad categories of eligible expenditures include:

- To respond to the public health emergency and its economic impacts;
- To replace lost government revenue, to the extent attributable to the pandemic;
- To respond to workers performing essential work; and
- To invest in water, sewer, and broadband infrastructure.

Dubois County was awarded over $8 million through this program, of which $6 million has been earmarked for the RSD project.

7.5.4 Indiana State Water Infrastructure Fund (SWIF)

The SWIF program is a new funding program that receives $100 million of federal Coronavirus State and Local Fiscal Recovery funds via Indiana Finance Authority (IFA) to provide grant funding to Indiana utilities for wastewater, drinking water and stormwater projects that protect/improve public health or water quality. The main goal of this program is to finance projects that protect public health, satisfy a regional solution, and provide substantial rate relief to Indiana utility customers most in need. The funds are provided in the form of co-funded grants to communities. ARPA funds or State Revolving funds may be used to co-fund an awarded SWIF grant.

Project funding (for the current state fiscal year) was prioritized for communities with:

- An estimated user rate above:
  - >$100.00 for wastewater only
  - >$70.00 for drinking water only
  - >$15.00 for stormwater only
- A low to moderate median household income
- A moderate to high level of co-funding, and
- Projects that address regional needs.

The county applied for Round 1 - SWIF grant; however, the proposed project was not selected for funding as

preliminary report/study was not completed during that time. The county will apply for Round 2 – SWIF grant program. Based on the evaluations from Round 1, the RSD should be considered one of the high priority projects for Round 2 funding.

7.5.5 Indiana State Revolving Fund (SRF)

The State Revolving Fund (SRF) Loan Programs provide low-interest loans to Indiana communities for projects that improve wastewater and drinking water infrastructure. The mission of the program is to provide eligible entities with the lowest interest rates possible on the financing of such projects while protecting public health and the environment. Funds are also available for the costs associated with non-point source water pollution abatement projects, such as wetland restoration/protection, erosion control measures, stormwater projects that improve water quality practices, and wellhead and source protection measures. Additional subsidization in the form of principal forgiveness is offered for certain projects. The criteria used for assessing whether a community or project qualifies for principal forgiveness is based on several factors including but not limited to the following: median household income, user rates, unemployment data, population trends. Projects that involve regionalization are often prioritized for principal forgiveness.

Eligible Entities:
Incorporated cities, towns, counties, regional sewer/water districts, conservancy districts, and water authorities are eligible for both Drinking Water SRF and Wastewater SRF.

Grant Amount:
SRF loans are typically fixed-rate 20-year loans, however in cases where the lifespan of the infrastructure exceeds 20 years, 35-year loan terms are available. The interest rate is determined based upon the calendar quarter in which the loan is closed. Interest rates are adjusted quarterly and discounted based upon the applicant's median household income and local user rates.

Loan Process
The Loan program uses many guidance documents and forms as listed below and can be downloaded from https://www.in.gov/ifa/srf/applications-guidance-and-documents/.

- SRF Process
- Asset Management Program Documents
- Preliminary Engineering Report (PER) Documents
- Environmental and Financial Guidance
- Bidding and Contracts, Documents required for Disbursement, Construction and to Obtain Federal Funding
- Disadvantaged Business Enterprise (DBE) Rule, Guidance and Documents
- Request for Disbursement
- Davis-Bacon Wage requirements
- Green Project Reserve (GPR) Sustainability Incentive
- American Iron and Steel Requirements (AIS)

The county received a $30,000 grant through the SRF program in 2020 to assist with the cost of the feasibility study and they intend to apply for funding through the SRF program next year for the first early action project.

7.5.6 Indiana Regional Economic Acceleration and Development Initiative (READI)

READI, launched by the state, is a transformational initiative that dedicates $500 million in state appropriations to promote strategic investments that will make Indiana a magnet for talent and economic growth. To qualify for funding, the regions are required to develop data-driven, actionable and sustainable development plans that outline strategies focused on improving the quality of place, quality of life and quality of opportunity within their communities. Indiana Economic Development Corporation (IDEC) will award up to $50 million per region to implement the goals of the regional development plans and projects that will catalyze economic development and population growth.

The county submitted a joint application with the City of Jasper for READI funds this year and is awaiting the results of the application. This application included the county's first early action project, Haysville sewer

collection system, as well as improvements to the northside of the City of Jasper's sewer system in order for them to accommodate the wastewater flow from the Haysville area.

7.5.7 Clean Water Act Grants

The Office of Water Quality manages two federal pass-through grant programs aimed at improving water quality in the state: Section 205 (j) and Section 319 (h) as described below:

1. Section 205 (j) grants

Section 205(j) grants are for water quality management planning to determine the nature, extent and causes of point and non-point source pollution problems, as well as develop plans to resolve these problems. The act states that the grants must be used for water quality management and planning, including, but not limited:

- Identifying most cost effective and locally acceptable facility and non-point source measures to meet and maintain water quality standards;
- Developing an implementation plan to obtain state and local financial and regulatory commitments to implement measures developed under subparagraph A;
- Determining the nature, extent, and cause of water quality problems in various areas of the state.

ELIGIBLE ENTITIES

Municipal governments, county governments, regional planning commissions, and other public organizations.

ELIGIBLE PROJECTS

Eligibility for 205 (j) grants are listed below:

- Project must be sponsored by: municipal governments; county governments; regional planning commissions; or other government agencies.
- Projects must be working on water quality management planning and design.
- Traditionally, local watershed projects have been funded up to $80,000, but statewide or larger scale projects may be funded.
- Projects are usually one to two years in length.
- Projects that are primarily to meet permit requirements, enforcement action or agreed orders are not eligible for funding.

PROJECT PRIORITIES

The following are two priorities for 205 (j) grants:

- Projects Developing a Watershed Management Plan
- Plans to Protect and Restore Ecosystems Critical to Water Quality

GRANT AMOUNT & CYCLE:

The amount varies, averages $350,000 annually. There is one application round every year.

ADDITIONAL INFORMATION

For detailed information on funding, project execution, subcontracting, refer to *Section 205 (j) Project Management Guidance*: https://www.in.gov/idem/nps/funding/clean-water-act-section-205j-grants/section-205j-project-management-guidance/

2. Section 319 (h) grants

Section 319(h) grants are for projects that reduce documented non-point source water quality impairments. Funds may be available to develop and implement Total Maximum Daily Loads (TMDLs) and watershed management plans, provide technical assistance, demonstrate new technology, conduct assessments, and provide education and outreach.

ELIGIBLE ENTITIES

Nonprofit organizations, universities, and local, state, and federal governmental agencies.

Eligible Projects

Projects are normally two to three years long and work to reduce nonpoint source pollution and improve water quality in the watershed primarily through:

- Education and outreach designed to bring about behavioral changes and best management practice (BMP) implementation that leads to reduced nonpoint source pollution;
- The development of watershed management plans that meet U.S. EPA's required nine elements; and,
- The implementation of watershed management plans through a cost-share program focusing on BMP implementation that address water quality concerns.

Grant amount & Cycle:

A total of $4,000,000 is available annually. Grants are for 60% of project costs and a 40% matching contribution is required. Federal funds cannot be used for matching. There is one application round every year.

Additional information

Detailed information related to this grant can be found at: https://www.in.gov/idem/nps/funding/clean-water-act-section-319h-grants/

Chapter 8 REGIONAL SEWER DISTRICT

8.1 Types of Sewer District

There are five main types of districts. The selection of the type of district depends on the needs of the community. Few districts are governmental and are formed by filing a petition or working through local Circuit Court. Few are private for-profit utilities, while others are public not-for-profit utilities. The following section provides a summary of the various types of districts and the authority associated with them.

1. **Regional Sewer, Water, and Solid Waste (Trash) District (IC 13-26)** - The purpose of this district is limited to sewage collection and treatment, water supply, and solid waste disposal (task is limited to the type of regional district chosen). The district has the option to manage individual septic systems within the boundary and charge a fee to maintain the septic system. It is created by the Indiana Department of Environmental Management (IDEM) by submitting a petition to the Commissioner of IDEM. It is governed by a Board of Trustees and considered municipal cooperation. The district does not have the power to require connection to a water system. It does not have to be land contagious. A public hearing and reasonable notification through local newspaper is required prior to the formation of the district.
2. **Private, For-Profit Utility (IC 8-1-2) -** This type of district is not eligible for federal grants/loans, although some water district may qualify for loans.
3. **Septic Maintenance District (IC 13-26, IC 36-11)** – This district allows smaller communities to ensure that their wastewater is being effectively treated. The entire community is registered and pays a fee for their septic tank to be serviced through this program. The district can be established by forming a regional sewer district through IDEM.
4. **Conservancy District (IC 14-33)** – The main purpose of this type of district is one or more of the following: flood prevention; drainage improvement; irrigation; water supply; sewage collection and treatment; establishment of forests, parks, and wildlife area; erosion control; storage of water for augmentation of stream flow; operation and maintenance and improvement of any existing work for water-based recreation purposes. It is a special taxing district that generates revenue from taxes and assessments on property within the district. It is formed by Circuit Court (51% of residents or owners of 2/3 assessed valuation can protest to court and conservancy district will not be granted). The district is created by submitting a petition through the Indiana Department of Natural Resources (IDNR) and is governed by an elected Board of Directors. It can require hook-up of properties within 300 feet of a sewer main and has to be land-contagious.
5. **Public, Nonprofit Utility (IC 8-1-2) –** This type of district is formed by a Certificate of Territorial Authority (CTA) issued by the Indiana Utility Regulatory Commission (IURC). The district is regulated by IURC but has the option to opt-out of jurisdiction. Even if the utility opts out of IURC jurisdiction, it still must be audited by the State Board of Accounts every two years and abide by IC 8 when raising rates. It has no authority to impose a tax or assessment, user rates and charges are only applicable.

8.2 Regional District

A regional district is a local form of government created to deal with a specific problem regarding water, sewer or trash. There are different types of regional districts. Water, solid waste and sewer districts are formed to handle drinking water, solid waste (trash) and wastewater infrastructure needs. Of the four types of districts, Regional Sewer District is the preferred choice for this project as it would provide sewer collection and wastewater treatment to the unsewered communities and/or those with failing septic systems in a feasible way as well as due to the reasons described in the sections below. The following sections discuss the purpose and benefits of RSD, key planning considerations, and the steps involved in the establishment of the same.

8.2.1 Purpose of Regional Sewer District

The primary purpose for forming a Regional Sewer District is to provide sewer collection and treatment services in an economical way for underserved communities. In some instances, smaller communities and rural areas with septic systems either may not have the ability to build the necessary infrastructure, or they cannot afford the cost of providing services. Forming a regional sewer district will address concerns regarding costs

and availability of services for citizens and the community, while assigning management duties to the district. Once a district is formed, it will have the responsibility for providing oversight and management of the sanitary sewer system infrastructure. In addition, districts are eligible for low-interest rate loans and grants which may not be available to private utilities. This means that taxpayers can potentially save hundreds of thousands of dollars over a period of time. Regional sewer districts are local forms of government established to address these specific concerns and manage the infrastructure of sanitary sewer systems. Districts are established to ensure these services are available to citizens who do not have public systems, such as those with private septic systems. *Indiana code IC 13-26* regulates the formation and operation of regional districts.

8.2.2 Benefits of Regional Sewer District

From an economic standpoint, the estimated capital cost per property for mid/low scoring unsewered communities as discussed in Chapter 7 is significantly higher than what is considered feasible by the existing sewer districts policies for a valid expansion project. The existing districts also lack the regional coverage to be considered a priority for several of the grant programs. In order for sewer service to these rural areas to be economically feasible, a significant portion of the capital improvements costs will need to be funded through grants. Therefore, the county would benefit from developing a comprehensive RSD to address the unserved and underserved areas in the county. In addition, the formation of a RSD would have the following advantages as listed below:

- The majority of the houses in the unsewered communities (such as Haysville) will be condemned eventually if a public sewer option is not provided.
- The county would have a better chance of getting most costs for the initial infrastructure covered by grants so that the sewer projects would be feasible without having to set the user rates too high.

8.2.3 Planning Considerations

- A comprehensive District (County-wide) study/plan (Preliminary Engineering Report - PER) for the optimal way to service all areas within the district over time based on the existing facilities available, required upgrades, and or additional infrastructure is required.
- This can include an income study (to assist with potential funding options), public polling (to assess the public needs and desires), public informational meetings (discuss the health and property value benefits), etc.
- Additional items to include in PER:
  - Cost estimates for needed infrastructure
  - Evaluation of operation and maintenance cost for the District and its facilities
  - Customer Rate Structure to cover initial investment, continued maintenance, and operations
  - Funding options
  - Future growth
  - Recommendations for how to economically serve unserved areas (collection system type, layout, and schematic)
  - Assessment of the existing treatment capacity
  - Proposed types of treatment options for additional load

8.3 Formation of Regional Sewer District

The following bulleted list summarizes the establishment of a Regional district. The district establishment is regulated by *IC Section 13-26-2 Chapter 2 – Establishment of Regional Districts.*

1) File a petition with IDEM - To form a district, the community must obtain signatures for the petition to incorporate from a political entity such as a township trustee and advisory board or county council. A petition to establish a district must state the following:
   - The proposed name, purpose, and need for the district
   - How the district will be conducive to public health, safety, convenience, or welfare
   - Description of the territory to be included in the district
   - The plan for financing the cost of the operations of district
   - Estimate of the cost of accomplishing purpose; costs of O&M; funding sources; rates and

charges; median income for households in the proposed district
    - A summary of alternatives to creating the district.
2) The petition must be authorized or approved by the governing body of the political entity, for example the county council or board of commissioners of the county filing for the district.
3) In filling the petition:
    - A resolution is needed from every county or legal entity (in the case of multiple towns) which may be included in the regional or county-wide district;
    - Sewer district boundaries;
    - A feasibility study or PER should be attached.
4) To accelerate the process, county officials should communicate regularly with the Indiana Regional Sewer District Association (IRSDA) prior to submitting your petition to the IDEM District Coordinator.
5) Within the petition, designate one person as the authorized party to act as a contact person for the District Coordinator.
6) After reviewing the petition, IDEM will hold a public hearing.
7) Citizens in the proposed service area may comment to IDEM about the proposed district in writing or at the public hearing.
8) IDEM will work to address citizen concerns and questions.
9) After thoroughly reviewing the petition and citizen comments, IDEM's Commissioner will determine whether or not to sign an order forming the regional district. If the commissioner determines that the findings show that the establishment of a recommended district:
    - complies with the conditions of *IC 13-26-2 Establishment of a District* and
    - appears capable of accomplishing the purpose or purposes in an economically feasible manner;

    the commissioner shall issue an order directing that the district be established as an independent municipal corporation with a name and for the purposes designated in the order.
10) If IDEM signs an order, it will publish a notice of decision in local newspaper and mail a notice to any citizen(s) who have requested it in writing. IDEM will also post this information on its website.
11) Once the district had been formed, the district plan usually will be submitted to IDEM within **nine months** of formation. The deadline for submittal of the district plan will be included in the Recommended Order.

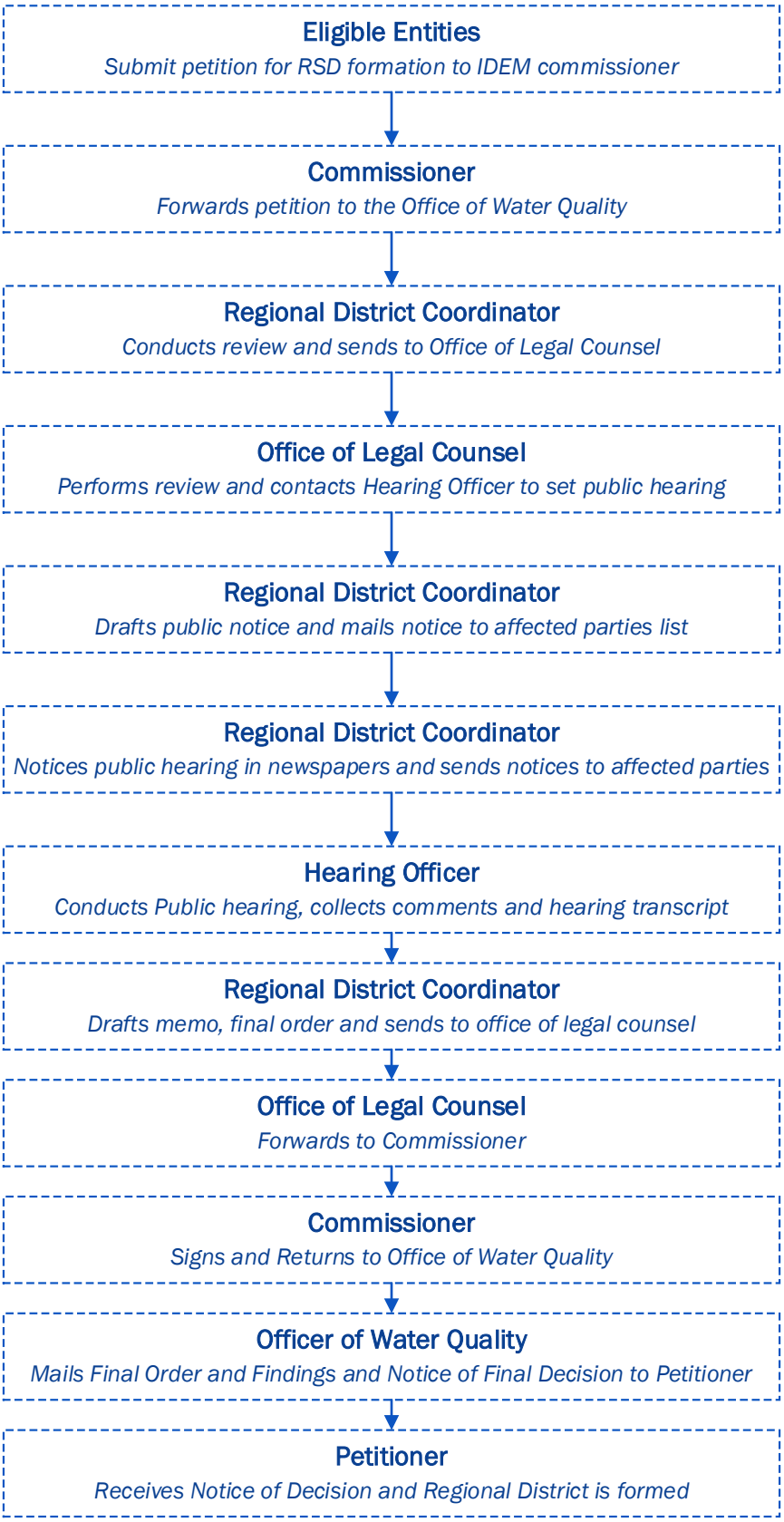


Figure 8-1 Regional District Formation Process

8.3.1 Formation of District Board

The board is a critical component of a RSD as it directs the district; forms a plan; establishes mission, vision, and values; can fire and hire the staff; and is ultimately legally responsible for all decisions.

General Considerations

There are several ways for forming the Regional Sewer District Board. Below are some things to consider in that process:

- The Board can be comprised of a representative from each stakeholder community.
- The communities that previously held major assets (i.e., treatment facilities) can hold 2 positions on the board. (1 to represent the general community and 1 additional to account for the asset or contribution to the district)
- Board members can be appointed by governmental entities or elected by eligible voters within the district boundaries.
- Recommend number of Board members - 3, 5, 7, 9, 11, or 13 members. Basically, it should be an odd number board with a minimum of 3 and recommended maximum of 13, but technically there is no limit.
- Each board member should be given a general job description and a defined list of expected responsibilities for each officer.
- Board formation is regulated by IC 13-26-4.
- Board shall write and approve the District by-laws and mission statement.

Requirements of RSD Board

The following section discusses the requirements of Regional District Board per *Indiana Code (Sections 13-26-4-1 through 13-26-4-8) Chapter 4 Board of Trustees of Regional Districts*:

- **Members**: The board of trustees of district may consist of: three, five, seven, nine, eleven, or thirteen trustees.
- **Elections:** Board members can be elected by the voters in the district or wards. Elections must be in accordance with IC 3, with the Commissioner or the Commissioner's designees performing the functions of the election officials.
- **Appointments**: In lieu of electing the board, members can be appointed to the board by the elected executive or legislative officers of the eligible entities having territory in the district.
- **Public Meetings or Hearings:**
    a) When the board of a district conducts a public hearing or meeting, the board shall allow any person an opportunity to be heard:
        - In the presence of others who are present to testify; and
        - In accordance with subsection (b)
    b) The board may limit testimony at a public hearing or meeting to a reasonable time stated at the opening of the public hearing or meeting.

Plan for Dubois County RSD Board

The Dubois County RSD Board will consist of seven voting members as listed below:

- 1 Commisioner (appointed by the Commissioners)
- 1 Council Member (appointed by the Council Members)
- The county health department director or representative appointed by the county health department director
- 1 RSD user representative from the Northeast District[1] (appointed by the Council Members)
- 1 RSD user representative from the Southeast District (appointed by the Commissioners)
- 1 RSD user representative from the Southwest District (appointed by the Council Members)
- 1 RSD user representative from the Greater Jasper District (appointed by the Commissioners)

[1] The "districts" listed i.e. northeast, southeast, etc. refer to the county public school district lines and the intent is that the representative from each area will be someone that lives in that school district but outside of any of the existing sewer district legal boundaries, so that they are direct stakeholders in the RSD as future users. Additionally, the four treatment districts listed will only be included if they have an interlocal agreement with the RSD for current or future treatment of sewage flow from the RSD.

The Board will also consist of up to 5 non-voting members:

- County Engineer
- And 1 respresentative from each of the potential treatment districts (Jasper, Huntingburg, Patoka, Ferdinand) appointed by their respective sewer boards.

8.3.2 Preliminary Responsibilities of Board

There are two tasks that the new board should perform: write by-laws and mission statement. Firstly, the board should write and approve by-laws. By-laws outline the rules for the board and the organization. Secondly, the board should write a mission statement, explaining why the district exists and what they seek to do. Mission statements provide direction to board members.

Legal functions of Board

The following list summarizes a few of the main legally required functions for a board. Note that this list is not all-inclusive.

- Ensure that the utility complies with all applicable federal, state, and local laws and ordinances.
- Conduct business only as a board. Any decision must be made by the board as a whole and is therefore legally binding.
- Avoid conflicts of interest or even the appearance of conflict. Board members with fiduciary interests in a company doing business with the utility should abstain from voting on issues related to these businesses. A conflict-of-interest form should also be filed with the utility clerk and kept on file.
- Ensure that the utility receives, records, and expends funds in accordance with acceptable accounting, purchasing, and record-keeping standards, and that all records are made available according to state and federal law.
- Ensure that revenues cover operations, plus debt service and reserves. Rate review should be part of the periodic utility review process. Utilities need to function as a business and as such require strategic planning to ensure utility operations are maintained and that customers are satisfied.
- Board members must direct all operations.
- Board members have a legal responsibility to protect utility assets.
- Board members must validate all major contracts.
- Members should attend all board meetings.
- Duty of Care - A legal relationship arising from a standard of care, violation of which subjects the actor to liability.
- Duty of Obedience - The duty of obedience requires officers and directors to perform their duties in accordance with applicable statutes, and with the association's articles of incorporation, by-laws and policies.
- Duty of Loyalty - A person's duty not to engage in self-dealings or otherwise use his or her position to further personal interests rather than those of the beneficiary.

8.4 RSD Infrastructure and Operations

8.4.1 District Responsibilities

The Sewer District may have the following responsibilities:

- Construction and installation oversight;
- Routine inspection and maintenance of all systems (collection and treatment);
- Management and regulation of septic handling and disposal;
- Administrative functions (e.g. bookkeeping, public education, billing);
- Authority to set rates, collect fees, levy taxes, acquire debt, issue bonds, make purchases;
- Authority to obtain easements for access to property, enforce regulations, require repairs; and,
- Record keeping and asset database maintenance.

Additional Tasks:

The Sewer District may require if desired:

- That all structures (homes/businesses) within the district boundaries connect to the system

- May chose to grandfather in any "properly" functioning existing septic tanks until they no longer function properly
- May charge a "hook-up" fee to help fund the cost of new infrastructure
- Require "hook-up" only to properties that are within 300 feet of a service line[2]

8.4.2 Options for Handling Treatment Facilities and Collection Systems

There are many different structures for setting up a Regional Sewer District. For the most part, it can be as comprehensive or as nominal as the stakeholders choose. The following are some general options:

Options for Treatment Facilities for the District

- District may purchase the existing treatment facilities from the stakeholders within the region that currently have WWTP. Allowing the District to own and operate its treatment facilities and requiring the District to be responsible for any required upgrades, maintenance, and reporting.
- District may lease the existing treatment facilities from the stakeholders within the region that currently have a WWTP. The lease agreement would include negotiated responsibilities as agreed by both parties.
- District may construct new treatment facilities in areas that are currently not covered by other systems. This option would most likely need to be inclusive of also either purchasing or lease the existing facilities in order to make it economical to serve the more rural locations.

Options for Collection System for the District

- District may purchase the existing collection system assets from the stakeholders within the region that currently have such infrastructure. Requiring the District to maintain and upgrade the collection system as required. This simplifies the billing and rate structures. The District will directly bill the property owners for collection and treatment.
- Each community may retain ownership of their collection system and therefore also the responsibility to maintain and upgrade it when required. In this case, generally there is a master meter for each community and the community pays the District for treatment only on a monthly basis per 1000-gal of wastewater. The community would still handle the individual billing and receipts from their residence for the collection and treatment cost. (homeowner is billed by community for collection and treatment whereas community is billed by district for treatment) In this case it is imperative that the proposed rate schedule for property owners take into account both the cost the community will pay the district for treatment and the cost to maintain the collection system. It is important in this scenario that the collection system be in good condition or perform a rehabilitation project for the collection system PRIOR to/or CONCURRENT with the District development.
- District may construct new treatment facilities in areas that are currently not covered by other systems. This option would most likely need to be inclusive of also either purchasing or lease the existing facilities in order to make it economical to serve the more rural locations.
- District may construct new collection systems in areas that are currently not covered by other systems.

8.4.3 Interlocal Agreements

An Interlocal Agreement sets forth the roles and responsibilities of the participating local governments. It details the "who," "what," "when" and "where" of the service or activity to be undertaken and provided. Intergovernmental Agreements and Contracts are regulated by *Indiana Code – Title 36 – Article 1- Chapter 7 Interlocal Cooperation*. Once the formation of District is approved by IDEM, it is required to negotiate with local governing bodies and draft an Interlocal Agreement. The following is a generalized outline of elements that might be reflected in an Interlocal Agreement.

- **Nature of the arrangement:** description of parties involved, explanation of need for agreement, citation of legal authority, definition of terms

[2] The Dubois County RSD will initially grant "grandfather" status to any property that has a permitted and functioning septic system that meets EPA regulations. Those properties will not be required to "hook-up" to the collection system unless their current septic system fails or the structure on the property is expanded or significantly renovated.

- **Exact nature of extent of services to be performed**: measurable performance standards, specific assignment of responsibility
- **Service charges**: start-up and in-kind contributions, salaries and employee benefits, depreciation of equipment, overhead, office supplies, clerical work (support services), capital expenditures, cost modification procedures
- **Administration**: unit responsible for services, control over responsible units, citizen inquiries and insight into future changes in the agreement and complaint resolution, addition of new participants, liability issues and responsibility
- **Fiscal procedures:** budgets, including distribution of revenues; manner and time of payments, maintenance of reports and records
- **Staff and personnel:** procedures, terms, utilization of personnel, safeguards for civil service rights, privileges, immunities and fringe benefits
- **Property arrangements** – use, control, and maintenance of facilities
- **Monitoring and evaluation** – evaluation of schedule duration, termination and amendment, arbitration, question resolution.

Benefits of Interlocal Agreements

Interlocal agreements are principally designed to allow communities to coordinate utility service planning and take advantage of the economies of scale available to larger water and wastewater treatment systems. They allow smaller communities to obtain services that well beyond their capital expenditure capabilities. This is of particular importance when grants and low interest loans for infrastructure development are scarce.

The various benefits and values to the contracting parties of the interlocal agreement are:

- Smaller communities can gain access to the infrastructure of the larger community
- Benefits larger community as large treatment systems are easier to run and keep within permit limits, lowers unit cost for treatment/production, benefits and capital expenditures are easily justified as the service area is large
- Fixed or definable costs for the period of the Interlocal Agreement for smaller communities
- Every community benefits from the growth of infrastructure within its boundaries
- Allows combining staffing necessary for two treatment systems due to increase size of service area
- Eliminates the differences in rates for utility services and avoids misallocation of resources between communities

8.4.4 District Operations

The District must maintain an office space and/or maintenance facility with at least four full-time staff – Supervisor, Field Service Manager, Office Administrator, District Engineer, and Field Technician to handle everyday operations, administrative functions, and various responsibilities. The supervisor is full-time position with responsibilities that may vary depending on the circumstances. The major responsibilities assigned to this role include but are not limited to:

- Attend meetings and prepare reports on the status of the District and summary of any issues or problems
- Communicate with customers and respond to concerns, comments, issues, and complaints
- Managing staff employed by the District as well as any contract employees
- Supervising and overseeing all work done by or for the District related to financial and accounting
- Supervising and overseeing all work done by for the District related to technical or engineering matters
- Overseeing and managing the work being performed for the District pursuant to any Professional Services Contract

8.4.5 Billing System

Rates and Charges

The following section summarizes the factors involved in the determination of sewage works rates and charges per *Indiana Code Section 13-26-11-2 Sewage Works.*

1) Flat charge for each connection: If flat charge is used as a factor, then the board must prepare a written statement that summarizes the calculations and processes used to determine the amount of

the flat change and provide a copy of the statement to each person who is required to pay the rate and request a copy of the summary
2) The amount, strength, or character of sewage discharged into the sewer
3) The size of sewer connections and whether the property served has been or will be required to pay separately for the cost of any of the facilities.

Note that the rates and charges for services of a water, sewer, or solid waste disposal or recovery system do not have to be uniform throughout the district or for all users. Per IC Section 13-26-11-4, the board may exercise reasonable discretion in:

1) adopting different schedules of rates and charges; or
2) making classifications in schedules of rates and charges – based upon variations in the costs of furnishing the services including capital expenditures required, to various users, or to various locations in the districts or variation in number of users in various locations.

Chapter 9 LEGAL, FINANCIAL AND MANAGERIAL CAPABILITIES

9.1 Management Resolutions

Resolutions from Dubois County Board for an Authorized Representative and PER Acceptance can be found in Appendix __. Note that this Appendix will be included as part of the report once the resolutions and PER acceptance are presented and approved.

9.2 SRF Project Financing Information

SRF Project Financing Information relating to each sewer project will be prepared during the preliminary engineering phase. Draft SRF Project Financing Information for Haysville Sewer Project is given below:

SRF Project Financing Information

1.	Project Cost Summary	
a.	Collection/transport system cost	$ 7,030, 000
b.	Treatment system cost (Equipment Purchase)	$_____
c.	Non-Point source (NPS) cost	$_____
	Subtotal Construction Cost	$_____
d.	Capacity Reservation Fees	$_____
e.	Contingencies[3] (should not exceed 10% of construction costs)	$ 2, 110,000
f.	Non-construction costs e.g., engineering/design services, field exploration studies, project management & construction inspection, legal & administrative services, land costs (including capitalized costs of leased lands, ROWs, and easements), start-up costs (i.e., O & M manual, operator training)	$ 2,240,000
g.	**Total Project Cost** (lines a+b+c+d+e+f)	$ 11,380, 000
h.	Total ineligible SRF costs (Total ineligible SRF costs will not be covered by the SRF loan.)	$_____
i.	Other funding sources (list other grant/loan sources and amounts)	
(1)	Local Funds (hook-on fees, connection fees, capacity fees etc.)	$_____
(2)	Cash-on-hand	$_____
(3)	Indiana DOC Community Focus Fund (CFF)	$_____
(4)	US Dept. of Agriculture Rural Development (RD)	$_____
(5)	Other	$_____
	Total Other Funding Sources	$_____
2.	**SRF Loan Amount** (line g minus line item h)	$_____
3.	Financial Advisor	
a.	Firm	_____
b.	Name	_____
c.	Phone Number	_____
4.	Bond Counsel	

[3] A 30% contingency is assumed for planning level purposes and will be reduced to 10% during the preliminary engineering phase of each project.

a. Firm Contact _____
b. Name _____
c. Phone Number _____

The following costs are *not eligible* for SRF Reimbursement:

1. Land Cost (*unless it's for sludge application*) $ 0

   Only the actual cost of the land is **not eligible**; associated costs (such as attorney's fees, site title opinion and the like) **are eligible**.

2. Materials and work done on private property $ 0
   (*Installation/repair of laterals, including disconnection of inflow into laterals; abandonment of on-site systems {septic tank or mound systems}).* Grinder pumps, vacuum stations and other appurtenances/installations on private property to treat/transport ARE fundable IF owned and maintained by the participant.

3. Grant applications and income surveys done for other agencies (e.g., OCRA, RUS, etc.). $ 0

4. Any project solely designed to promote economic development and growth is ineligible.

5. Costs incurred for preparing NPDES permit applications and other tasks unrelated to the SRF Project. $ 0

6. Cleaning of equipment, such as digesters, sand filters, grit tanks and settling tanks. These items should have been maintained through routine operation, maintenance and replacement by the political subdivision. Sewer cleaning is **ineligible** for SRF *unless* the cleaning is required for sewer rehabilitation such as slip-lining and cured in place piping (CIPP). $ 0

9.3 Land Acquisition Schedules

Land acquisition is not anticipated to be required as part of any sewer projects. The projects will be located within the Dubois County boundaries. This requirement will be further reviewed and evaluated during the preliminary engineering phase of every sewer project.

9.4 Inter-Local Governmental Agreement

The treatment facilities of three cities – City of Jasper, City of Huntingburg, and Patoka Lake Regional Water and Sewer District will be utilized for the formation of Regional Sewer District. Three interlocal governmental agreements will therefore be required and prepared during the preliminary engineering phase.

9.5 Fiscal Sustainability Plan

The Fiscal Sustainability Plan Self-Certification Form will be included in Appendix ___ once approved.

Chapter 10 PUBLIC PARTICIPATION

10.1 Public Meetings

A public meeting was held on May 3, 2021 – 5:30 pm (EST) in the County Commissioners' chambers which had a good turnout. The main agenda for the meeting was to make the residents aware of the RSD study, County's intent to create RSD, reasons for proposed sewer expansion, as well as kick-off the public survey efforts (described in Section 10.2). During this meeting, the county officials provided clarifications to the residents that there will be no mandatory requirement to connect to new system provided their existing septic system is compliant with state and federal environmental and health standards; no random septic system inspections will be performed; and septic system inspections will be performed by the county only if issues related to septic system were sent to IDEM.

The County plans to hold another public meeting on completion of the Regional Sewer District Study to share findings with the public.

10.2 Sanitary Service Questionnaire

To assist in identifying potential service areas and prioritizing future infrastructure improvements within the county, a Sanitary Service Questionnaire was prepared and sent to the county residents. This questionnaire is included in Appendix B. The questionnaire consisted of several questions regarding the sanitary sewer service, location, condition, and type of existing sanitary services, along with a question regarding support for a larger RSD to address some of the areas in need. The bulleted list below summarizes key questions included in the questionnaire:

- Which township, city, or incorporated area best describes the location of your primary residence? *(choices included various townships)*
- Which of the following best describes your primary residence? *(choices include urban, suburban, rural)*
- When was the septic system installed? *(choices include 2000 or after, 1978-1999, 1977 or before, unknown)*
- Do you support the efforts of the Dubois County RSD to provide sanitary sewers to unserved and/or underserved areas in the county? *(yes or no)*

The county office received a total of 226 responses for the questionnaire. The following figures highlight the results of the questionnaire:

10.2.1 Location of Primary Residence & Type of sewer service

Figure 10-1 indicates that the majority of responses (23%) were received from the residents of Bainbridge Township with septic systems being more prevalent in Cass, Marion, Madison, Ferdinand, Harbison, and Bainbridge Township responses compared to other townships.

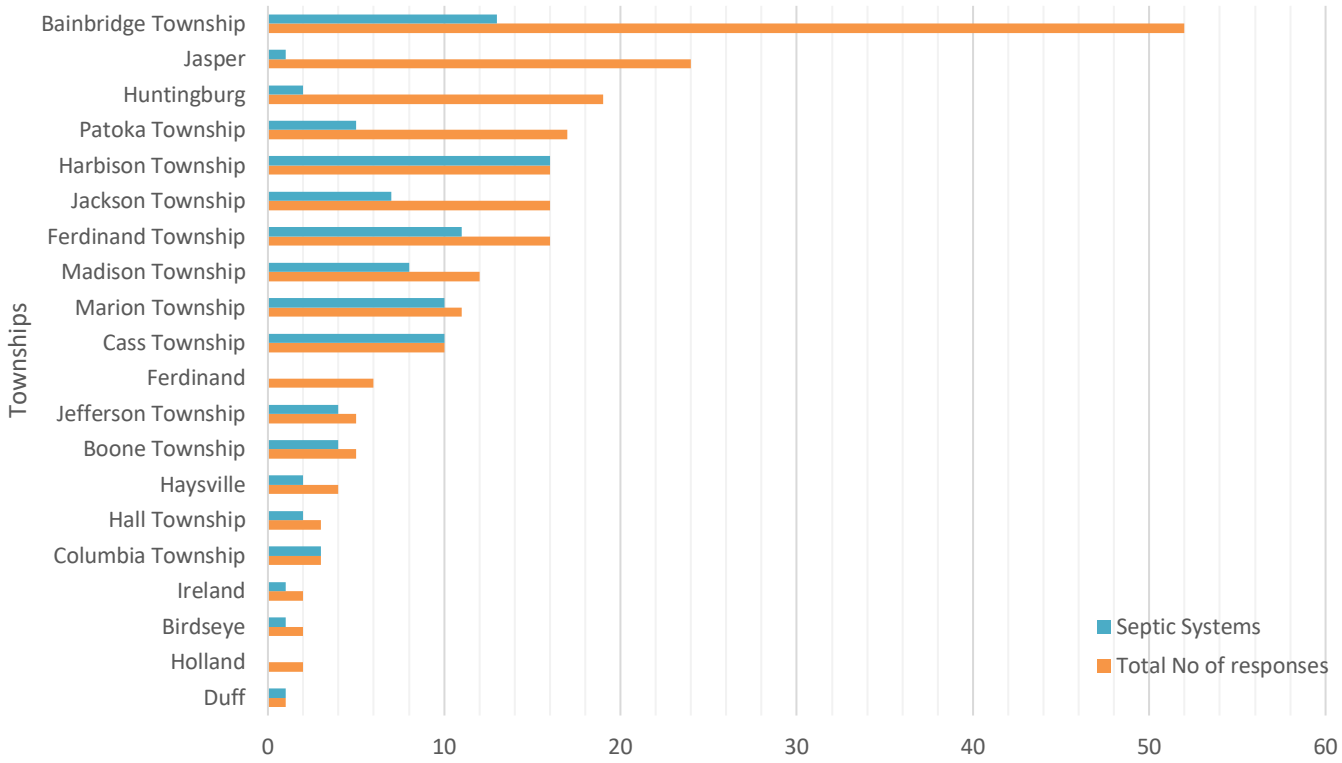


Figure 10-1. Township/Incorporated Areas & Septic Systems

Figure 10-2 indicates that majority of the residences were in rural areas. A total of 125 responses were received from residents located in rural areas with 74% of residences having some type of private septic systems and only 23% with connection to a public sanitary sewer as shown in Figure 10-3. Almost all the urban residences have public sanitary sewer connections and only 13% of suburban areas have private septic systems.

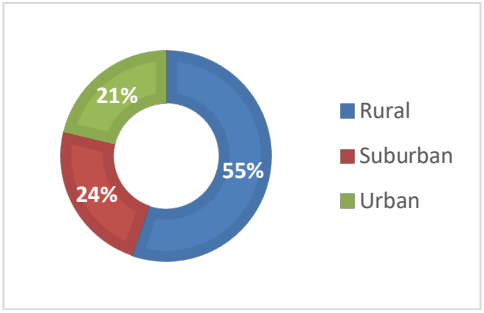


Figure 10-2. Location of Primary residence

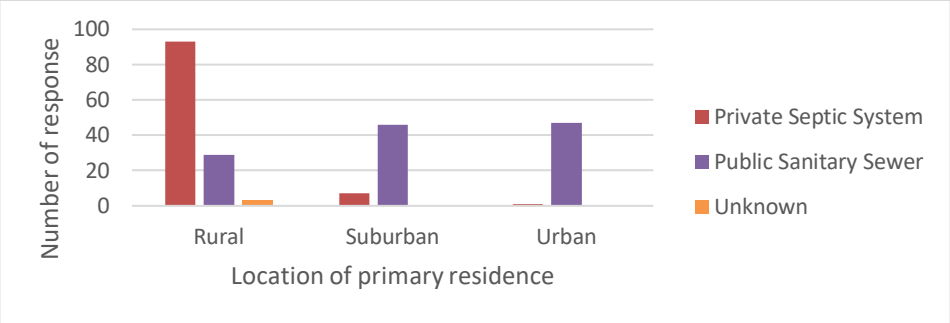


Figure 10-3. Type of Sewer Service

10.2.2 Age & Condition of Private Septic Systems

Figure 10-4 indicates that about 64% of the private septic systems were installed prior to 1999.

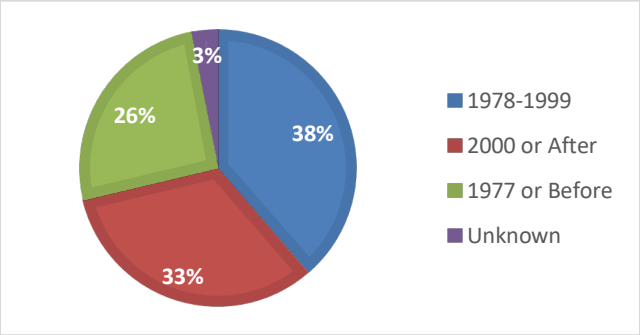


Figure 10-4. Age of Private Septic Systems

Figure 10-5 indicates that majority of the septic systems are in moderate to excellent condition with only 9% in bad condition.

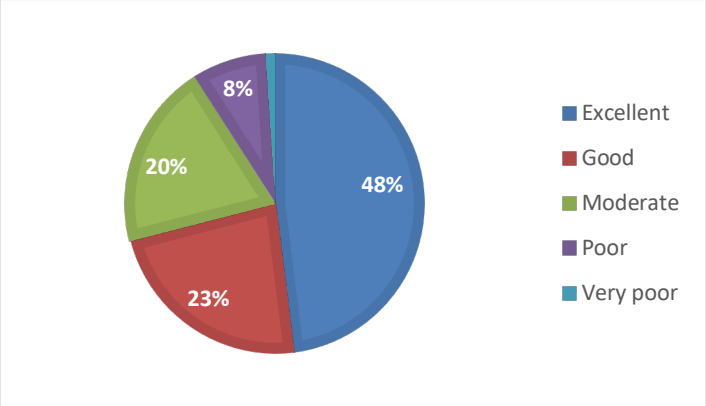


Figure 10-5. Condition of Private Septic Systems

10.2.3 Support for Regional Sewer District

Of the 226 responses, about 83% of the residents support the efforts of the Dubois RSD to provide sanitary sewers to unserved and/or underserved areas in the county as shown in Figure 10-6. Though a majority indicated their support of RSD, several residents were hesitant to the project (shared in the comments) as they were concerned with the fact they would be required connect to the public system.

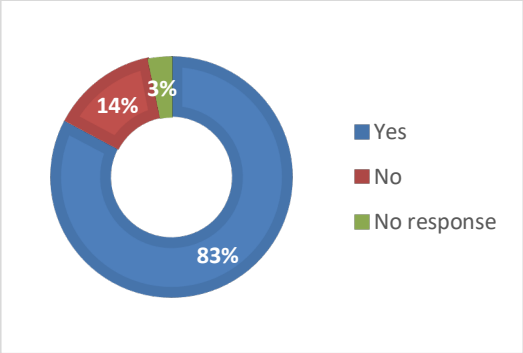


Figure 10-6 Support for RSD

Based on the public input received, it is clear that the majority of the county's residents are in favor of establishing a RSD.

10.3 Time and Place of Public Hearing

The public hearing is anticipated to be held on December 7, 2021 – 5:30 pm (EST) at the Dubois County Courthouse Annex Building. A question and answer session for the public is anticipated to be held on January 11, 2022 – 5:30 pm (EST) at St. Johns Luthern Church located in the Haysville Area. The following paragraph is a placeholder until the public hearing is held.

The notice of the public hearing was published in the _____ and the _____ on _____, 2022. Copies of the Publisher's Affidavits will be included in Appendix __. Completed drafts of the preliminary engineering report were made available to the public from the date of the published notice until the public hearing. These copies of the report were available at Dubois County Board. The public hearing was held on _____, 2022 at _____ in Dubois County.

10.4 Public Hearing Minutes and Sign-in Sheet

The public hearing is anticipated to be held on _____, 2022. The following statement is a placeholder until the public hearing is held.

The public hearing notice, sign-up sheet and meeting minutes will be included Appendix ____ once public hearing is held.

10.5 Public Hearing Comments

The public hearing is anticipated to be held on _____, 2022. The following statement is a placeholder until the public hearing is held.

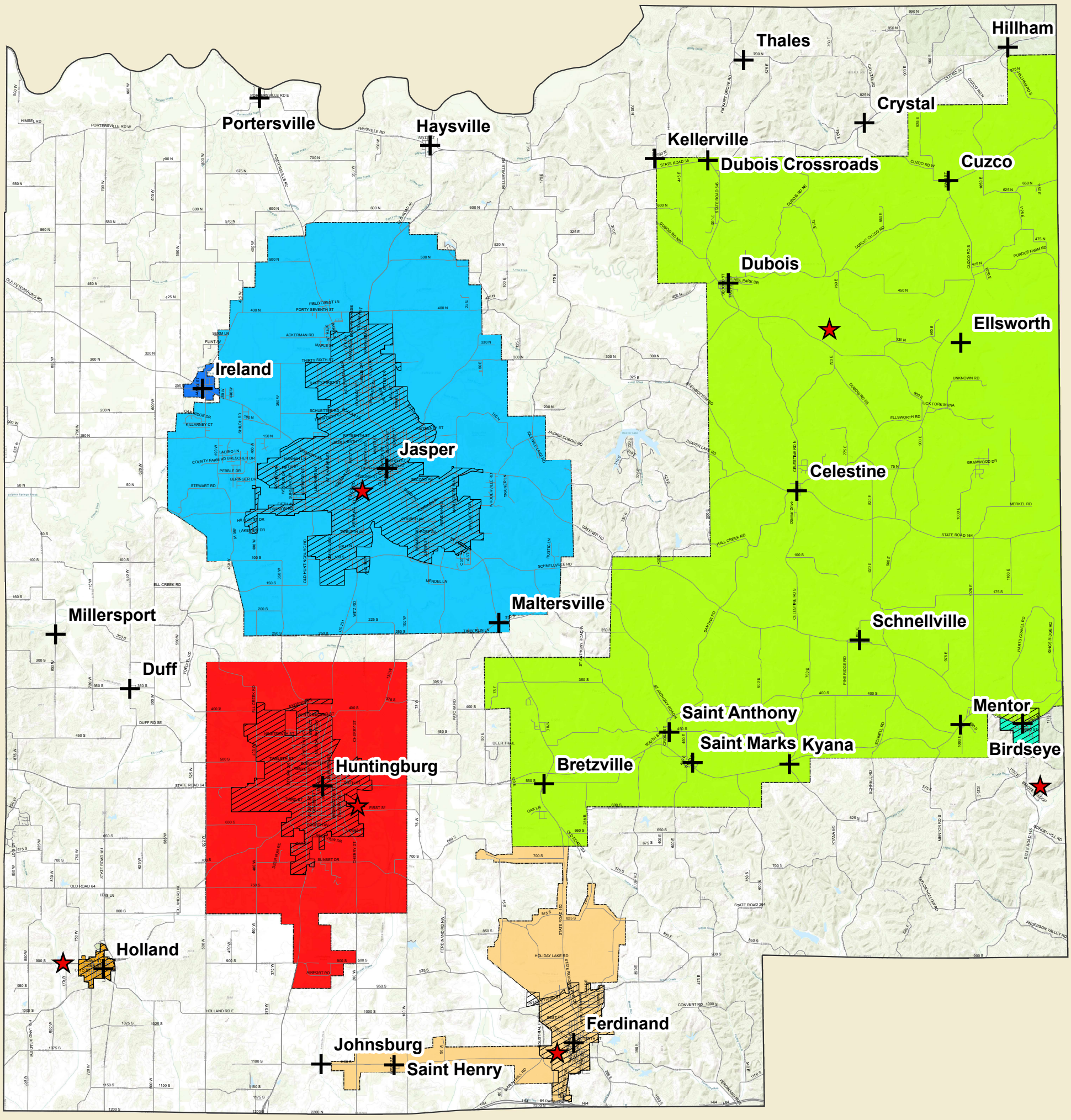
Questions and comments raised during the public hearing will be addressed and included in Appendix __ once public hearding is held.

APPENDICES

APPENDIX A

FIGURES

Dubois County
Existing Sewer District



Legend

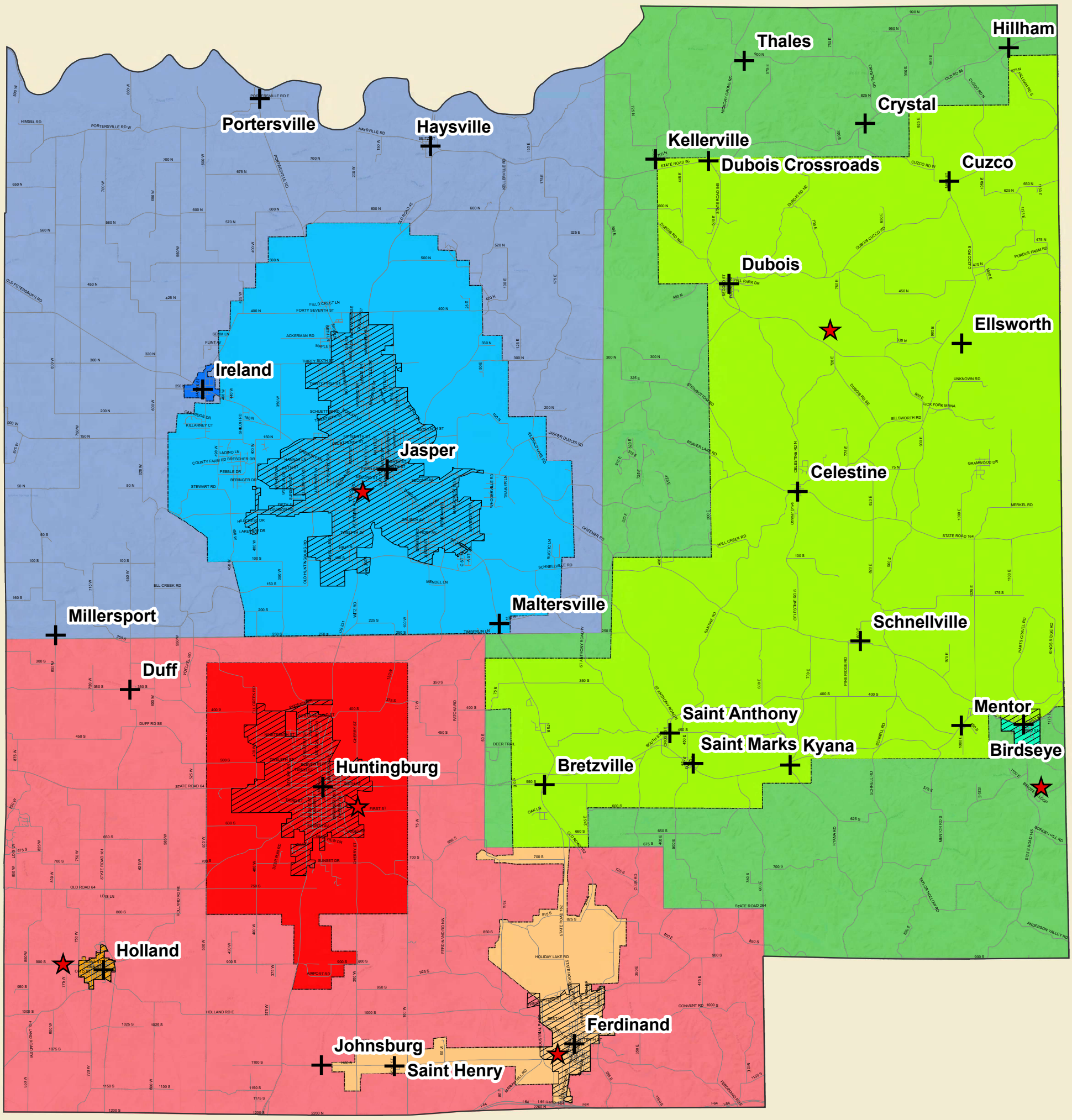
- Existing WWTP
- Places
- Incorporated Areas
- Roads

Existing Sewer Districts

- Birdseye
- Ferdinand
- Holland
- Huntingburg
- Ireland
- Jasper
- Patoka

0 1 2 4 6 Miles

Dubois County Regional Sewer District



Legend

- Existing WWTP
- Places
- Incorporated Areas
- Roads

Existing Sewer Districts

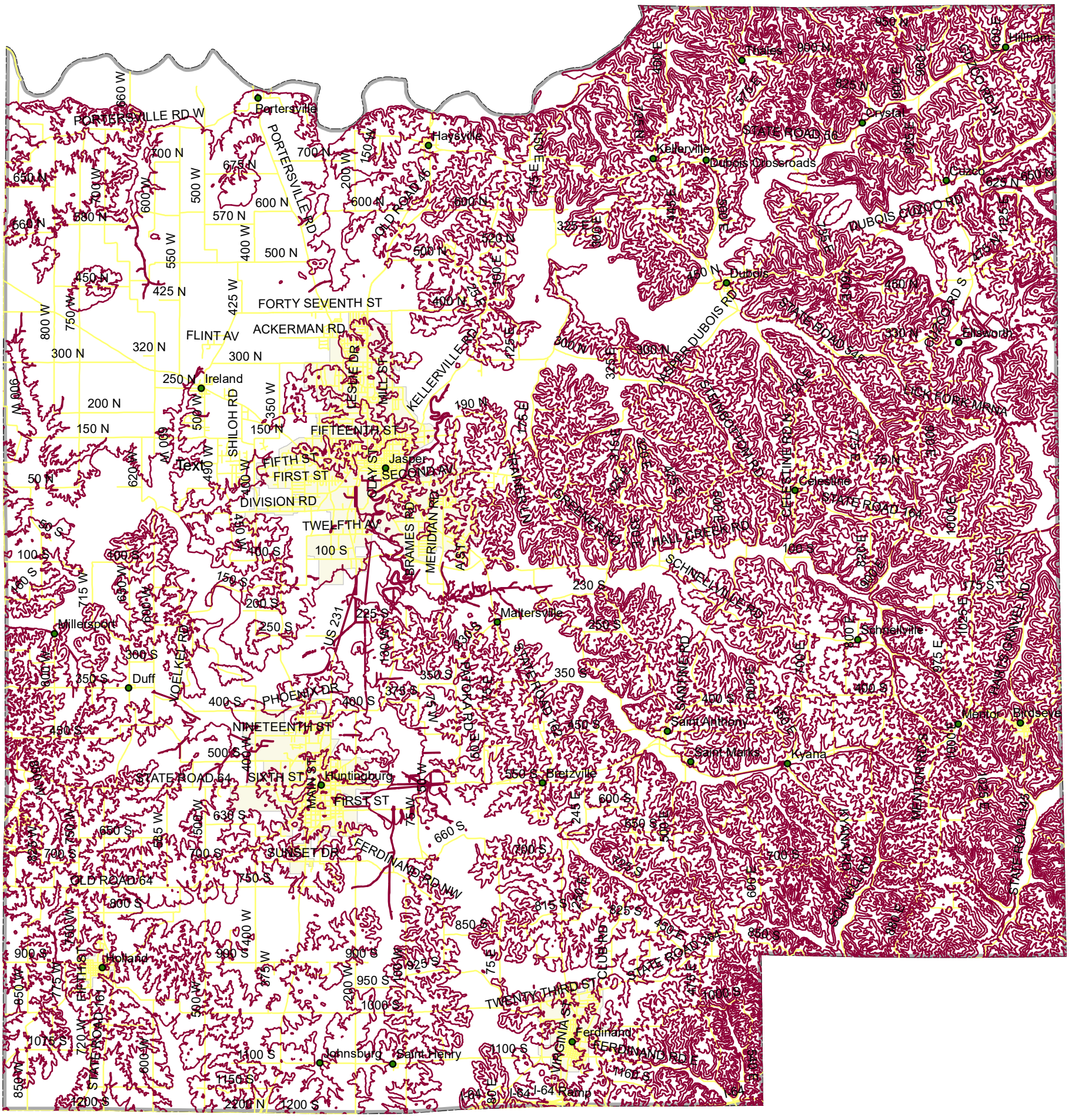
- Birdseye
- Ferdinand
- Holland
- Huntingburg
- Ireland
- Jasper
- Patoka

Regional Sewer District by Treatment Provider

- Huntingburg
- Jasper
- Patoka

0 1 2 4 6 Miles

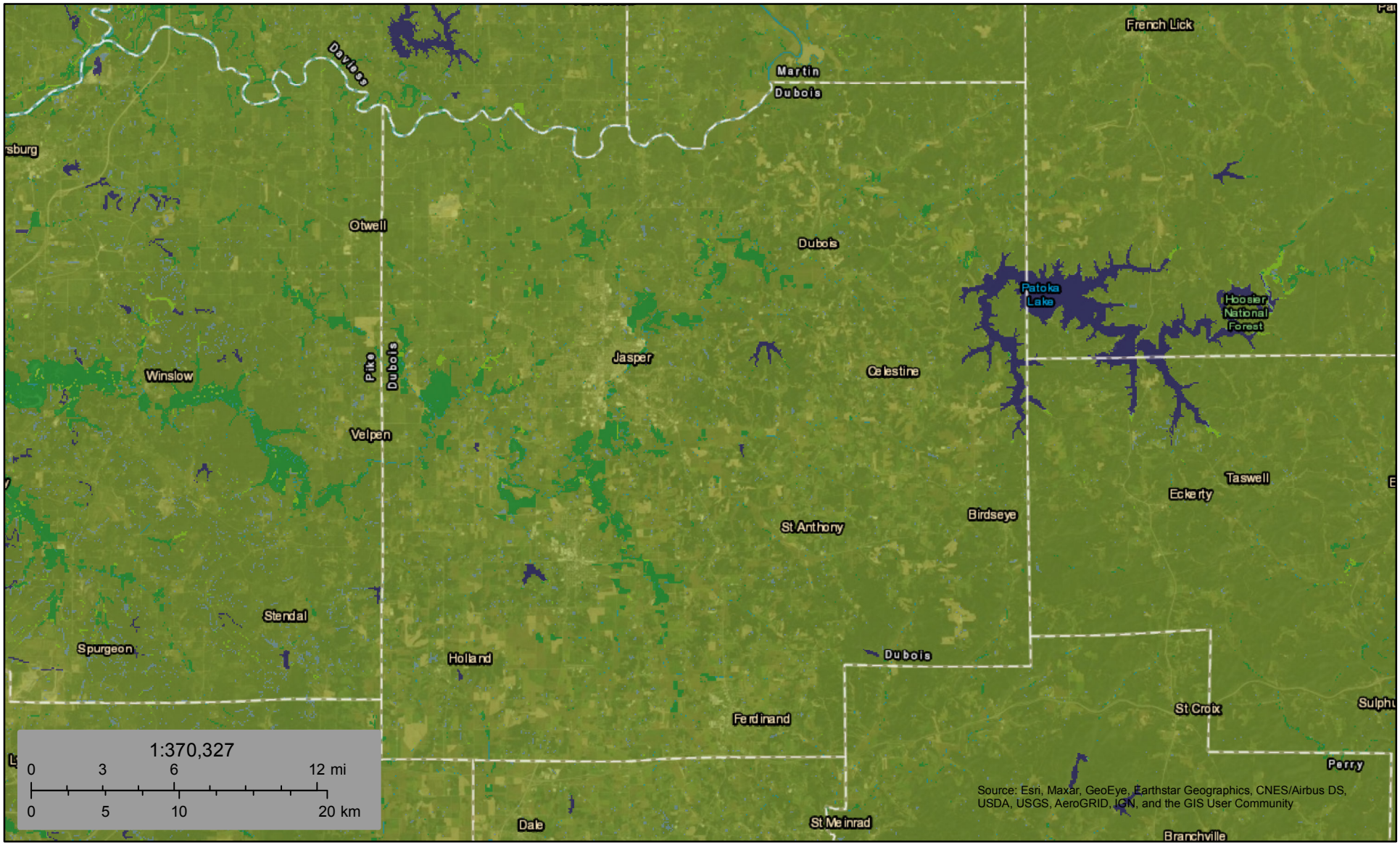
Dubois County Topography Map



U.S. Fish and Wildlife Service

National Wetlands Inventory

Dubois County , IN Wetland Map



October 6, 2021

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

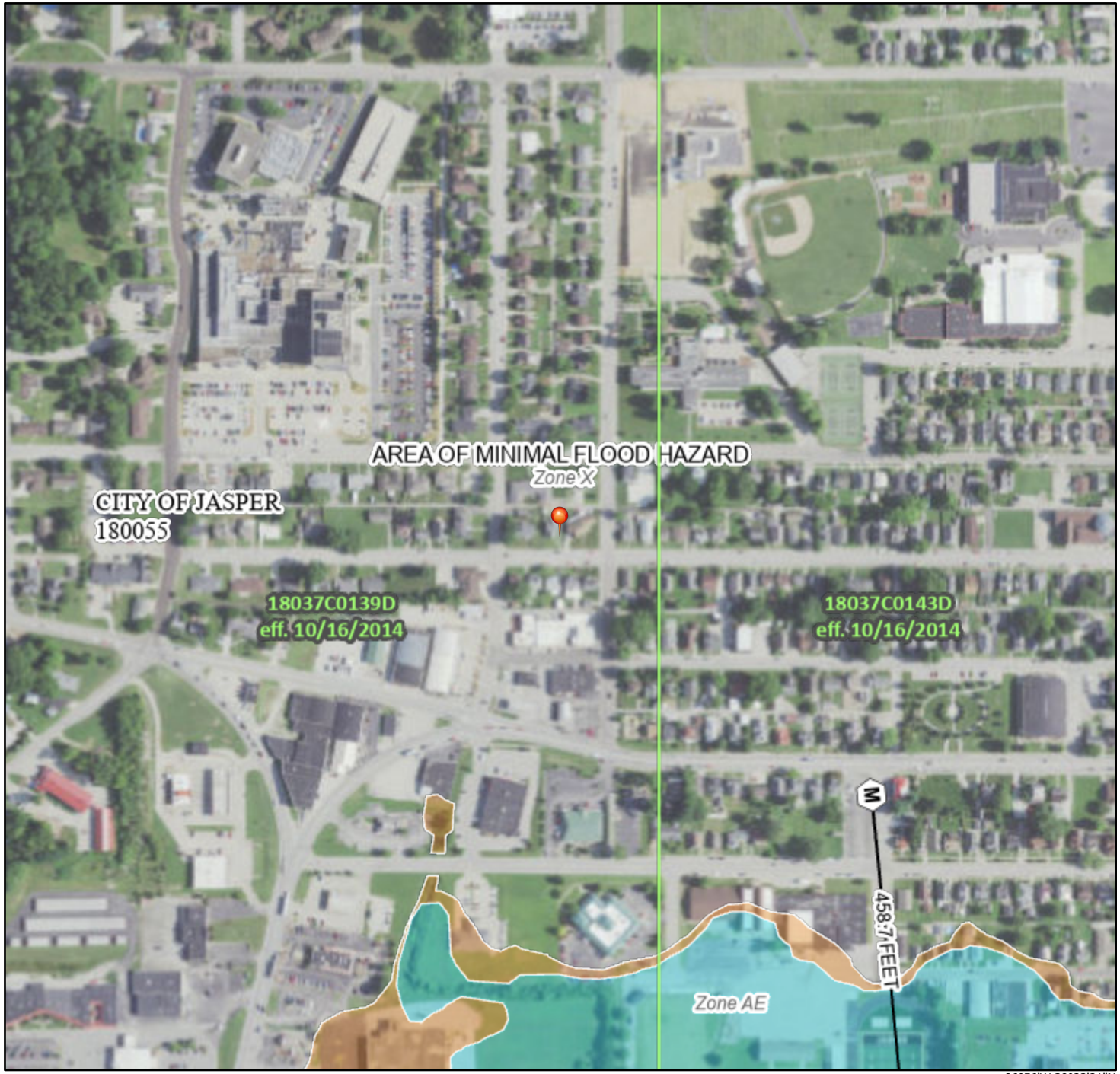
This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

National Wetlands Inventory (NWI)
This page was produced by the NWI mapper

National Flood Hazard Layer FIRMette

FEMA

86°56'37"W 38°23'49"N



86°56'W 38°23'21"N

0 250 500 1,000 1,500 2,000 Feet

1:6,000

Basemap: USGS National Map: Orthoimagery: Data refreshed October, 2020

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 Cross Sections with 1% Annual Chance
- 17.5 Water Surface Elevation
- Coastal Transect
- 513 Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 10/8/2021 at 6:48 AM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

SOIL MAP OF DUBOIS COUNTY

Soil Map—Daviess County, Indiana, Dubois County, Indiana, and Martin County, Indiana
(Dubois County - NW Region Soil Map)

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at scales ranging from 1:15,800 to 1:20,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Daviess County, Indiana
Survey Area Data: Version 25, Sep 7, 2021

Soil Survey Area: Dubois County, Indiana
Survey Area Data: Version 22, Sep 7, 2021

Soil Survey Area: Martin County, Indiana
Survey Area Data: Version 23, Sep 8, 2021

Your area of interest (AOI) includes more than one soil survey area. These survey areas may have been mapped at different scales, with a different land use in mind, at different times, or at different levels of detail. This may result in map unit symbols, soil properties, and interpretations that do not completely agree across soil survey area boundaries.

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Aug 27, 2011—Oct 15, 2011

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
BlB	Bloomfield loamy fine sand, 2 to 6 percent slopes	31.1	0.0%
BlC	Bloomfield loamy fine sand, 6 to 12 percent slopes	16.9	0.0%
BlD	Bloomfield loamy fine sand, 12 to 18 percent slopes	23.4	0.0%
BlF	Bloomfield loamy fine sand, 18 to 35 percent slopes	0.2	0.0%
Bo	Bonnie silt loam, 0 to 2 percent slopes, frequently flooded	3.0	0.0%
Cu	Cuba silt loam, frequently flooded	79.9	0.1%
FaB	Fairpoint silt loam, reclaimed, 2 to 8 percent slopes	13.0	0.0%
GbF	Gilpin-Berks complex, 25 to 50 percent slopes	145.7	0.2%
Hd	Haymond silt loam, frequently flooded	1,464.8	1.7%
HoB2	Hosmer silt loam, 2 to 5 percent slopes, eroded	2.8	0.0%
MaB2	Markland silt loam, 2 to 6 percent slopes, eroded	26.8	0.0%
MaD2	Markland silt loam, 6 to 18 percent slopes, eroded	15.6	0.0%
Po	Petrolia silty clay loam, 0 to 2 percent slopes, frequently flooded	0.5	0.0%
PrB2	Princeton fine sandy loam, 2 to 6 percent slopes, eroded	16.7	0.0%
Sr	Stendal silt loam, 0 to 2 percent slopes, frequently flooded, brief duration	16.7	0.0%
W	Water	196.8	0.2%
Wa	Wakeland silt loam, 0 to 2 percent slopes, frequently flooded	9.3	0.0%
WeD2	Wellston silt loam, 12 to 18 percent slopes, eroded	180.0	0.2%
WeD3	Wellston silt loam, 12 to 18 percent slopes, severely eroded	94.2	0.1%
WeE	Wellston silt loam, 18 to 25 percent slopes	42.9	0.1%

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
ZaB2	Apalona-Zanesville silt loams, 2 to 6 percent slopes, eroded	90.7	0.1%
ZaC2	Apalona-Zanesville silt loams, 6 to 12 percent slopes, eroded	134.5	0.2%
ZaC3	Apalona-Zanesville silt loams, 6 to 12 percent slopes, severely eroded	3.5	0.0%
Subtotals for Soil Survey Area		**2,609.0**	**3.1%**
Totals for Area of Interest		**83,757.2**	**100.0%**

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
AfB	Alford silt loam, 2 to 6 percent slopes	336.3	0.4%
AfC2	Alford silt loam, 5 to 10 percent slopes, eroded	260.0	0.3%
AfE2	Alford silt loam, 18 to 35 percent slopes, eroded	204.2	0.2%
Ba	Bartle silt loam, 0 to 2 percent slopes	144.6	0.2%
Bo	Bonnie silt loam, frequently flooded	3,624.1	4.3%
Ch	Chagrin silt loam, frequently flooded	441.0	0.5%
Cu	Cuba silt loam, frequently flooded	1,832.2	2.2%
DuA	Dubois silt loam, 0 to 2 percent slopes	4,442.9	5.3%
DuB	Dubois silt loam, 2 to 6 percent slopes	447.2	0.5%
GlD2	Gilpin silt loam, 12 to 18 percent slopes, eroded	2,937.6	3.5%
GlD3	Gilpin silt loam, 12 to 18 percent slopes, severely eroded	2,803.0	3.3%
GlE	Gilpin silt loam, 18 to 25 percent slopes	954.3	1.1%
GlE3	Gilpin silt loam, 18 to 25 percent slopes, severely eroded	403.2	0.5%
GoF	Gilpin-Berks complex, 20 to 50 percent slopes	555.8	0.7%
GuD	Gilpin-Orthents complex, 12 to 25 percent slopes	41.1	0.0%
JoA	Johnsburg silt loam, 0 to 2 percent slopes	48.8	0.1%

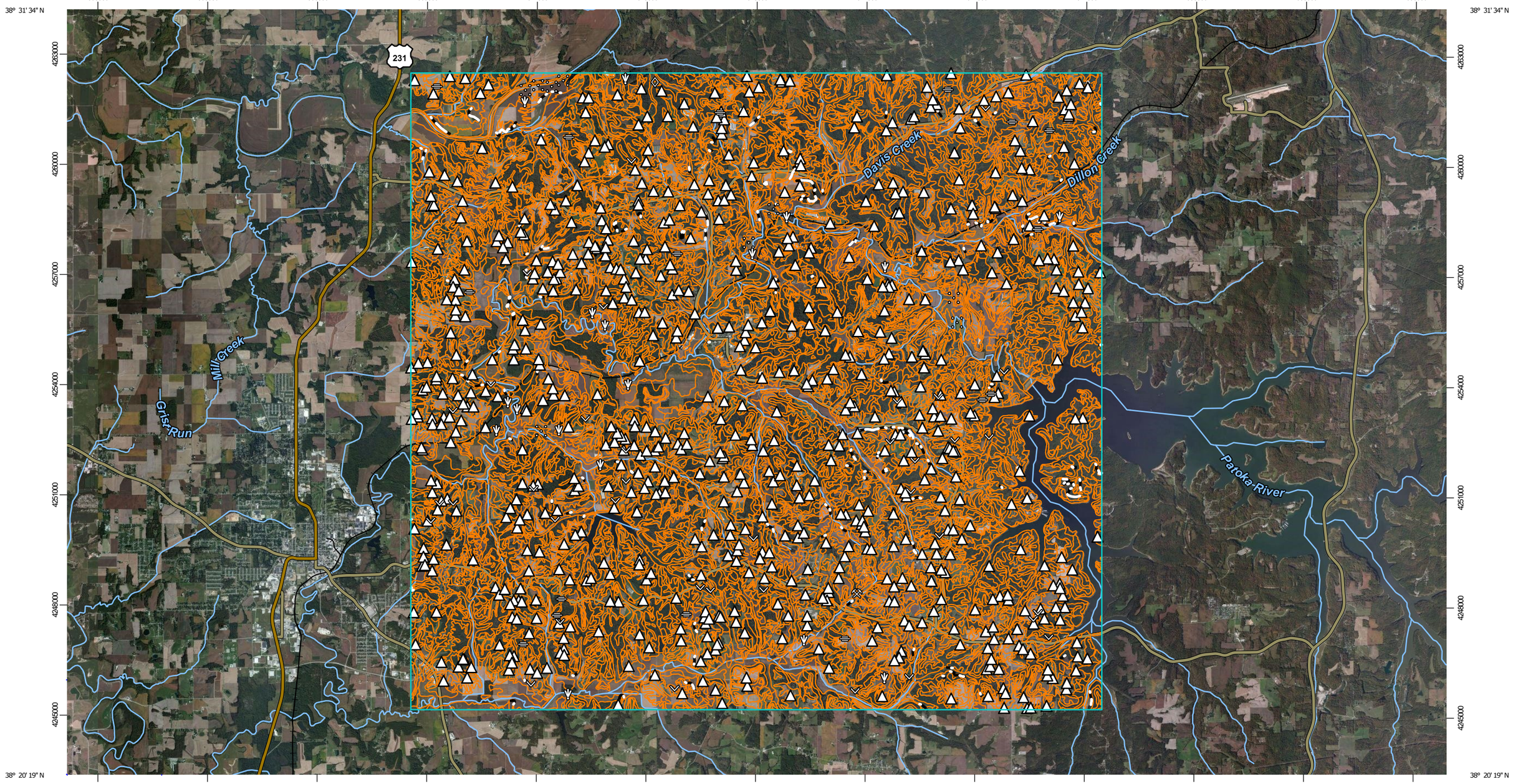
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
MgA	McGary silt loam, 0 to 2 percent slope	284.2	0.3%
Mo	Montgomery silty clay loam	107.8	0.1%
NeD3	Negley loam, 12 to 18 percent slopes, severely eroded	1,627.4	1.9%
NeF	Negley loam, 18 to 50 percent slopes	1,089.1	1.3%
NgC2	Negley silt loam, 6 to 12 percent slopes, eroded	475.0	0.6%
NgD2	Negley silt loam, 12 to 18 percent slopes, eroded	897.7	1.1%
No	Nolin silt loam, frequently flooded	1,104.5	1.3%
OrD	Orthents, 6 to 25 percent slopes	3,523.5	4.2%
OtA	Otwell silt loam, 0 to 2 percent slopes	2,632.2	3.1%
OtB	Otwell silt loam, 2 to 6 percent slopes	5,882.0	7.0%
OtC2	Otwell silt loam, 6 to 12 percent slopes, eroded	4,138.6	4.9%
PaB	Parke silt loam, 2 to 6 percent slopes	920.1	1.1%
PaC2	Parke silt loam, 6 to 12 percent slopes, eroded	1,196.2	1.4%
PaD3	Parke silt loam, 12 to 18 percent slopes, severely eroded	878.5	1.0%
PeB	Pekin silt loam, 2 to 6 percent slopes, rarely flooded	378.2	0.5%
PeC2	Pekin silt loam, 6 to 12 percent slopes, eroded, rarely flooded	41.6	0.0%
Pg	Peoga silt loam	4,207.5	5.0%
Ph	Petrolia silty clay loam, 0 to 2 percent slopes, frequently flooded	833.1	1.0%
PkA	Pike silt loam, 0 to 2 percent slopes	2,706.3	3.2%
PkB	Pike silt loam, 2 to 6 percent slopes	1,203.6	1.4%
PrB	Princeton fine sandy loam, 2 to 6 percent slopes	240.5	0.3%
PrC	Princeton fine sandy loam, 6 to 12 percent slopes	218.5	0.3%
PrF	Princeton fine sandy loam, 20 to 60 percent slopes	211.6	0.3%

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Sf	Steff silt loam, 0 to 2 percent slopes, frequently flooded	2,034.6	2.4%
St	Stendal silt loam, frequently flooded	12,283.2	14.7%
TlA	Tilsit silt loam, 0 to 2 percent slopes	57.2	0.1%
TlB	Zanesville silt loam, 2 to 6 percent slopes	3,710.5	4.4%
W	Water	769.7	0.9%
WeC2	Wellston silt loam, 6 to 12 percent slopes, eroded	348.2	0.4%
WeC3	Wellston silt loam, 6 to 12 percent slopes, severely eroded	5.0	0.0%
ZnC2	Apalona-Zanesville silt loams, 6 to 12 percent slopes, eroded	6,893.9	8.2%
ZnC3	Apalona-Zanesville silt loams, 6 to 12 percent slopes, severely eroded	83.4	0.1%
Subtotals for Soil Survey Area		**80,459.9**	**96.1%**
Totals for Area of Interest		**83,757.2**	**100.0%**

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
AgrB	Apalona-Zanesville silt loams, 2 to 6 percent slopes	42.9	0.1%
AgrC2	Apalona-Zanesville silt loams, 6 to 12 percent slopes, eroded	27.3	0.0%
AgrC3	Apalona-Zanesville silt loams, 6 to 12 percent slopes, severely eroded	0.1	0.0%
AgyB	Apalona-Udorthents complex, 2 to 6 percent slopes	1.4	0.0%
AmoC2	Alvin-Bloomfield loamy fine sands, 4 to 10 percent slopes, eroded	29.0	0.0%
AmoE	Alvin-Bloomfield loamy fine sands, 15 to 35 percent slopes	44.3	0.1%
BgeAH	Birds silt loam, 0 to 1 percent slopes, frequently flooded, brief duration	37.4	0.0%
CwaAH	Cuba silt loam, 0 to 2 percent slopes, frequently flooded, brief duration	6.6	0.0%
MvnAH	Moundhaven loamy sand, 0 to 2 percent slopes, frequently flooded, brief duration	19.4	0.0%

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
NbhAH	Newark silt loam, 0 to 2 percent slopes, frequently flooded	28.2	0.0%
NprAH	Nolin silt loam, 0 to 2 percent slopes, frequently flooded	153.8	0.2%
PcrB	Pekin silt loam, 2 to 6 percent slopes	0.4	0.0%
W	Water	30.6	0.0%
WaaAH	Wakeland silt loam, 0 to 2 percent slopes, frequently flooded, brief duration	18.5	0.0%
WhfC2	Wellston silt loam, 6 to 12 percent slopes, eroded	7.3	0.0%
WhfD2	Wellston silt loam, 12 to 18 percent slopes, eroded	11.1	0.0%
WhfD3	Wellston silt loam, 12 to 18 percent slopes, severely eroded	9.3	0.0%
WokAH	Wilbur silt loam, 0 to 2 percent slopes, frequently flooded, brief duration	21.3	0.0%
WpfG	Wellston-Tipsaw-Adyeville complex, 18 to 70 percent slopes	38.1	0.0%
WpnE	Wellston-Adyeville complex, 12 to 30 percent slopes	81.7	0.1%
WprAH	Wirt loam, 0 to 2 percent slopes, frequently flooded, brief duration	71.9	0.1%
Subtotals for Soil Survey Area		**680.5**	**0.8%**
Totals for Area of Interest		**83,757.2**	**100.0%**

Soil Map—Dubois County, Indiana, and Martin County, Indiana
(Dubois County - NE Soil Map)



Map Scale: 1:102,000 if printed on B landscape (17" x 11") sheet.

N

Meters
0 1500 3000 6000 9000

Feet
0 4500 9000 18000 27000

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Dubois County, Indiana
Survey Area Data: Version 22, Sep 7, 2021

Soil Survey Area: Martin County, Indiana
Survey Area Data: Version 23, Sep 8, 2021

Your area of interest (AOI) includes more than one soil survey area. These survey areas may have been mapped at different scales, with a different land use in mind, at different times, or at different levels of detail. This may result in map unit symbols, soil properties, and interpretations that do not completely agree across soil survey area boundaries.

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Oct 3, 2011—Oct 15, 2011

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
AfB	Alford silt loam, 2 to 6 percent slopes	42.3	0.1%
Ba	Bartle silt loam, 0 to 2 percent slopes	466.4	0.6%
Bo	Bonnie silt loam, frequently flooded	1,201.3	1.5%
Ch	Chagrin silt loam, frequently flooded	241.8	0.3%
Cu	Cuba silt loam, frequently flooded	2,669.4	3.3%
DuA	Dubois silt loam, 0 to 2 percent slopes	22.1	0.0%
GacAW	Gatchel loam, 0 to 3 percent slopes, occasionally flooded, very brief duration	988.9	1.2%
GlD2	Gilpin silt loam, 12 to 18 percent slopes, eroded	9,318.1	11.5%
GlD3	Gilpin silt loam, 12 to 18 percent slopes, severely eroded	13,495.5	16.6%
GlE	Gilpin silt loam, 18 to 25 percent slopes	7,840.4	9.7%
GlE3	Gilpin silt loam, 18 to 25 percent slopes, severely eroded	1,803.6	2.2%
GoF	Gilpin-Berks complex, 20 to 50 percent slopes	9,948.9	12.3%
GuD	Gilpin-Orthents complex, 12 to 25 percent slopes	133.3	0.2%
JoA	Johnsburg silt loam, 0 to 2 percent slopes	60.8	0.1%
MgA	McGary silt loam, 0 to 2 percent slope	14.8	0.0%
NeD3	Negley loam, 12 to 18 percent slopes, severely eroded	7.8	0.0%
NeF	Negley loam, 18 to 50 percent slopes	21.7	0.0%
NgD2	Negley silt loam, 12 to 18 percent slopes, eroded	3.8	0.0%
No	Nolin silt loam, frequently flooded	108.4	0.1%
Omz	Orthents, earthen dam	27.6	0.0%
OtB	Otwell silt loam, 2 to 6 percent slopes	93.6	0.1%

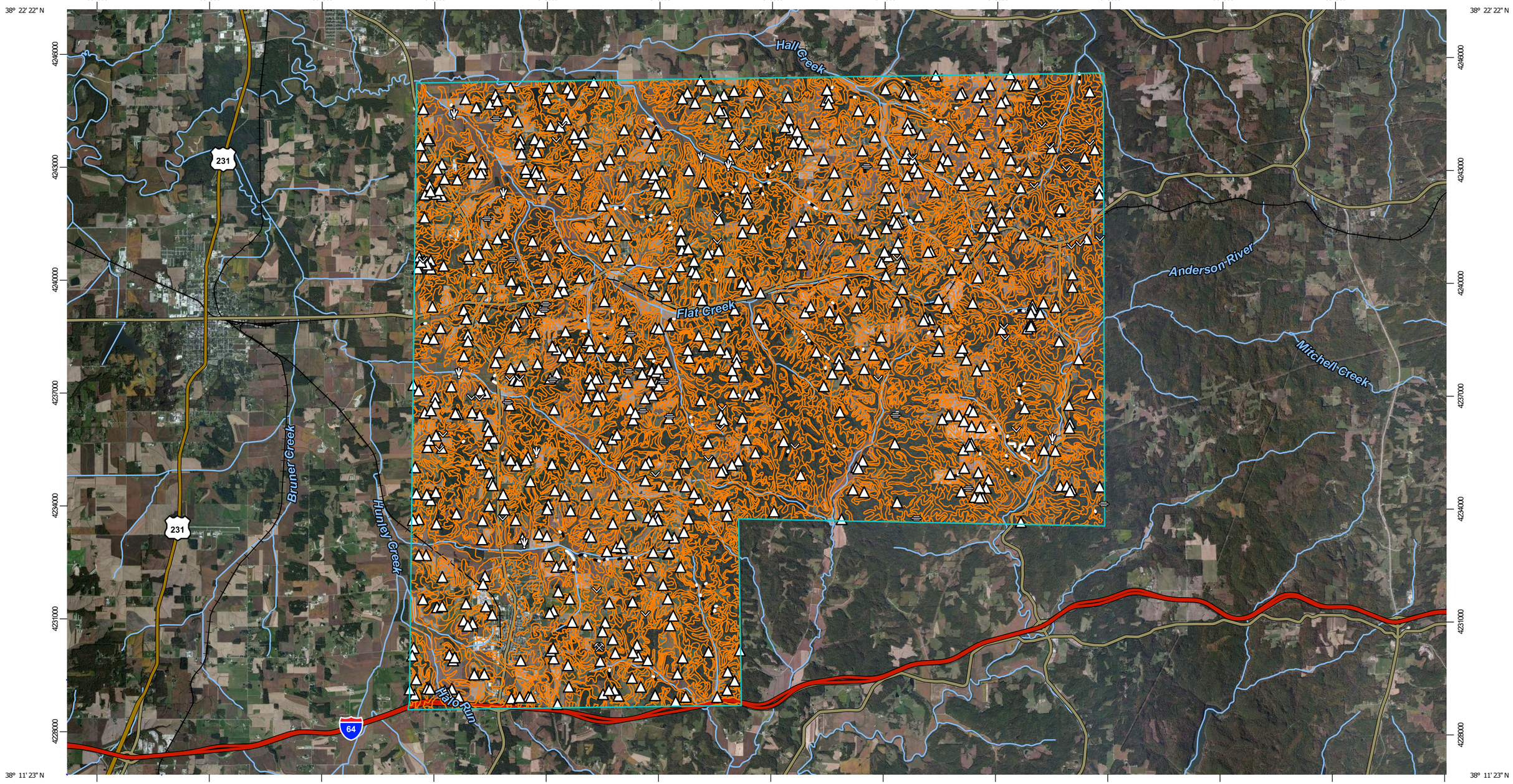
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
OtC2	Otwell silt loam, 6 to 12 percent slopes, eroded	59.7	0.1%
PaB	Parke silt loam, 2 to 6 percent slopes	7.7	0.0%
PaC2	Parke silt loam, 6 to 12 percent slopes, eroded	11.3	0.0%
PaD3	Parke silt loam, 12 to 18 percent slopes, severely eroded	9.1	0.0%
PeB	Pekin silt loam, 2 to 6 percent slopes, rarely flooded	1,302.8	1.6%
PeC2	Pekin silt loam, 6 to 12 percent slopes, eroded, rarely flooded	329.6	0.4%
Pg	Peoga silt loam	118.8	0.1%
Ph	Petrolia silty clay loam, 0 to 2 percent slopes, frequently flooded	15.0	0.0%
PkA	Pike silt loam, 0 to 2 percent slopes	2.2	0.0%
PrB	Princeton fine sandy loam, 2 to 6 percent slopes	4.9	0.0%
PrC	Princeton fine sandy loam, 6 to 12 percent slopes	108.6	0.1%
PrF	Princeton fine sandy loam, 20 to 60 percent slopes	93.2	0.1%
Sf	Steff silt loam, 0 to 2 percent slopes, frequently flooded	3,459.7	4.3%
St	Stendal silt loam, frequently flooded	5,441.6	6.7%
TlA	Tilsit silt loam, 0 to 2 percent slopes	60.4	0.1%
TlB	Zanesville silt loam, 2 to 6 percent slopes	2,450.1	3.0%
Uaa	Udorthents, cut and filled	9.1	0.0%
W	Water	2,231.1	2.7%
WeC2	Wellston silt loam, 6 to 12 percent slopes, eroded	1,598.7	2.0%
WeC3	Wellston silt loam, 6 to 12 percent slopes, severely eroded	412.8	0.5%
ZnC2	Apalona-Zanesville silt loams, 6 to 12 percent slopes, eroded	12,576.3	15.5%
ZnC3	Apalona-Zanesville silt loams, 6 to 12 percent slopes, severely eroded	1,308.0	1.6%
Subtotals for Soil Survey Area		**80,121.5**	**98.7%**

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Totals for Area of Interest		**81,195.3**	**100.0%**

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
AgrB	Apalona-Zanesville silt loams, 2 to 6 percent slopes	74.5	0.1%
AgrC2	Apalona-Zanesville silt loams, 6 to 12 percent slopes, eroded	22.0	0.0%
AmoC2	Alvin-Bloomfield loamy fine sands, 4 to 10 percent slopes, eroded	11.8	0.0%
AmoE	Alvin-Bloomfield loamy fine sands, 15 to 35 percent slopes	12.5	0.0%
BgeAH	Birds silt loam, 0 to 1 percent slopes, frequently flooded, brief duration	14.4	0.0%
GacAW	Gatchel loam, 0 to 3 percent slopes, occasionally flooded, very brief duration	12.2	0.0%
HcgAH	Haymond silt loam, 0 to 2 percent slopes, frequently flooded, brief duration	10.0	0.0%
MdvC3Q	Markland silty clay loam, 6 to 15 percent slopes, severely eroded, rarely flooded	4.1	0.0%
NbhAH	Newark silt loam, 0 to 2 percent slopes, frequently flooded	48.7	0.1%
NprAH	Nolin silt loam, 0 to 2 percent slopes, frequently flooded	88.0	0.1%
StaAW	Steff silt loam, 0 to 2 percent slopes, occasionally flooded, very brief duration	20.0	0.0%
W	Water	55.6	0.1%
WaaAH	Wakeland silt loam, 0 to 2 percent slopes, frequently flooded, brief duration	32.5	0.0%
WhfB	Wellston silt loam, 2 to 6 percent slopes	2.6	0.0%
WhfC2	Wellston silt loam, 6 to 12 percent slopes, eroded	28.6	0.0%
WhfD2	Wellston silt loam, 12 to 18 percent slopes, eroded	4.8	0.0%
WhfD3	Wellston silt loam, 12 to 18 percent slopes, severely eroded	128.0	0.2%

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
WokAH	Wilbur silt loam, 0 to 2 percent slopes, frequently flooded, brief duration	151.3	0.2%
WpfG	Wellston-Tipsaw-Adyeville complex, 18 to 70 percent slopes	93.3	0.1%
WpnE	Wellston-Adyeville complex, 12 to 30 percent slopes	132.1	0.2%
WprAH	Wirt loam, 0 to 2 percent slopes, frequently flooded, brief duration	109.3	0.1%
Subtotals for Soil Survey Area		**1,056.6**	**1.3%**
Totals for Area of Interest		**81,195.3**	**100.0%**

Soil Map—Dubois County, Indiana
(Dubois County - SE Soil Map)



Map Scale: 1:99,100 if printed on B landscape (17" x 11") sheet.

N

Meters
0 1000 2000 4000 6000

Feet
0 4500 9000 18000 27000

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Dubois County, Indiana
Survey Area Data: Version 22, Sep 7, 2021

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Oct 3, 2011—Oct 15, 2011

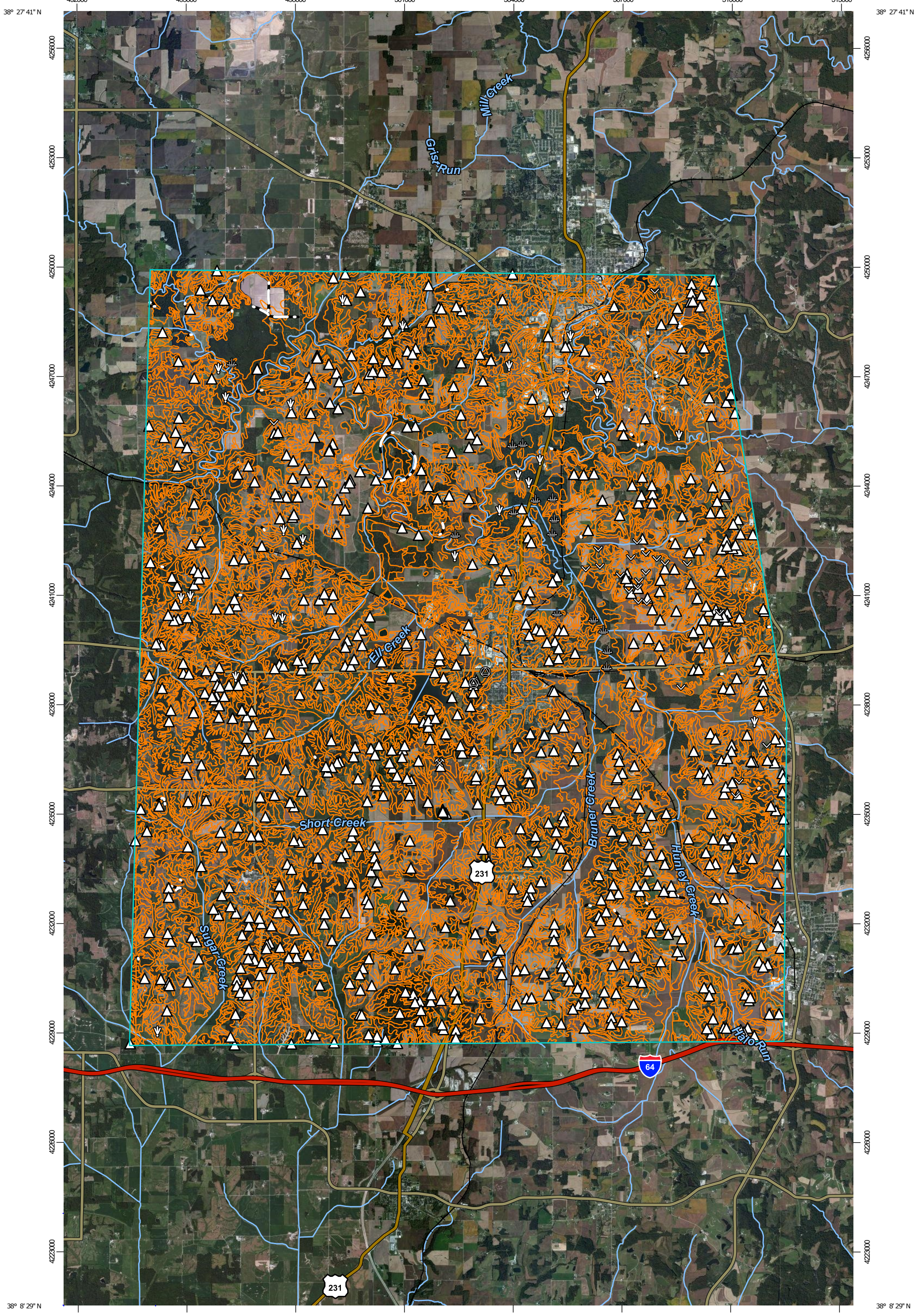
The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Ba	Bartle silt loam, 0 to 2 percent slopes	145.2	0.2%
Bo	Bonnie silt loam, frequently flooded	108.1	0.2%
Cu	Cuba silt loam, frequently flooded	1,237.2	1.9%
GacAW	Gatchel loam, 0 to 3 percent slopes, occasionally flooded, very brief duration	727.4	1.1%
GlD2	Gilpin silt loam, 12 to 18 percent slopes, eroded	6,524.3	10.1%
GlD3	Gilpin silt loam, 12 to 18 percent slopes, severely eroded	12,753.8	19.7%
GlE	Gilpin silt loam, 18 to 25 percent slopes	4,961.4	7.7%
GlE3	Gilpin silt loam, 18 to 25 percent slopes, severely eroded	1,329.5	2.1%
GoF	Gilpin-Berks complex, 20 to 50 percent slopes	7,624.3	11.8%
GuD	Gilpin-Orthents complex, 12 to 25 percent slopes	129.1	0.2%
JoA	Johnsburg silt loam, 0 to 2 percent slopes	43.9	0.1%
Omz	Orthents, earthen dam	4.7	0.0%
OrD	Orthents, 6 to 25 percent slopes	66.5	0.1%
PeB	Pekin silt loam, 2 to 6 percent slopes, rarely flooded	449.3	0.7%
PeC2	Pekin silt loam, 6 to 12 percent slopes, eroded, rarely flooded	27.1	0.0%
Pg	Peoga silt loam	10.8	0.0%
Sf	Steff silt loam, 0 to 2 percent slopes, frequently flooded	2,410.8	3.7%
St	Stendal silt loam, frequently flooded	2,963.9	4.6%
TlA	Tilsit silt loam, 0 to 2 percent slopes	129.6	0.2%
TlB	Zanesville silt loam, 2 to 6 percent slopes	4,453.9	6.9%
Uaa	Udorthents, cut and filled	42.3	0.1%
W	Water	351.8	0.5%

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
WeC2	Wellston silt loam, 6 to 12 percent slopes, eroded	906.6	1.4%
WeC3	Wellston silt loam, 6 to 12 percent slopes, severely eroded	230.6	0.4%
ZnC2	Apalona-Zanesville silt loams, 6 to 12 percent slopes, eroded	16,069.9	24.9%
ZnC3	Apalona-Zanesville silt loams, 6 to 12 percent slopes, severely eroded	895.9	1.4%
Totals for Area of Interest		**64,614.0**	**100.0%**

Soil Map—Dubois County, Indiana, Pike County, Indiana, and Warrick County, Indiana
(Dubois County - SW Soil Map)



Map Scale: 1:99,400 if printed on B portrait (11" x 17") sheet.

N

Meters
0 1000 2000 4000 6000

Feet
0 4500 9000 18000 27000

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Dubois County, Indiana
Survey Area Data: Version 22, Sep 7, 2021

Soil Survey Area: Pike County, Indiana
Survey Area Data: Version 22, Sep 9, 2021

Soil Survey Area: Warrick County, Indiana
Survey Area Data: Version 24, Sep 9, 2021

Your area of interest (AOI) includes more than one soil survey area. These survey areas may have been mapped at different scales, with a different land use in mind, at different times, or at different levels of detail. This may result in map unit symbols, soil properties, and interpretations that do not completely agree across soil survey area boundaries.

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Aug 27, 2011—Oct 15, 2011

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
AfB	Alford silt loam, 2 to 6 percent slopes	2.3	0.0%
AfE2	Alford silt loam, 18 to 35 percent slopes, eroded	8.0	0.0%
Ba	Bartle silt loam, 0 to 2 percent slopes	543.3	0.6%
Bo	Bonnie silt loam, frequently flooded	3,607.3	4.0%
Cu	Cuba silt loam, frequently flooded	1,482.3	1.6%
DuA	Dubois silt loam, 0 to 2 percent slopes	688.8	0.8%
DuB	Dubois silt loam, 2 to 6 percent slopes	168.3	0.2%
GlD2	Gilpin silt loam, 12 to 18 percent slopes, eroded	6,924.7	7.7%
GlD3	Gilpin silt loam, 12 to 18 percent slopes, severely eroded	6,821.4	7.6%
GlE	Gilpin silt loam, 18 to 25 percent slopes	2,649.9	2.9%
GlE3	Gilpin silt loam, 18 to 25 percent slopes, severely eroded	539.4	0.6%
GoF	Gilpin-Berks complex, 20 to 50 percent slopes	1,158.8	1.3%
GuD	Gilpin-Orthents complex, 12 to 25 percent slopes	37.5	0.0%
JoA	Johnsburg silt loam, 0 to 2 percent slopes	173.5	0.2%
NeD3	Negley loam, 12 to 18 percent slopes, severely eroded	437.8	0.5%
NeF	Negley loam, 18 to 50 percent slopes	386.7	0.4%
NgC2	Negley silt loam, 6 to 12 percent slopes, eroded	26.8	0.0%
NgD2	Negley silt loam, 12 to 18 percent slopes, eroded	107.0	0.1%
Omz	Orthents, earthen dam	3.7	0.0%
OrD	Orthents, 6 to 25 percent slopes	3,539.7	3.9%
OtA	Otwell silt loam, 0 to 2 percent slopes	166.4	0.2%
OtB	Otwell silt loam, 2 to 6 percent slopes	1,924.2	2.1%

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
OtC2	Otwell silt loam, 6 to 12 percent slopes, eroded	1,718.1	1.9%
PaB	Parke silt loam, 2 to 6 percent slopes	116.6	0.1%
PaC2	Parke silt loam, 6 to 12 percent slopes, eroded	150.2	0.2%
PaD3	Parke silt loam, 12 to 18 percent slopes, severely eroded	214.2	0.2%
PeB	Pekin silt loam, 2 to 6 percent slopes, rarely flooded	1,225.7	1.4%
PeC2	Pekin silt loam, 6 to 12 percent slopes, eroded, rarely flooded	85.4	0.1%
Pg	Peoga silt loam	250.0	0.3%
Ph	Petrolia silty clay loam, 0 to 2 percent slopes, frequently flooded	104.0	0.1%
PkA	Pike silt loam, 0 to 2 percent slopes	487.0	0.5%
PkB	Pike silt loam, 2 to 6 percent slopes	138.6	0.2%
Sf	Steff silt loam, 0 to 2 percent slopes, frequently flooded	4,095.2	4.5%
St	Stendal silt loam, frequently flooded	15,815.6	17.5%
TlA	Tilsit silt loam, 0 to 2 percent slopes	698.8	0.8%
TlB	Zanesville silt loam, 2 to 6 percent slopes	12,828.1	14.2%
W	Water	992.6	1.1%
WeC2	Wellston silt loam, 6 to 12 percent slopes, eroded	341.3	0.4%
WeC3	Wellston silt loam, 6 to 12 percent slopes, severely eroded	12.2	0.0%
ZnC2	Apalona-Zanesville silt loams, 6 to 12 percent slopes, eroded	18,885.9	20.9%
ZnC3	Apalona-Zanesville silt loams, 6 to 12 percent slopes, severely eroded	465.7	0.5%
Subtotals for Soil Survey Area		**90,023.0**	**99.8%**
Totals for Area of Interest		**90,184.7**	**100.0%**

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
GnE	Gilpin silt loam, 15 to 30 percent slopes	7.2	0.0%
GnE3	Gilpin silt loam, 15 to 25 percent slopes, severely eroded	0.3	0.0%
GoF	Gilpin-Berks loams, 25 to 50 percent slopes	0.7	0.0%
PcB	Pekin silt loam, 2 to 6 percent slopes	0.4	0.0%
Sf	Steff silt loam, 0 to 2 percent slopes, frequently flooded	2.4	0.0%
WeE	Wellston silt loam, 15 to 30 percent slopes	0.1	0.0%
ZaB	Apalona-Zanesville silt loams, 2 to 6 percent slopes	14.0	0.0%
ZaC3	Apalona-Zanesville silt loams, 6 to 12 percent slopes, severely eroded	19.1	0.0%
ZaD3	Zanesville silt loam, 12 to 18 percent slopes, severely eroded	1.5	0.0%
Subtotals for Soil Survey Area		**46.0**	**0.1%**
Totals for Area of Interest		**90,184.7**	**100.0%**

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Ba	Bartle silt loam	5.0	0.0%
Bn	Bonnie silt loam, 0 to 2 percent slopes, frequently flooded	8.0	0.0%
GpD	Gilpin soils, gullied, 12 to 18 percent slopes	1.1	0.0%
PeB2	Pekin silt loam, 1 to 4 percent slopes, eroded	0.2	0.0%
Pg	Peoga silt loam	4.8	0.0%
Se	Steff silt loam, 0 to 2 percent slopes, frequently flooded	7.3	0.0%
Sn	Stendal silt loam, 0 to 2 percent slopes, frequently flooded, brief duration	18.5	0.0%
TtB2	Tilsit silt loam, 2 to 6 percent slopes, eroded	11.3	0.0%
W	Water	0.2	0.0%
WeD	Wellston silt loam, 12 to 18 percent slopes	10.2	0.0%
WeD3	Wellston silt loam, 12 to 18 percent slopes, severely eroded	0.9	0.0%

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
WeE2	Wellston silt loam, 18 to 25 percent slopes, eroded	9.3	0.0%
ZaB2	Apalona-Zanesville silt loams, 2 to 6 percent slopes, eroded	14.8	0.0%
ZaC3	Apalona-Zanesville silt loams, 6 to 12 percent slopes, severely eroded	11.7	0.0%
Subtotals for Soil Survey Area		**103.4**	**0.1%**
Totals for Area of Interest		**90,184.7**	**100.0%**

APPENDIX B

QUESTIONNAIRE

Response	*1a. Which Township, City or Incorporated Area best describes the location of your primary residence?	*1b. Which of the following best describes your primary residence?	*2. Which of the following best describes the type of sewer service at your primary residence?	3a. Which utility provides your service?	3b. How would you rate the condition of your infrastructure?	4a. When was the existing septic system installed?	4b. How would you rate the condition of your current septic system?	4c. Have you observed any of the following with related to your septic system? Select all that apply.	4d. Would you be interested in connecting to a public sanitary sewer if it were available?	*5. Do you own other properties in the county besides your primary residence?	6a. Which Township, City or Incorporated Area best describes the location of your other properties? Select all that apply.	6b. Which of the following best describes the location of your other properties? Select all that apply.	6c. Which of the following best describes your other properties? Select all that apply.	6c. Which of the following services do you have at your other properties?	7a. Which utility provides your service?	7b. How would you rate the condition of your infrastructure?	8a. When was the existing sewer system installed at your other properties?	8b. How would you rate the condition of your current septic system?	8c. Have you observed any of the following with related to your septic system? Select all that apply.	8d. Would you be interested in connecting to a public sanitary sewer if it were available?	9. Do you support the efforts of the Dubois County Regional Sewer District to provide sanitary sewers to unserved and/or underserved areas in the county?
1	Marion Township	Rural	Public Sanitary Sewer	Patoka Lake	3					Yes											Yes
2	Jackson Township	Rural	Private Septic System			1978-1999	3	Soft/damp areas unrelated to rain	Somewhat Interested	No											Yes
3	Bainbridge Township	Urban	Public Sanitary Sewer	Jasper	4					No											Yes
4	Cass Township	Rural	Private Septic System			1977 or Before	4		Somewhat Interested	Yes	Marion Township, Jasper	Rural	Undeveloped Residential	Public Sanitary Sewer	Jasper	4					Yes
5	Madison Township	Suburban	Public Sanitary Sewer	Ireland	4					Yes	Boone Township	Rural	Undeveloped Residential	Unknown	Ireland	3					Yes
6	Bainbridge Township	Urban	Public Sanitary Sewer	Jasper	4					Yes	Cass Township	Rural	Commercial, Investment R	Private Septic System			1978-1999			Not Interested	
7	Marion Township	Rural	Private Septic System			1978-1999	5		Not Interested	Yes	Bainbridge Township	Urban	Commercial	Public Sanitary Sewer	Jasper	5					Yes
8	Boone Township	Rural	Private Septic System			2000 or After	5		Not Interested	No											Yes
9	Patoka Township	Rural	Public Sanitary Sewer	Huntingburg	4					Yes											Yes
10	Bainbridge Township	Urban	Public Sanitary Sewer	Jasper	4					No											No
11	Bainbridge Township	Rural	Private Septic System			2000 or After	5		Not Interested	No											No
12	Bainbridge Township	Suburban	Public Sanitary Sewer	Jasper	5					No											Yes
13	Jackson Township	Rural	Unknown	Huntingburg	3					No											Yes
14	Madison Township	Rural	Private Septic System			2000 or After	4		Somewhat Interested	No											Yes
15	Ferdinand Township	Rural	Private Septic System			1978-1999	5		Somewhat Interested	No											Yes
16	Bainbridge Township	Suburban	Public Sanitary Sewer	Jasper	5					No											Yes
17	Huntingburg	Suburban	Public Sanitary Sewer	Huntingburg	4					No											Yes
18	Bainbridge Township	Suburban	Public Sanitary Sewer	Jasper	3					No											Yes
19	Bainbridge Township	Rural	Public Sanitary Sewer	Jasper	5					No											Yes
20	Ferdinand Township	Rural	Private Septic System			1978-1999	3	Soft/damp areas	Somewhat Interested	No											Yes
21	Bainbridge Township	Suburban	Private Septic System			2000 or After	5		Not Interested	No											Yes
22	Bainbridge Township	Rural	Public Sanitary Sewer	Jasper	3					No											Yes
23	Madison Township	Rural	Private Septic System			2000 or After	3	Soft/damp areas unrelated to rain	Somewhat Interested	No											Yes
24	Bainbridge Township	Suburban	Public Sanitary Sewer	Jasper	5					No											Yes
25	Cass Township	Rural	Private Septic System			2000 or After	4	Soft/damp areas unrelated to rain	Somewhat Interested	No											Yes
26	Bainbridge Township	Urban	Public Sanitary Sewer	Jasper	3					No											Yes
27	Ferdinand Township	Rural	Private Septic System			1977 or Before	5		Not Interested	No											No
28	Jackson Township	Rural	Private Septic System			1977 or Before	5		Somewhat Interested	No											Yes
29	Boone Township	Rural	Private Septic System			1977 or Before	3		Somewhat Interested	No											Yes
30	Madison Township	Rural	Private Septic System			1978-1999	3		Somewhat Interested	No											Yes
31	Bainbridge Township	Suburban	Public Sanitary Sewer	Jasper	4					Yes	Marion Township	Rural	Agricultural	Private Septic System			Unknown	2		Somewhat Interested	Yes
32	Bainbridge Township	Urban	Public Sanitary Sewer	Jasper	4					No											Yes
33	Marion Township	Rural	Private Septic System			2000 or After	5		Not Interested	No											Yes
34	Bainbridge Township	Urban	Public Sanitary Sewer	Jasper	3					No											Yes
35	Jasper	Suburban	Private Septic System			1978-1999	4	Sewerage backups	Very Interested	No											Yes
36	Madison Township	Suburban	Public Sanitary Sewer	Jasper	5					No											Yes
37	Patoka Township	Urban	Public Sanitary Sewer	Huntingburg	4					No											Yes
38	Bainbridge Township	Suburban	Public Sanitary Sewer	Jasper	3					No											No
39	Ferdinand Township	Rural	Public Sanitary Sewer	Ferdinand	4					No											Yes
40	Jefferson Township	Rural	Private Septic System			1977 or Before	4		Not Interested	No											No
41	Bainbridge Township	Rural	Public Sanitary Sewer	Jasper	4					No											Yes
42	Jackson Township	Rural	Private Septic System			2000 or After	5		Not Interested	No											Yes
43	Bainbridge Township	Rural	Private Septic System			2000 or After	5		Not Interested	Yes	Bainbridge Township, Jasper	Urban	Commercial	Public Sanitary Sewer		5					Yes
44	Harbison Township	Rural	Private Septic System			2000 or After	5		Not Interested	No											No
45	Jackson Township	Rural	Public Sanitary Sewer	Patoka Lake	5					Yes	Jackson Township	Rural	Undeveloped Residential	Unknown	Patoka Lake	5					Yes
46	Hall Township	Rural	Private Septic System			2000 or After	5	Soft/damp areas unrelated to rain	Not Interested	No											No
47	Columbia Township	Rural	Private Septic System			2000 or After	5		Somewhat Interested	Yes	Columbia Township	Rural	small house/cabin with infl	Private Septic System			Unknown	3		Somewhat Interested	Yes
48	Bainbridge Township	Suburban	Private Septic System			1977 or Before	3		Very Interested	No											Yes
49	Jasper	Urban	Public Sanitary Sewer	Jasper	1					No											Yes
50	Bainbridge Township	Rural	Private Septic System			1977 or Before	2	Sewerage backups	Somewhat Interested	No											Yes
51	Ireland	Suburban	Public Sanitary Sewer	Ireland	5					No											Yes
52	Patoka Township	Rural	Private Septic System			1978-1999	5		Not Interested	No											No
53	Cass Township	Rural	Private Septic System			1978-1999	5		Somewhat Interested	No											Yes
54	Patoka Township	Suburban	Public Sanitary Sewer	Huntingburg	3					No											Yes
55	Bainbridge Township	Urban	Public Sanitary Sewer	Jasper	3					No											Yes
56	Harbison Township	Rural	Private Septic System			1977 or Before	2		Somewhat Interested	No											Yes
57	Huntingburg	Suburban	Public Sanitary Sewer	Huntingburg	4					Yes	Ferdinand Township	Rural	Commercial	Private Septic System			1978-1999	1		Not Interested	Yes
58	Haysville	Rural	Unknown		1					No											Yes
59	Haysville	Rural	Unknown		1					Yes	Hall Township	Rural	Investment Residential	Public Sanitary Sewer	Patoka Lake	5					Yes
60	Bainbridge Township	Rural	Public Sanitary Sewer	Jasper	3					No											No
61	Madison Township	Rural	Private Septic System			1977 or Before	5		Not Interested	No											No
62	Jackson Township	Rural	Private Septic System			2000 or After	5		Somewhat Interested	No											Yes
63	Hall Township	Rural	Public Sanitary Sewer	Patoka Lake	4					No											Yes
64	Marion Township	Rural	Private Septic System			1978-1999	3	Soft/damp areas unrelated to rain	Very Interested	No											Yes
65	Madison Township	Suburban	Private Septic System			1978-1999	5		Somewhat Interested	No											Yes
66	Jasper	Suburban	Public Sanitary Sewer	Jasper	5					No											Yes
67	Bainbridge Township	Suburban	Public Sanitary Sewer	Jasper	5					No											
68	Cass Township	Rural	Private Septic System			1978-1999	5		Not Interested	No											No
69	Boone Township	Rural	Private Septic System			1978-1999	2		Very Interested	No											Yes
70	Jackson Township	Rural	Public Sanitary Sewer	Patoka Lake	5					Yes	Jackson Township	Rural	Undeveloped Residential	Unknown	Patoka Lake	4					No
71	Harbison Township	Rural	Private Septic System			2000 or After	5		Not Interested	No											Yes

72	Bainbridge Township	Rural	Public Sanitary Sewer	Jasper						Yes	Bainbridge Township	Rural	Investment Residential	Public Sanitary Sewer	Jasper						No
73	Jackson Township	Rural	Private Septic System			1977 or Before	5		Not Interested	No											No
74	Ferdinand Township	Rural	Private Septic System			1978-1999	3		Very Interested	No											Yes
75	Harbison Township	Rural	Private Septic System			1978-1999	4		Somewhat Interested	No											Yes
76	Ferdinand Township	Rural	Public Sanitary Sewer	Ferdinand	4					No											
77	Harbison Township	Rural	Private Septic System			1978-1999	4		Not Interested	Yes	Columbia Township	Rural	Investment Residential	Private Septic System			2000 or After	5		Not Interested	No
78	Marion Township	Rural	Private Septic System			1977 or Before	3	Strong sewage odor	Very Interested	No											Yes
79	Bainbridge Township	Urban	Public Sanitary Sewer	Jasper	4					No											Yes
80	Duff	Rural	Private Septic System			2000 or After	5		Somewhat Interested	No											Yes
81	Columbia Township	Rural	Private Septic System			1978-1999			Somewhat Interested	No											Yes
82	Ferdinand Township	Suburban	Private Septic System			1977 or Before	3		Very Interested	No											Yes
83	Ferdinand Township	Rural	Private Septic System			1978-1999	4	Soft/damp areas unrelated to rain	Not Interested	No											No
84	Cass Township	Rural	Private Septic System			Unknown	3		Somewhat Interested	No											Yes
85	Patoka Township	Rural	Private Septic System			1977 or Before	5		Not Interested	No											No
86	Harbison Township	Rural	Private Septic System			2000 or After	5		Somewhat Interested	No											Yes
87	Patoka Township	Rural	Private Septic System			2000 or After	5		Somewhat Interested	No											Yes
88	Bainbridge Township	Suburban	Public Sanitary Sewer	Jasper	3					No											Yes
89	Patoka Township	Urban	Public Sanitary Sewer	Huntingburg	3					No											Yes
90	Harbison Township	Rural	Private Septic System			1978-1999	4		Not Interested	Yes	Jasper	Rural	Rental Houses	Private Septic System				5		Not Interested	No
91	Marion Township	Rural	Private Septic System			2000 or After	4		Somewhat Interested	No											Yes
92	Bainbridge Township	Rural	Private Septic System			1978-1999	2	Soft/damp areas unrelated to rain	Very Interested	No											Yes
93	Jasper	Urban	Public Sanitary Sewer	Jasper	4					No											Yes
94	Cass Township	Rural	Private Septic System			2000 or After	3	Sewerage backups, Soft/damp areas unrelated to rain	Very Interested	No											Yes
95	Bainbridge Township	Rural	Private Septic System			1977 or Before	4		Very Interested	No											Yes
96	Columbia Township	Rural	Private Septic System			2000 or After	5		Somewhat Interested	Yes	Columbia Township	Rural	Undeveloped Residential	Unknown	Patoka Lake	4					Yes
97	Jasper	Urban	Public Sanitary Sewer	Jasper	2					No											Yes
98	Madison Township	Rural	Public Sanitary Sewer	Jasper	4					No											Yes
99	Huntingburg	Rural	Public Sanitary Sewer	Huntingburg	1					No											Yes
100	Bainbridge Township	Suburban	Public Sanitary Sewer	Jasper	5					Yes	Ireland	Suburban	Investment Residential	Public Sanitary Sewer	Jasper	5					Yes
101	Ferdinand Township	Rural	Private Septic System			1978-1999	5		Not Interested	No											No
102	Jasper	Urban	Public Sanitary Sewer	Jasper	4					No											Yes
103	Ferdinand Township	Rural	Private Septic System			1978-1999	5		Not Interested	No											No
104	Ferdinand	Suburban	Public Sanitary Sewer	Ferdinand	4					No											Yes
105	Marion Township	Rural	Private Septic System			1977 or Before	3		Somewhat Interested	Yes	Marion Township	Rural				3					Yes
106	Jefferson Township	Rural	Private Septic System			1978-1999	2	Soft/damp areas unrelated to rain	Very Interested	No											Yes
107	Hall Township	Rural	Private Septic System			2000 or After	5		Not Interested	No											Yes
108	Harbison Township	Rural	Private Septic System			1978-1999	3	Sewerage backups	Very Interested	No											Yes
109	Patoka Township	Suburban	Public Sanitary Sewer	Huntingburg	4					No											Yes
110	Bainbridge Township	Urban	Public Sanitary Sewer	Jasper	4					No											Yes
111	Bainbridge Township	Suburban	Private Septic System			Unknown	3		Somewhat Interested	No											Yes
112	Bainbridge Township	Rural	Private Septic System			1978-1999	4		Somewhat Interested	Yes	Jasper	Urban	Investment Residential	Public Sanitary Sewer	Jasper	5					Yes
113	Jefferson Township	Rural	Private Septic System			1978-1999	5		Not Interested	No											Yes
114	Bainbridge Township	Urban	Public Sanitary Sewer	Jasper	4					No											
115	Bainbridge Township	Suburban	Public Sanitary Sewer	Jasper	4					No											Yes
116	Harbison Township	Rural	Private Septic System			2000 or After	3		Very Interested	No											Yes
117	Jackson Township	Rural	Private Septic System			2000 or After	5		Not Interested	No											Yes
118	Harbison Township	Rural	Private Septic System			1977 or Before	3		Somewhat Interested	No											
119	Harbison Township	Rural	Private Septic System			2000 or After	5		Somewhat Interested	No											Yes
120	Cass Township	Rural	Private Septic System			2000 or After	4		Not Interested	No											
121	Bainbridge Township	Rural	Private Septic System			1978-1999	5		Very Interested	No											Yes
122	Jasper	Suburban	Public Sanitary Sewer	Jasper	2					No											Yes
123	Haysville	Rural	Private Septic System			Unknown	2	Strong sewage odor	Very Interested	Yes	Harbison Township, Haysville	Rural	Undeveloped Residential	Public Sanitary Sewer	Jasper	2					Yes
124	Huntingburg	Suburban	Public Sanitary Sewer	Huntingburg	4					No											Yes
125	Bainbridge Township	Urban	Public Sanitary Sewer	Jasper	3					No											Yes
126	Jasper	Urban	Public Sanitary Sewer	Jasper	5					Yes	Jasper	Urban	Commercial	Public Sanitary Sewer	Jasper	5					Yes
127	Madison Township	Rural	Private Septic System			1978-1999	5		Very Interested	No											Yes
128	Patoka Township	Rural	Public Sanitary Sewer	Huntingburg	5					No											Yes
129	Madison Township	Rural	Private Septic System			1978-1999	4		Somewhat Interested	No											No
130	Bainbridge Township	Rural	Private Septic System			1978-1999	5		Somewhat Interested	No											Yes
131	Bainbridge Township	Suburban	Private Septic System			1978-1999	4	Soft/damp areas unrelated to rain	Somewhat Interested	No											Yes
132	Bainbridge Township	Suburban	Public Sanitary Sewer	Jasper	4					No											Yes
133	Jackson Township	Rural	Public Sanitary Sewer	Patoka Lake	4					No											Yes
134	Bainbridge Township	Urban	Public Sanitary Sewer	Jasper	5					Yes	Marion Township	Rural	cabin	Private Septic System			2000 or After	5		Very Interested	Yes
135	Bainbridge Township	Suburban	Public Sanitary Sewer	Jasper	4					No											Yes
136	Jackson Township	Rural	Public Sanitary Sewer	Patoka Lake	4					No											Yes
137	Ferdinand	Suburban	Public Sanitary Sewer	Ferdinand	4					No											Yes
138	Ferdinand Township	Rural	Private Septic System			1977 or Before	5		Very Interested	No											Yes
139	Cass Township	Rural	Private Septic System			1978-1999	5		Very Interested	No											Yes
140	Huntingburg	Rural	Public Sanitary Sewer	Patoka Lake	2					No											Yes
141	Birdseye	Rural	Private Septic System			1977 or Before	3	Sewerage backups, Soft/damp areas unrelated to rain	Very Interested	Yes	Birdseye	Rural	Investment Residential	Private Septic System			1977 or Before	3	Sewerage backu	Very Interested	Yes
142	Ferdinand Township	Rural	Private Septic System			2000 or After	5		Somewhat Interested	No											Yes
143	Huntingburg	Rural	Private Septic System			2000 or After	5			No											Yes
144	Jackson Township	Rural	Public Sanitary Sewer	Patoka Lake	5					No											Yes
145	Ferdinand Township	Rural	Public Sanitary Sewer	Ferdinand	4					No											Yes
146	Ferdinand	Rural	Public Sanitary Sewer	Ferdinand	3					No											Yes
147	Bainbridge Township	Urban	Public Sanitary Sewer	Jasper	1					No											Yes
148	Jackson Township	Rural	Private Septic System			1978-1999	5		Not Interested	No											No
149	Boone Township	Rural	Private Septic System			2000 or After	4		Somewhat Interested	No											Yes
150	Jasper	Urban	Public Sanitary Sewer	Jasper	3					No											Yes
151	Bainbridge Township	Urban	Public Sanitary Sewer	Jasper	4					No											Yes
152	Marion Township	Rural	Private Septic System			1977 or Before	4		Not Interested	No											Yes
153	Bainbridge Township	Suburban	Public Sanitary Sewer	Jasper	2					Yes	Bainbridge Township	Suburban	Undeveloped Residential	Public Sanitary Sewer	Jasper						Yes

154	Bainbridge Township	Rural	Private Septic System			1977 or Before	2	Strong sewage odor	Very Interested	No											Yes
155	Jefferson Township	Rural	Private Septic System			2000 or After	5		Somewhat Interested	No											Yes
156	Ferdinand	Urban	Public Sanitary Sewer	Ferdinand	4					No											Yes
157	Ferdinand	Suburban	Public Sanitary Sewer	Ferdinand	5					No											Yes
158	Ferdinand	Suburban	Public Sanitary Sewer	Ferdinand	5					No											Yes
159	Jasper	Urban	Public Sanitary Sewer	Jasper	3					No											Yes
160	Jackson Township	Rural	Public Sanitary Sewer	Patoka Lake	3					No											Yes
161	Huntingburg	Suburban	Public Sanitary Sewer	Huntingburg	4					No											No
162	Jasper	Urban	Public Sanitary Sewer	Jasper	5					No											Yes
163	Patoka Township	Urban	Public Sanitary Sewer	Huntingburg	4					Yes	Cass Township	Rural	Commercial	Private Septic System			1977 or Before	3	Soft/damp areas	Very Interested	Yes
164	Bainbridge Township	Urban	Public Sanitary Sewer	Jasper	4					No											Yes
165	Huntingburg	Urban	Public Sanitary Sewer	Huntingburg	2					No											Yes
166	Bainbridge Township	Urban	Public Sanitary Sewer	Jasper	4					No											Yes
167	Marion Township	Rural	Private Septic System			1977 or Before	1		Not Interested	Yes	Bainbridge Township	Rural	Classified Forrest	Unknown	Patoka Lake	5					Yes
168	Huntingburg	Rural	Public Sanitary Sewer	Huntingburg	4					Yes	Huntingburg	Rural	Industrial	Public Sanitary Sewer	Huntingburg	4					Yes
169	Patoka Township	Urban	Public Sanitary Sewer	Huntingburg	4					No											Yes
170	Huntingburg	Suburban	Public Sanitary Sewer	Huntingburg	3					No											No
171	Jasper	Suburban	Public Sanitary Sewer	Jasper	4					Yes	Jasper	Urban	Investment Residential	Public Sanitary Sewer	Jasper	4					Yes
172	Cass Township	Rural	Private Septic System			1978-1999	5		Somewhat Interested	No											Yes
173	Huntingburg	Suburban	Public Sanitary Sewer	Patoka Lake	4					No											Yes
174	Huntingburg	Urban	Public Sanitary Sewer	Huntingburg	4					No											
175	Huntingburg	Suburban	Public Sanitary Sewer	Huntingburg	4					No											Yes
176	Patoka Township	Rural	Private Septic System			2000 or After	4		Not Interested	No											Yes
177	Bainbridge Township	Suburban	Public Sanitary Sewer	Jasper	3					No											Yes
178	Huntingburg	Suburban	Public Sanitary Sewer	Huntingburg	3					No											Yes
179	Holland	Suburban	Public Sanitary Sewer	Holland	3					No											No
180	Huntingburg	Suburban	Public Sanitary Sewer	Huntingburg	3					No											Yes
181	Ferdinand Township	Urban	Public Sanitary Sewer	Ferdinand	4					No											Yes
182	Huntingburg	Rural	Private Septic System			1978-1999	5		Not Interested	Yes	Huntingburg	Urban	Retail	Public Sanitary Sewer	Huntingburg	3					Yes
183	Huntingburg	Suburban	Public Sanitary Sewer	Huntingburg	4					No											Yes
184	Ferdinand Township	Rural	Private Septic System			2000 or After	3	Sewerage backups	Somewhat Interested	No											Yes
185	Jasper	Suburban	Public Sanitary Sewer	Jasper	5					No											Yes
186	Patoka Township	Rural	Private Septic System			1978-1999	4		Not Interested	No											No
187	Marion Township	Rural	Private Septic System			1977 or Before	3	Strong sewage odor	Very Interested	No											Yes
188	Cass Township	Rural	Private Septic System			2000 or After	4		Somewhat Interested	Yes	Huntingburg	Urban	Commercial	Public Sanitary Sewer	Huntingburg	4					Yes
189	Patoka Township	Rural	Public Sanitary Sewer	Huntingburg	5					No											Yes
190	Harbison Township	Rural	Private Septic System			1977 or Before	2	Strong sewage odor, Soft/damp areas unrelated to rain	Very Interested	No											Yes
191	Patoka Township	Urban	Public Sanitary Sewer	Huntingburg	3					No											Yes
192	Huntingburg	Urban	Public Sanitary Sewer	Huntingburg	3					No											No
193	Patoka Township	Suburban	Public Sanitary Sewer	Huntingburg	5					No											Yes
194	Jefferson Township	Rural	Public Sanitary Sewer	Patoka Lake	3					No											Yes
195	Jasper	Suburban	Public Sanitary Sewer	Jasper	5					No											Yes
196	Jasper	Urban	Public Sanitary Sewer	Jasper	4					No											No
197	Bainbridge Township	Suburban	Public Sanitary Sewer	Jasper	5					No											Yes
198	Jackson Township	Rural	Public Sanitary Sewer	Patoka Lake	4					No											Yes
199	Patoka Township	Urban	Public Sanitary Sewer	Huntingburg	3					No											Yes
200	Bainbridge Township	Suburban	Public Sanitary Sewer	Jasper	5					No											Yes
201	Holland	Urban	Public Sanitary Sewer	Holland	3					No											Yes
202	Bainbridge Township	Urban	Public Sanitary Sewer	Jasper	5					No											Yes
203	Jasper	Suburban	Public Sanitary Sewer	Jasper	4					No											Yes
204	Marion Township	Rural	Private Septic System			1978-1999	5			Yes	Marion Township	Rural	Farm	Unknown		5					No
205	Jasper	Urban	Public Sanitary Sewer	Jasper	3					No											Yes
206	Jasper	Suburban	Public Sanitary Sewer	Jasper	5					No											Yes
207	Madison Township	Rural	Private Septic System			1977 or Before	4		Somewhat Interested	No											Yes
208	Ferdinand Township	Urban	Public Sanitary Sewer	Ferdinand	5					No											No
209	Jasper	Urban	Public Sanitary Sewer	Jasper	4					No											Yes
210	Jasper	Urban	Public Sanitary Sewer	Jasper	5					Yes	Columbia Township	Rural	Investment Residential, Undeveloped Residential	Private Septic System			1977 or Before	2	Sewerage backu	Somewhat Interested	Yes
211	Ireland	Rural	Private Septic System			1978-1999	5		Not Interested	Yes	Bainbridge Township, Madison Township, Ireland	Rural	Investment Residential	Public Sanitary Sewer	Ireland	5					No
212	Bainbridge Township	Urban	Public Sanitary Sewer	Jasper	2					No											Yes
213	Jasper	Suburban	Public Sanitary Sewer	Jasper	4					Yes	Marion Township	Rural	forest								Yes
214	Birdseye	Urban	Public Sanitary Sewer	Birdseye	2					Yes	Patoka Township	Rural	Investment Residential	Private Septic System			1978-1999	4		Not Interested	Yes
215	Jackson Township	Rural	Public Sanitary Sewer	Patoka Lake	3					No											Yes
216	Huntingburg	Urban	Public Sanitary Sewer	Huntingburg	2					No											Yes
217	Jasper	Rural	Public Sanitary Sewer	Jasper	5					No											Yes
218	Harbison Township	Rural	Private Septic System			1977 or Before	4		Very Interested	Yes	Harbison Township	Rural	Industrial	Private Septic System			2000 or After			Very Interested	Yes
219	Jasper	Urban	Public Sanitary Sewer	Patoka Lake	1					No											No
220	Madison Township	Rural	Public Sanitary Sewer	Jasper	4					No											Yes
221	Jasper	Urban	Public Sanitary Sewer	Jasper	4					No											Yes
222	Boone Township	Suburban	Public Sanitary Sewer	Jasper	4					No											Yes
223	Harbison Township	Rural	Private Septic System	Patoka Lake	Good	1977 or before	Excellent		Somewhat interested	No											Yes
224	Harbison Township	Rural	Private Septic System	Unknown	Excellent	1978-1999	Excellent		Not interested	No											Yes
225	Harbison Township	Rural	Private Septic System	Patoka Lake	Good	1978-1999	Good		Very interested	Yes	Harbison/Haysville	Rural	Undeveloped Residential	Private Septic System	Patoka Lake	Good	Unknown	Good		Very interested	Yes
226	Haysville	Urban	Private Septic System	Jasper	Excellent	2000 or after	Excellent		Not interested	Yes	Haysville	Urban	Cemetry	Unknown	Jasper	Excellent	2000 or after	Excellent		Not interested	Yes

APPENDIX C

PRELIMINARY OPINION OF PROBABLE COSTS

Region 1 - Patoka Service Area
Conveyance Costs
Preliminary Opinion of Probable Construction Costs
August 2021

Description	Quantity	Unit	Unit Price	Total Costs
1) Crystal to Existing Collection System or Patoka Facility				
New Lift Station	1	LS	$ 100,000	$ 100,000
Gravity Sewer/Forcemain	49,650	LF	$ 150	$ 7,447,500
Connection to Existing Manholes	1	LS	$ 50,000	$ 50,000
Road Cuts & Pavement Replacement	1	LS	$ 150,000	$ 150,000
Traffic Maintenance	1	LS	$ 50,000	$ 50,000
Tree Removal	1	LS	$ 25,000	$ 25,000
Manhole and Gravity Sewer Testing	1	LS	$ 50,000	$ 50,000
General				
Mobilization/De-mobilization	5%		$ 393,625	$ 390,000
Overhead and Profit	10%		$ 787,250	$ 790,000
Bonds and Insurance	2%		$ 157,450	$ 160,000
Contingency	30%		$ 2,361,750	$ 2,360,000
Design/CES Engineering	15%		$ 1,180,875	$ 1,180,000
Subtotal				**$ 12,752,500**
2) Cuzco to Existing Collection System or Patoka Facility				
New Lift Station	1	LS	$ 100,000	$ 100,000
Gravity Sewer/Forcemain	35,500	LS	$ 150	$ 5,325,000
Connection to Existing Manholes	1	LS	$ 50,000	$ 50,000
Road Cuts & Pavement Replacement	1	LS	$ 120,000	$ 120,000
Traffic Maintenance	1	LS	$ 40,000	$ 40,000
Tree Removal	1	LS	$ 20,000	$ 20,000
Manhole and Gravity Sewer Testing	1	LS	$ 40,000	$ 40,000
General				
Mobilization/De-mobilization	5%		$ 284,750	$ 280,000
Overhead and Profit	10%		$ 569,500	$ 570,000
Bonds and Insurance	2%		$ 113,900	$ 110,000
Contingency	30%		$ 1,708,500	$ 1,710,000
Design/CES Engineering	15%		$ 854,250	$ 850,000
Subtotal				**$ 9,215,000**
3) Dubois Crossroads to Existing Collection System or Patoka Facility				
New Lift Station	1	LS	$ 100,000	$ 100,000
Gravity Sewer/Forcemain	31,000	LS	$ 150	$ 4,650,000
Connection to Existing Manholes	1	LS	$ 50,000	$ 50,000
Road Cuts & Pavement Replacement	1	LS	$ 120,000	$ 120,000
Traffic Maintenance	1	LS	$ 40,000	$ 40,000
Tree Removal	1	LS	$ 20,000	$ 20,000
Manhole and Gravity Sewer Testing	1	LS	$ 40,000	$ 40,000
General				
Mobilization/De-mobilization	5%		$ 251,000	$ 250,000
Overhead and Profit	10%		$ 502,000	$ 500,000
Bonds and Insurance	2%		$ 100,400	$ 100,000
Contingency	30%		$ 1,506,000	$ 1,510,000
Design/CES Engineering	15%		$ 753,000	$ 750,000
Subtotal				**$ 8,130,000**

Region 1 - Patoka Service Area
Conveyance Costs
Preliminary Opinion of Probable Construction Costs
August 2021

Description	Quantity	Unit	Unit Price	Total Costs
4) Hillham to Existing Collection System or Patoka Facility				
New Lift Station	1	LS	$ 100,000	$ 100,000
Gravity Sewer/Forcemain	55,000	LF	$ 150	$ 8,250,000
Connection to Existing Manholes	1	LS	$ 50,000	$ 50,000
Road Cuts & Pavement Replacement	1	LS	$ 150,000	$ 150,000
Traffic Maintenance	1	LS	$ 50,000	$ 50,000
Tree Removal	1	LS	$ 25,000	$ 25,000
Manhole and Gravity Sewer Testing	1	LS	$ 50,000	$ 50,000
General				
Mobilization/De-mobilization	5%		$ 428,750	$ 430,000
Overhead and Profit	10%		$ 857,500	$ 860,000
Bonds and Insurance	2%		$ 171,500	$ 170,000
Contingency	30%		$ 2,572,500	$ 2,570,000
Design/CES Engineering	15%		$ 1,286,250	$ 1,290,000
Subtotal				**$ 13,995,000**
5) Kyana to Existing Lift Station at Patoka Facility				
New Lift Station	1	LS	$ 100,000	$ 100,000
Gravity Sewer/Forcemain	89,800	LS	$ 150	$ 13,470,000
Connection to Existing Manholes	1	LS	$ 50,000	$ 50,000
Road Cuts & Pavement Replacement	1	LS	$ 120,000	$ 120,000
Traffic Maintenance	1	LS	$ 40,000	$ 40,000
Tree Removal	1	LS	$ 20,000	$ 20,000
Manhole and Gravity Sewer Testing	1	LS	$ 40,000	$ 40,000
General				
Mobilization/De-mobilization	5%		$ 692,000	$ 690,000
Overhead and Profit	10%		$ 1,384,000	$ 1,380,000
Bonds and Insurance	2%		$ 276,800	$ 280,000
Contingency	30%		$ 4,152,000	$ 4,150,000
Design/CES Engineering	15%		$ 2,076,000	$ 2,080,000
Subtotal				**$ 22,420,000**
6) Mentor to Existing Lift Station at Patoka Facility				
New Lift Station	1	LS	$ 100,000	$ 100,000
Gravity Sewer/Forcemain	58,100	LF	$ 150	$ 8,715,000
Connection to Existing Manholes	1	LS	$ 50,000	$ 50,000
Road Cuts & Pavement Replacement	1	LS	$ 100,000	$ 100,000
Traffic Maintenance	1	LS	$ 30,000	$ 30,000
Tree Removal	1	LS	$ 15,000	$ 15,000
Manhole and Gravity Sewer Testing	1	LS	$ 30,000	$ 30,000
General				
Mobilization/De-mobilization	5%		$ 452,000	$ 450,000
Overhead and Profit	10%		$ 894,000	$ 890,000
Bonds and Insurance	2%		$ 178,800	$ 180,000
Contingency	30%		$ 2,817,000	$ 2,820,000
Design/CES Engineering	15%		$ 1,542,000	$ 1,540,000
Subtotal				**$ 14,920,000**
7) Kellerville to Patoka Facility				

Region 1 - Patoka Service Area
Conveyance Costs
Preliminary Opinion of Probable Construction Costs
August 2021

	Description	Quantity	Unit	Unit Price	Total Costs
	New Lift Station	1	LS	$ 100,000	$ 100,000
	Gravity Sewer/Forcemain	37,100	LF	$ 150	$ 5,565,000
	Connection to Existing Manholes	1	LS	$ 50,000	$ 50,000
	Road Cuts & Pavement Replacement	1	LS	$ 120,000	$ 120,000
	Traffic Maintenance	1	LS	$ 40,000	$ 40,000
	Tree Removal	1	LS	$ 20,000	$ 20,000
	Manhole and Gravity Sewer Testing	1	LS	$ 40,000	$ 40,000
	General				
	Mobilization/De-mobilization	5%		$ 296,750	$ 300,000
	Overhead and Profit	10%		$ 593,500	$ 590,000
	Bonds and Insurance	2%		$ 118,700	$ 120,000
	Contingency	30%		$ 1,780,500	$ 1,780,000
	Design/CES Engineering	15%		$ 890,250	$ 890,000
	Subtotal				**$ 9,615,000**
	8) Thales to Patoka Facility				
	New Lift Station	1	LS	$ 100,000	$ 100,000
	Gravity Sewer/Forcemain	46,000	LF	$ 150	$ 6,900,000
	Connection to Existing Manholes	1	LS	$ 50,000	$ 50,000
	Road Cuts & Pavement Replacement	1	LS	$ 150,000	$ 150,000
	Traffic Maintenance	1	LS	$ 50,000	$ 50,000
	Tree Removal	1	LS	$ 25,000	$ 25,000
	Manhole and Gravity Sewer Testing	1	LS	$ 50,000	$ 50,000
	General				
	Mobilization/De-mobilization	5%		$ 366,250	$ 370,000
	Overhead and Profit	10%		$ 732,500	$ 730,000
	Bonds and Insurance	2%		$ 146,500	$ 150,000
	Contingency	30%		$ 2,197,500	$ 2,200,000
	Design/CES Engineering	15%		$ 1,098,750	$ 1,100,000
	Subtotal				**$ 11,875,000**
	Total				**$ 102,922,500**

Region 2 - Huntingburg Service Area
Conveyance Costs
Preliminary Opinion of Probable Construction Costs
August 2021

Description	Quantity	Unit	Unit Price	Total Costs
1) Duff to Existing Lift Station at Huntingburg WWTP				
New Lift Station	1	LS	$ 100,000	$ 100,000
Gravity Sewer/Forcemain	39,200	LF	$ 150	$ 5,880,000
Connection to Existing Manholes	1	LS	$ 50,000	$ 50,000
Road Cuts & Pavement Replacement	1	LS	$ 120,000	$ 120,000
Traffic Maintenance	1	LS	$ 40,000	$ 40,000
Tree Removal	1	LS	$ 20,000	$ 20,000
Manhole and Gravity Sewer Testing	1	LS	$ 40,000	$ 40,000
General				
Mobilization/De-mobilization	5%		$ 312,500	$ 310,000
Overhead and Profit	10%		$ 625,000	$ 630,000
Bonds and Insurance	2%		$ 125,000	$ 130,000
Contingency	30%		$ 1,875,000	$ 1,880,000
Design/CES Engineering	15%		$ 937,500	$ 940,000
Subtotal				**$ 10,140,000**
2) Johnsburg to Existing Lift Station at Huntingburg WWTP				
New Lift Station	1	LS	$ 100,000	$ 100,000
Gravity Sewer/Forcemain	34,900	LF	$ 150	$ 5,235,000
Connection to Existing Manholes	1	LS	$ 50,000	$ 50,000
Road Cuts & Pavement Replacement	1	LS	$ 120,000	$ 120,000
Traffic Maintenance	1	LS	$ 40,000	$ 40,000
Tree Removal	1	LS	$ 20,000	$ 20,000
Manhole and Gravity Sewer Testing	1	LS	$ 40,000	$ 40,000
General				
Mobilization/De-mobilization	5%		$ 280,250	$ 280,000
Overhead and Profit	10%		$ 560,500	$ 560,000
Bonds and Insurance	2%		$ 112,100	$ 110,000
Contingency	30%		$ 1,681,500	$ 1,680,000
Design/CES Engineering	15%		$ 840,750	$ 840,000
Subtotal				**$ 9,075,000**
3) St Henry to Existing Lift Station at Huntinburg WWTP				
New Lift Station	1	LS	$ 100,000	$ 100,000
Gravity Sewer/Forcemain	42,800	LF	$ 150	$ 6,420,000
Connection to Existing Manholes	1	LS	$ 50,000	$ 50,000
Road Cuts & Pavement Replacement	1	LS	$ 100,000	$ 100,000
Traffic Maintenance	1	LS	$ 30,000	$ 30,000
Tree Removal	1	LS	$ 15,000	$ 15,000
Manhole and Gravity Sewer Testing	1	LS	$ 30,000	$ 30,000
General				
Mobilization/De-mobilization	5%		$ 337,250	$ 340,000
Overhead and Profit	10%		$ 674,500	$ 670,000
Bonds and Insurance	2%		$ 134,900	$ 130,000
Contingency	30%		$ 2,023,500	$ 2,020,000
Design/CES Engineering	15%		$ 1,011,750	$ 1,010,000
Subtotal				**$ 10,915,000**
Total				**$ 30,130,000**

Region 3 - Jasper Service Area
Conveyance Costs
Preliminary Opinion of Probable Construction Costs
August 2021

Description	Quantity	Unit	Unit Price	Total Costs
1) Haysville to Existing Lift Station at Jasper WWTP				
New Lift Station	1	LS	$ 300,000	$ 300,000
Gravity Sewer/Forcemain	42,200	LF	$ 150	$ 6,330,000
Connection to Existing Manholes	1	LS	$ 50,000	$ 50,000
Road Cuts & Pavement Replacement	1	LS	$ 100,000	$ 100,000
Traffic Maintenance	1	LS	$ 100,000	$ 100,000
Tree Removal	1	LS	$ 50,000	$ 50,000
Manhole and Gravity Sewer Testing	1	LS	$ 100,000	$ 100,000
General				
Mobilization/De-mobilization	5%		$ 351,500	$ 350,000
Overhead and Profit	10%		$ 703,000	$ 700,000
Bonds and Insurance	2%		$ 140,600	$ 140,000
Contingency	30%		$ 2,109,000	$ 2,110,000
Design/CES Engineering	15%		$ 1,054,500	$ 1,050,000
Subtotal				**$ 11,380,000**
2) Portersville to Existing Collection System / Jasper WWTP				
New Lift Station	1	LS	$ 200,000	$ 200,000
Gravity Sewer/Forcemain	47,500	LF	$ 150	$ 7,125,000
Connection to Existing Manholes	1	LS	$ 50,000	$ 50,000
Road Cuts & Pavement Replacement	1	LS	$ 100,000	$ 100,000
Traffic Maintenance	1	LS	$ 100,000	$ 100,000
Tree Removal	1	LS	$ 50,000	$ 50,000
Manhole and Gravity Sewer Testing	1	LS	$ 100,000	$ 100,000
General				
Mobilization/De-mobilization	5%		$ 386,250	$ 390,000
Overhead and Profit	10%		$ 772,500	$ 770,000
Bonds and Insurance	2%		$ 154,500	$ 150,000
Contingency	30%		$ 2,317,500	$ 2,320,000
Design/CES Engineering	15%		$ 1,158,750	$ 1,160,000
Subtotal				**$ 12,515,000**
3) Maltersville to Existing Collection System / Jasper WWTP				
New Lift Station	1	LS	$ 100,000	$ 100,000
Gravity Sewer/Forcemain	28,700	LF	$ 150	$ 4,305,000
Connection to Existing Manholes	1	LS	$ 50,000	$ 50,000
Road Cuts & Pavement Replacement	1	LS	$ 100,000	$ 100,000
Traffic Maintenance	1	LS	$ 100,000	$ 100,000
Tree Removal	1	LS	$ 50,000	$ 50,000
Manhole and Gravity Sewer Testing	1	LS	$ 100,000	$ 100,000
General				
Mobilization/De-mobilization	5%		$ 240,250	$ 240,000
Overhead and Profit	10%		$ 480,500	$ 480,000
Bonds and Insurance	2%		$ 96,100	$ 100,000
Contingency	30%		$ 1,441,500	$ 1,440,000
Design/CES Engineering	15%		$ 720,750	$ 720,000
Subtotal				**$ 7,785,000**
4) Millersport to Existing Collection System / Jasper WWTP				
New Lift Station	1	LS	$ 100,000	$ 100,000

Region 3 - Jasper Service Area
Conveyance Costs
Preliminary Opinion of Probable Construction Costs
August 2021

Description		Quantity	Unit	Unit Price	Total Costs
	Gravity Sewer/Forcemain	58,900	LF	$ 150	$ 8,835,000
	Connection to Existing Manholes	1	LS	$ 50,000	$ 50,000
	Road Cuts & Pavement Replacement	1	LS	$ 100,000	$ 100,000
	Traffic Maintenance	1	LS	$ 100,000	$ 100,000
	Tree Removal	1	LS	$ 50,000	$ 50,000
	Manhole and Gravity Sewer Testing	1	LS	$ 100,000	$ 100,000
	General				
	Mobilization/De-mobilization	5%		$ 240,250	$ 240,000
	Overhead and Profit	10%		$ 480,500	$ 480,000
	Bonds and Insurance	2%		$ 96,100	$ 100,000
	Contingency	30%		$ 1,441,500	$ 1,440,000
	Design/CES Engineering	15%		$ 720,750	$ 720,000
	Subtotal				**$ 12,315,000**
	Total				**$ 43,995,000**

APPENDIX D

EXAMPLE RATE SCHEDULE

Dubois County Regional Sewer District Study

Dubois County, IN

Draft Rate Schedule

August 2021

	Expenses											
	Operating Expenses	Other Expenses	Sewer Depreciation Fund	Haysville ($11,380,000, 30-years, 2.5%, 50% grant)	Kellerville ($9,615,000, 30-years, 2.5%, 50% grant)	Dubois Crossroads ($8,130,000, 30-years, 2.5%, 50% grant)	St Henry ($10,915,000, 30-years, 2.5%, 50% grant)	Portersville ($12,515,000, 30-years, 2.5%, 50% grant)	Total Expenses	Projected Revenues (Assumes a 1% annual rate increase)	Annual Net	Annual Cumulative
FY23/24	$400,000	$525,000							$925,000	$2,000,000	$1,075,000	$1,075,000
FY24/25	$412,000	$25,000		$272,000	$230,000	$194,500	$261,000	$299,000	$1,693,500	$2,020,000	$326,500	$1,401,500
FY25/26	$424,000	$25,000	$10,000	$272,000	$230,000	$194,500	$261,000	$299,000	$1,715,500	$2,041,000	$325,500	$1,727,000
FY26/27	$437,000	$25,000	$22,000	$272,000	$230,000	$194,500	$261,000	$299,000	$1,740,500	$2,062,000	$321,500	$2,048,500
FY27/28	$450,000	$25,000	$23,100	$272,000	$230,000	$194,500	$261,000	$299,000	$1,754,600	$2,083,000	$328,400	$2,376,900
FY28/29	$463,000	$25,000	$24,255	$272,000	$230,000	$194,500	$261,000	$299,000	$1,768,755	$2,104,000	$335,245	$2,712,145
FY29/30	$477,000	$25,000	$25,468	$272,000	$230,000	$194,500	$261,000	$299,000	$1,783,968	$2,126,000	$342,032	$3,054,177
FY30/31	$491,000	$25,000	$26,741	$272,000	$230,000	$194,500	$261,000	$299,000	$1,799,241	$2,158,000	$358,759	$3,412,936
FY31/32	$505,000	$25,000	$28,078	$272,000	$230,000	$194,500	$261,000	$299,000	$1,814,578	$2,191,000	$376,422	$3,789,358
FY32/33	$520,000	$25,000	$29,482	$272,000	$230,000	$194,500	$261,000	$299,000	$1,830,982	$2,224,000	$393,018	$4,182,376
FY33/34	$535,000	$25,000	$30,956	$272,000	$230,000	$194,500	$261,000	$299,000	$1,847,456	$2,258,000	$410,544	$4,592,920
FY34/35	$551,000	$25,000	$32,504	$272,000	$230,000	$194,500	$261,000	$299,000	$1,865,004	$2,292,000	$426,996	$5,019,916
FY35/36	$567,000	$25,000	$34,129	$272,000	$230,000	$194,500	$261,000	$299,000	$1,882,629	$2,327,000	$444,371	$5,464,286
FY36/37	$584,000	$25,000	$35,836	$272,000	$230,000	$194,500	$261,000	$299,000	$1,901,336	$2,362,000	$460,664	$5,924,951
FY37/38	$601,000	$25,000	$37,627	$272,000	$230,000	$194,500	$261,000	$299,000	$1,920,127	$2,398,000	$477,873	$6,402,823
FY38/39	$619,000	$25,000	$39,509	$272,000	$230,000	$194,500	$261,000	$299,000	$1,940,009	$2,434,000	$493,991	$6,896,814
FY40/41	$637,000	$25,000	$41,484	$272,000	$230,000	$194,500	$261,000	$299,000	$1,959,984	$2,471,000	$511,016	$7,407,830
FY41/42	$656,000	$25,000	$43,558	$272,000	$230,000	$194,500	$261,000	$299,000	$1,981,058	$2,509,000	$527,942	$7,935,772
FY42/43	$675,000	$25,000	$45,736	$272,000	$230,000	$194,500	$261,000	$299,000	$2,002,236	$2,547,000	$544,764	$8,480,535
FY43/44	$695,000	$25,000	$48,023	$272,000	$230,000	$194,500	$261,000	$299,000	$2,024,523	$2,586,000	$561,477	$9,042,012
FY44/45	$715,000	$25,000	$50,424	$272,000	$230,000	$194,500	$261,000	$299,000	$2,046,924	$2,625,000	$578,076	$9,620,088
FY45/46	$736,000	$25,000	$52,946						$813,946	$2,665,000	$1,851,054	$11,471,142

Notes:

1. The base rate would be $50/user under the following assumptions: Total Revenue generated is about $ 2 million and number of user accounts is 1000 with 12 bills/year.

APPENDIX E

DUBOIS COUNTY SEWER ORDINANCE

ORDINANCE NO. 2018-1

AN ORDINANCE REGULATING THE DESIGN, CONSTRUCTION, INSTALLATION, MAINTENANCE AND OPERATION OF PRIVATE SEWAGE DISPOSAL SYSTEMS IN DUBOIS COUNTY, INDIANA; REQUIRING A PERMIT TO INSTALL, REPAIR OR ALTER ANY PRIVATE SEWAGE DISPOSAL SYSTEM AND ESTABLISHING REGULATIONS WITH REGARD TO THE INSTALLATION THEREOF; REQUIRING THE REGISTRATION OF INSTALLERS OF SUCH SYSTEMS; AND PENALTIES FOR VIOLATIONS THEREOF.

Section 1. This ordinance shall be administered by the Dubois County Health Department through the Health Officer or his designee. Minimum requirements shall be specified by the Indiana State Department of Health as now provided in its Residential Sewage Disposal Systems Rule 410 IAC 6-8.3 or as the same may be hereafter changed or amended.

Section 2. 410 IAC 6-8.3-52 General sewage disposal requirements. Part (L). Wherever a public sanitary sewer becomes available and is within 200 feet from the residential or business property line served by a private sewage disposal system or privy, situated in Dubois County, Indiana, a direct connection shall be made to the said sewer. Any septic tank, seepage pits, privy pits and similar sewage disposal and treatment facilities shall be abandoned and filled in a safe and sanitary manner.

Section 3. 410 IAC 6-8.3-57 Separation distances. The following provisions shall apply in Dubois County:

Minimum distance in feet from	Septic tank, Dosing tank,	Upslope from absorption field	Down slope from absorption field
Front, side or rear lot lines	10	10	10

Section 4. 410 IAC 6-8.3-74 Subsurface trench on-site sewage systems: general design and construction requirements. Part (Q) the following provision shall apply in Dubois County: There shall be a minimum separation of ten (10) feet, on center, between absorption field trenches.

Section 5. Permits to install, registering of installers, permit and registration fees and inspections.

A. Before commencement of construction of any business building or private residence where a private sewage disposal system or privy is to be installed or where any alterations, repair or addition of an existing private sewage disposal system is planned, the owner or agent of the owner shall obtain a soil evaluation by an Indiana Registered Soil Scientist and complete the plan review form provided by the Dubois County Health Department.
B. Site reviews will be conducted by the Dubois County Health Department to verify written plan review before application for a permit may be made. The application for such permit shall be made on a form provided by the Dubois County Health Department which application shall be supplemented by any plans, specifications and any other information deemed necessary by the Health Officer or his designee.
C. No person shall construct, install, connect, alter or extend a private sewage disposal system within Dubois County, Indiana without first having filed a written application as set forth in this ordinance and having a written permit from the Health Officer or his designee.
D. A fee established by the Dubois County Board of Health shall be paid with each application for permits filed with the Dubois County Health Department.
E. A separate permit shall be obtained for sewage disposal work on each dwelling.
F. If the sewage disposal system has not been constructed, installed, altered or extended before the rule governing it changes, the permit shall automatically expire.

G. The Health Officer or his designee shall deny a permit if the information on the application is incomplete, inaccurate or indicates that the provisions of this ordinance cannot be met.
H. The issuance of a permit does not constitute assumption by the Dubois County Health Department or its employees of liability for the failure of any sewage disposal system.
I. The Health Officer or his designee shall maintain a register of all people engaged in or intending to engage in the installation of sewage disposal devices or equipment within Dubois County, Indiana.
J. Any individual, firm, association or corporation engaged in or intending to engage in the installation of sewage disposal devices or equipment shall make application to the Health Officer or his designee to have his name placed on the register for those engaged in the installation of sewage disposal devices or equipment. The applicant shall submit an application fee established by the Dubois County Board of Health per calendar year or part thereof. The application form shall contain the name and address of the person making application and the address of the firm or place of business he is associated with, and such information as the Health Officer or his designee determines will reasonably aid in the administration and enforcement of this ordinance.
K. Upon recommendation of the Health Officer or his designee, the Board may remove the name of any individual, partnership, firm, association or corporation from the register or persons engaged in the installation of sewage disposal devices or equipment who have demonstrated inability or unwillingness to comply with the regulations. Such person may have his name reinstated on the register of persons engaged in the installation of sewage disposal devices or equipment by the Board of Health after satisfactory demonstration of ability or willingness to comply with the regulations.
L. All fees collected under the terms of this ordinance shall be receipted monthly into the Dubois County Treasury and credited to the Dubois County Health Fund for services rendered in enforcing this ordinance.
M. The provisions of the permit for the construction of a private sewage disposal system or privy shall not be considered fulfilled until the installation is completed to the satisfaction of the Health Officer or his designee. The permitee shall notify the Health Officer or his designee at least two (2) working days prior to completion of the system for final backfill inspection. Such final inspection is required before any underground portions are covered.
N. The Health Officer or his designee shall be permitted to enter upon all properties for purposes of inspection, observation and testing necessary to carry out the provisions of this ordinance.

Section 6. Enforcement Procedures

A. Any person found to be violating any provisions of this regulation may be served by the Health Officer or his designee with a written order stating the nature of the violation and providing a time limit for satisfactory correction thereof.
B. After receiving an order in writing from the Health Officer or his designee, the owner, agent of the owner, the occupant or agent of the occupant of the property shall comply with the provisions of this ordinance as set forth in said order and within the time limit included therein. Said order shall be served on the owner or agent of the owner or the occupant or the agent of the occupant, but may be served on any person who, by contact with the owner, has assumed the duty of complying with the provisions of an order.

Section 7. Penalties

A. Any person found to be violating any provisions of this ordinance shall be guilty of a misdemeanor. On conviction, the violator shall be punished for the first offense by a fine of not more than five hundred ($500.00) dollars; for the second offense by the fine of not more than one thousand ($1,000.00) dollars; and for the third and each subsequent offense by a fine of not more than one thousand ($1,000.00)

dollars to which may be added imprisonment for any determined period not exceeding ninety (90) days, and each day after the expiration of the time limit for abating insanitary conditions and conditions as ordered by the Health Officer or his designee, shall constitute a distinct and separate offense.

Section 8. Appeals Procedure

A. If an applicant is refused a permit, the Health Officer shall, upon request, afford the applicant a fair hearing in accordance with provisions of IC 4-21.5-3.
B. The Health Officer may, after reasonable notice and opportunity for a fair hearing, in accordance with the provisions of IC 4-21.5-3, revoke a permit if it finds that the holder of the permit has failed to comply with any provisions of this ordinance.

Section 9. Validity

A. If any section, paragraph, sentence, clause, phrase or work of this ordinance, or any part thereof be declared invalid for any reason, the remainder of said ordinance shall not be affected thereby and shall remain in full force and effect.
B. Adoption of this ordinance shall serve to supersede Dubois County Board of Health Ordinance 2011-1.

Section 10. Date of effect

A. This ordinance shall be in full force and effect on the 18th of June, 2018, upon its adoption and its publication as provided by law.

Signed By: Dubois County Commissioners

Nick Hostetter _____

Chad Blessinger _____

Elmer Brames _____

Clark Dietz, Inc.
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