CLEAN WATER PATHWAYS FOR RURAL INDIANA

TIPPECANOE & CHAPMAN RSD

JONES PETRIE RAFINSKI

HOW TO BEGIN?

Activation of Rural Utility Projects – Why?

- Reacting to property owners?
- Reacting to environmental issues?
- Reacting to health concerns?
- Reacting to development pressure?

.....

1st Step…

Purpose and Need

Typical Drivers:

- Substandard lot sizes
- Poor soil for on-site septic systems
- Undocumented on-site systems
- Shallow wells within isolation zones
- No viable repair or replacement options
- Alternatives are costly, unfeasible, or threaten housing viability
- Waterfront communities
- Unincorporated communities
- Suburban development areas

RURAL WASTEWATER CONCERNS: THE FACTS...

1

The average American home generates 150-310 gallons of wastewater per day.

When on-site treatment is no longer feasible, rural communities must explore alternatives. Human health, environmental impacts, and drinking water risks are significant. Protecting housing stock and property values is essential.

2

What about lakes, rivers, and streams?

Human encroachment can degrade surface water quality over time, with ecosystem-wide effects that impact plants, animals, and humans.

3

What can be done?

Homeowners have limited ways to protect local water sources, but working together can make a difference. Waste collection and treatment requires community action.

CASE STUDY: TIPPECANOE/CHAPMAN LAKES
KOSCIUSKO COUNTY

Project Advanced By:

- Motivated residents
- The Watershed Foundation
- Health officials
- County elected officials
- 10 prior studies (1970-2017) all recommended sewer systems
- TCRSD formed in Dec. 2019 on the Board of Commissioners' recommendation

- TCRSD is an independent municipal corporation under Indiana Statute IC-13-26
- Provides wastewater collection, treatment, & disposal services
- Comprised of 7 trustees within 4-year terms

THE CHALLENGE: TIPPECANOE & CHAPMAN REGIONAL SEWER DISTRICT

Within the TCRSD Impact Area

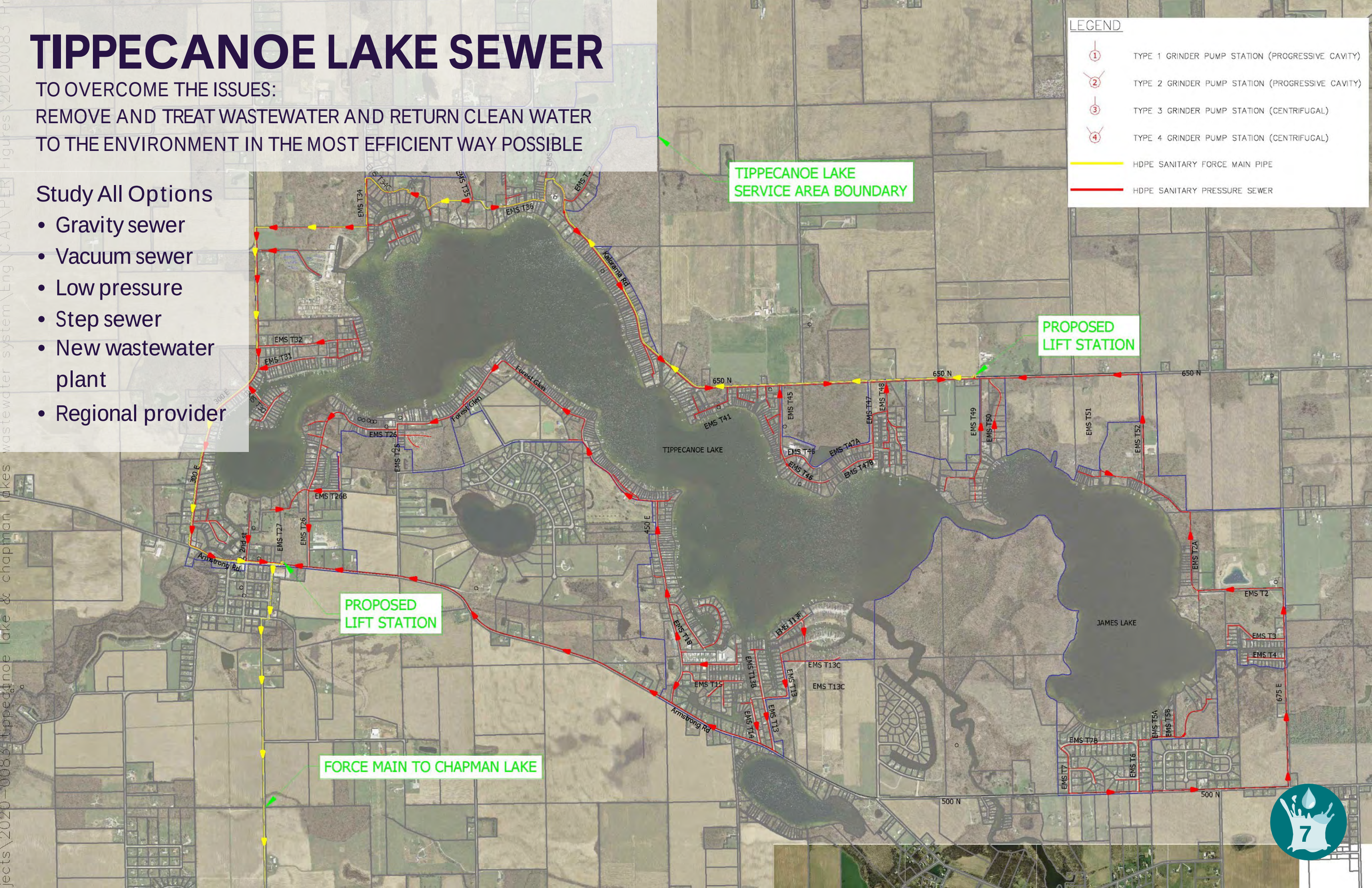
- 1,900 waste producing properties located in proximity to surface water
- High development densities– exceeding most small towns in Indiana
- Soil and geology increase risks to surface and high water tables
- Est. 400K gallons/day of wastewater discharged into the environment

TIPPECANOE LAKE SEWER

TO OVERCOME THE ISSUES:
REMOVE AND TREAT WASTEWATER AND RETURN CLEAN WATER
TO THE ENVIRONMENT IN THE MOST EFFICIENT WAY POSSIBLE

Study All Options

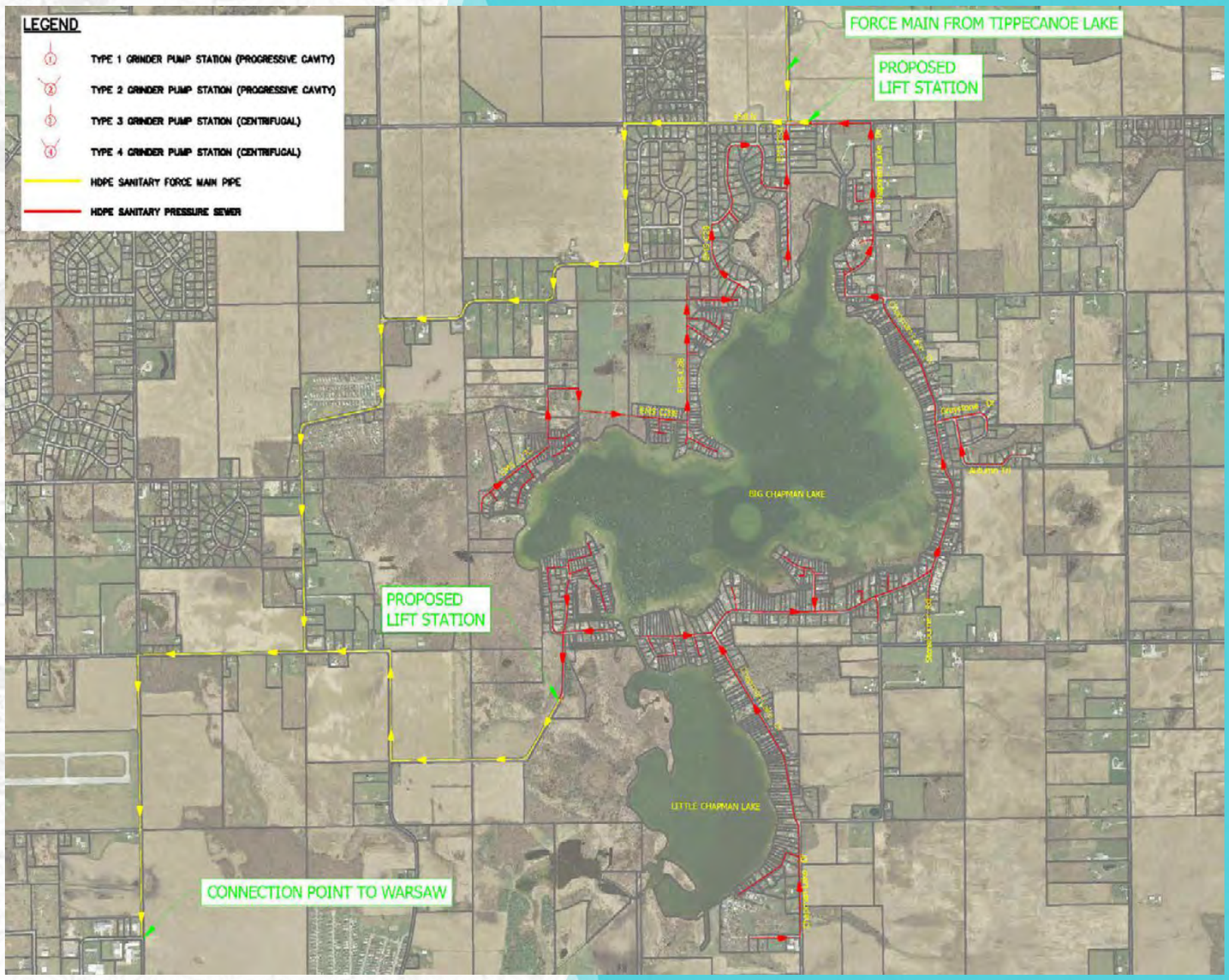
- Gravity sewer
- Vacuum sewer
- Low pressure
- Step sewer
- New wastewater plant
- Regional provider



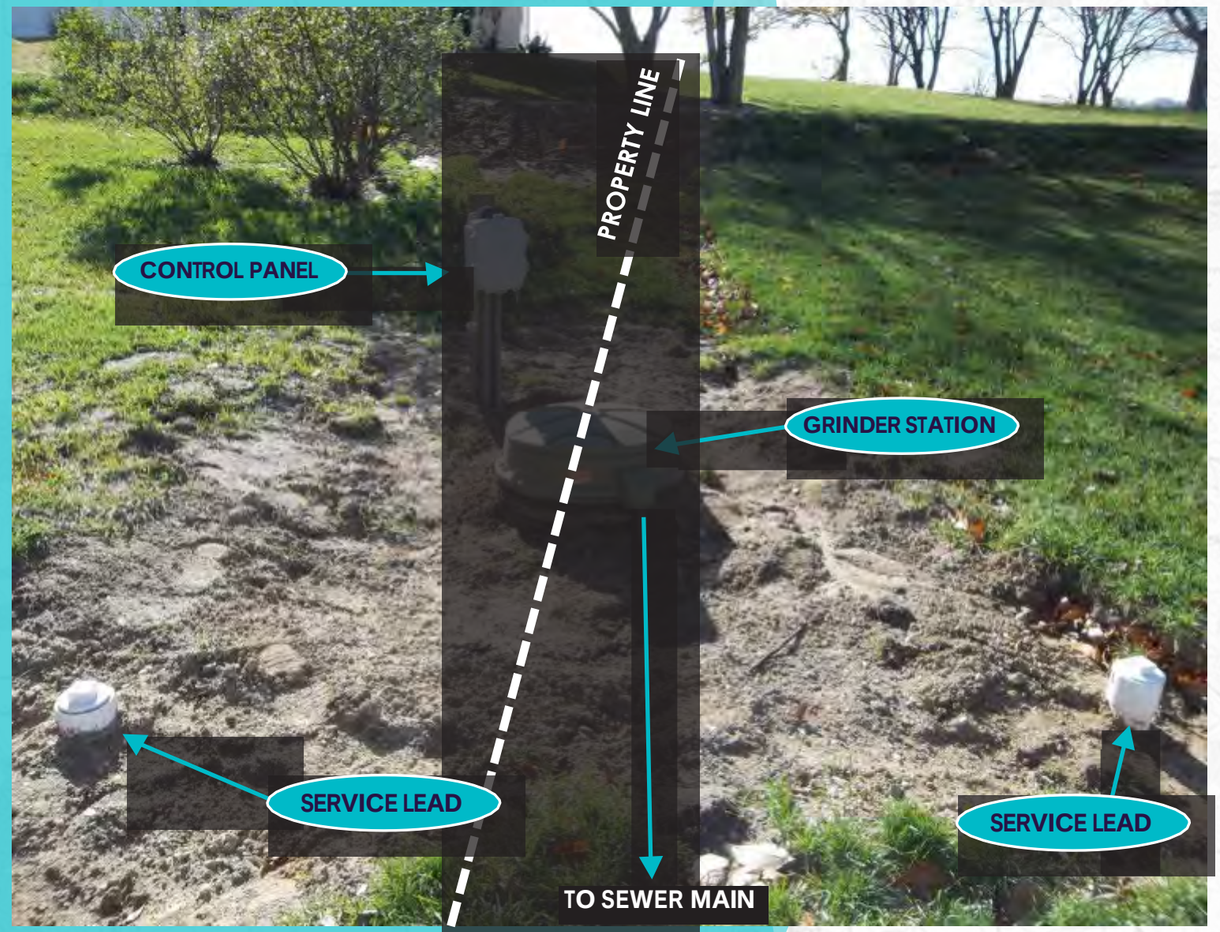
CHAPMAN LAKE SEWER

SELECTED METHOD– LOW PRESSURE SEWER:

- Small Diameter Pipe
- Directional Drilled
- Grinder Pump Units
- Pump Stations energize force mains
- Treatment provided by advanced “clean water” plant at Warsaw



TIPPECANOE & CHAPMAN WASTEWATER SYSTEM



- Package grinder pump stations located on or near customer's property
- Shared by two residents whenever feasible
- Installed near the road (max 100' onto property) for gravity connection
- Owned and maintained by the district
- District provides and pays for electricity
- 100% of care and maintenance provided by the district

PROJECT COSTS

Total Project Cost …….$52,000,000

Length of Pipe:

- 63,000 LFT of Force Main
- 184,000 LFT of Pressure Sewer

Number of Grinder Stations:

- 1,200 Grinder Stations
  - 471 Type 1– Single Home
  - 706 Type 2 – Shared Home
  - 23 Type 3 – Commercial

Homeowner Costs:

- Connect to service lead
- Abandon septic system monthly rate

Funding

- USDA Grant/Loan and SRF forgivable loan and up to 35 year loan

COMMON CONCERNS

Installation Costs

- Public improvements funded through monthly rates
- No tap fee
- Property owners responsible for connecting their home to the district sewer lead

Future Rates and Public Input

- Homeowners can attend public hearings for any rate changes, with advance notice provided
- District boards hold open public meetings monthly
- Districts operate at cost under strict state oversight

New Sewer Systems and New Development

- Zoning restricts high-density growth to protect the environment and property values
- Sewer systems mitigate health risks from existing high density development
- New high-density projects require public input and are subject to very strict zoning conditions

Resident/Customer Objections/Opposition

- Rates and charges
- Cost per physical connection
- Abandonment of septic system

COMMON CONCERNS CONTINUED

Overcrowding, and More Boat Traffic

- Sewer systems don't cause overcrowding or increased boat traffic
- Lakes and many unincorporated communities already have high density development; sewers support preserving and improving single-family homes
- New utility protects property values with permanent wastewater solutions

Requirements to Connect

- Rural systems typically place connection point at the property line

Resident/Customer Concerns

- Rates/charges <$100/mo draws objections
- Cost for abandonment of septic systems and connect to sewer - $3,000 to $5,000
- Also draws objections (possible subsidy from surplus funds)
- Connection is mandatory, but exemption is open to all

District Expansion

- District growth is based on need, IDEM cannot require adding excluded land to the District, as it has no authority over boundary decisions

COMPARATIVE COSTS

ON-SITE SYSTEM REPLACEMENT COST					
	Gravity Trenches (SAF)	Flood Dosed Trenches (SAF)	Elevated Sand Mound (SAF)	Aerobic System (SAF)	Holding Tank
Soil Borings	$600-750	$600-$750	$600-$750	$600-$750	$600-$750
Engineer Design	$1,000-$2,000	$1,500-$2,500	$1,500-$2,500	$1,500-$2,500	$1,000-$1,200
Permits	$30-$200	$30-$200	$30-$200	$30-$200	$30-$200
Electrician	$0	$500-$1,500	$500-$1,500	$500-$1,500	$500-$1,500
Installation	$10,000-$14,000	$16,000-$22,000	$24,000-$38,000	$24,000-$38,000	$5,000-$8,000
Total	$11,630-$16,950	$18,630-$26,950	$26,630-$42,950	$26,630-$42,950	$7,130-$11,650
15 years @ 6% cost/month*	$98-$143	$157-$227	$225-$362.50	$225-$362.50	$60-$98.30

* Home equity or similar

ANNUAL OPERATION AND MAINTENANCE FEES					
	Gravity Trenches (SAF)	Flood Dosed Trenches (SAF)	Elevated Sand Mound (SAF)	Aerobic System (SAF)	Holding Tank
Service Provider (1)	N/A	N/A	N/A	$39-$62	$25-$50
Power to System (2)	N/A	$5-$7	$5-$7	$20-$30	$5-$7
Pumping Tank (3)	$9-$17	$9-$17	$9-$17	$9-$17	$1,200-$2,400 (4)
Total	$9-$17	$14-$24	$14-$24	$68-$109	$1,230-$2,457
Total Monthly Cost	$107-$160	$171-$251.50	$239-$389.45	$293-$471.50	$1,290-$2,555

(1) Aerobic treatment systems are an added component to the septic system when required by on-site conditions
(2) Annually
(3) Every 3 year
(4) Once a week

ESTIMATED COMMUNITY SEWER COSTS - PER HOME		
Connect to Sewer	30-50 per foot for 50 foot house lead	$1,200-$2,200
Power Connection	For Grinder Pump	$1,000-$1,500
Restoration	Yard, Landscape, etc	$500-$1,500
Abandon Septic Tank	Pump and Abandon Septic Tank	$1,000-$1,500
Permit	Depending on Who Issues Permit	$125-$250
Total Estimated Cost (one time expense)		$3,825-$6,950
Estimated Monthly Sewer Rate		$150-$200 (Today)

CONTACT INFORMATION

Ken Jones - Jones Petrie Rafinski

574.596.9068

kenjones@jpr1source.com

JONES PETRIE RAFINSKI