

COWAN LAKE ASSOCIATION

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SEPTIC SYSTEM 101

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SERVE, PROTECT AND PROMOTE A HEALTHY COMMUNITY FOR ALL

- Why is Sewage bad?
- What kind of pollution can a failing septic system cause?
- Septic System 101
- Limitations on your property

Let's review the sicknesses caused by sewage...



- **Bacteria**; E. coli O157:H7 and other shiga toxin producing E. coli, Campylobacter, Clostridium difficile, Listeria, Salmonella, Shigella, Vibrio (cholera)
- **Protozoa**; Giardia, Entamoeba histolytica (amebiasis), Toxoplasmosis (fetal damage if pregnant woman infected), Cryptosporidium
- **Viruses**; Poliovirus (oral vaccine derived-only reported in unvaccinated community in Minnesota), Hepatitis A, Rotavirus, Norovirus, Coxsackie virus A and B (causes encephalitis, myocarditis)
- **Worms**; Pinworms, Roundworms (ascariasis), Tapeworms

References: Musher DM, Musher B. Acute contagious gastrointestinal infections. N Engl J Med 2004;351:2417 Koren H, Bisesi M. Public Health Aspects of Water Pollution. In: Handbook of Environmental Health, Vol 2. Boca Raton: Lewis Publishers 2003:570-583. Source: Dr. Robert Schirmer, MD, FACP, BEDHD Medical Director

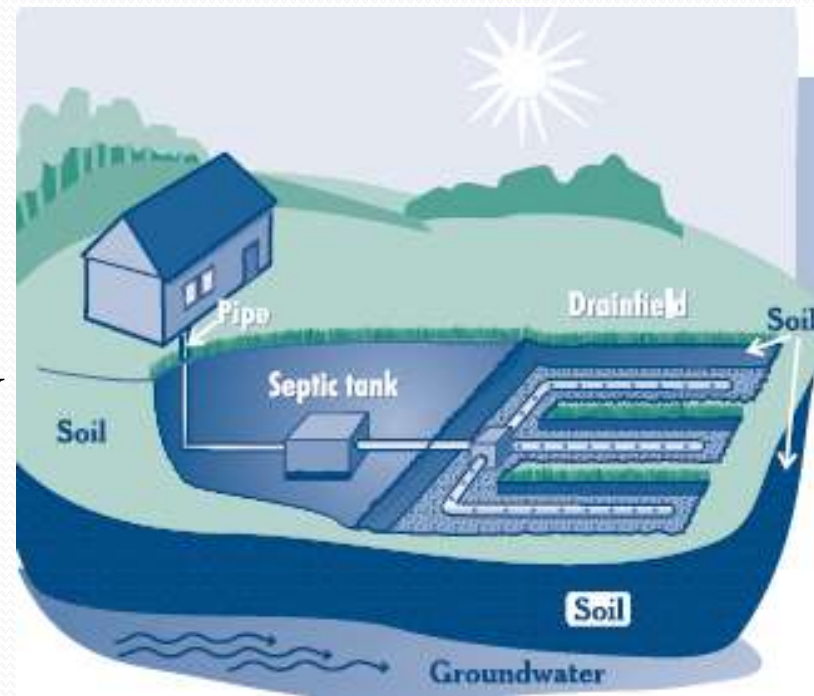
Septic System Pollutants of Concern

Pollutant	Reason for Concern
Pathogens	Parasites, bacteria, and viruses can cause communicable diseases through direct/indirect body contact or ingestion of contaminated water or shellfish. Pathogens pose a particular threat when partially treated sewage pools on ground surfaces or migrates to recreational waters. Transport distances for some pathogens in surface or ground waters can be significant.
Nitrogen	Nitrogen is an aquatic plant nutrient that can contribute to eutrophication and depletion of dissolved oxygen in surface waters, especially in estuaries, and coastal embayments. Excessive nitrate-nitrogen in drinking water can cause methemoglobinemia in infants and pregnancy complications for humans. Livestock can also suffer health impacts from drinking water high in nitrogen.
Phosphorus	Phosphorus is an aquatic plant nutrient that can contribute to eutrophication of inland fresh waters and eventual depletion of dissolved oxygen.

Septic 101

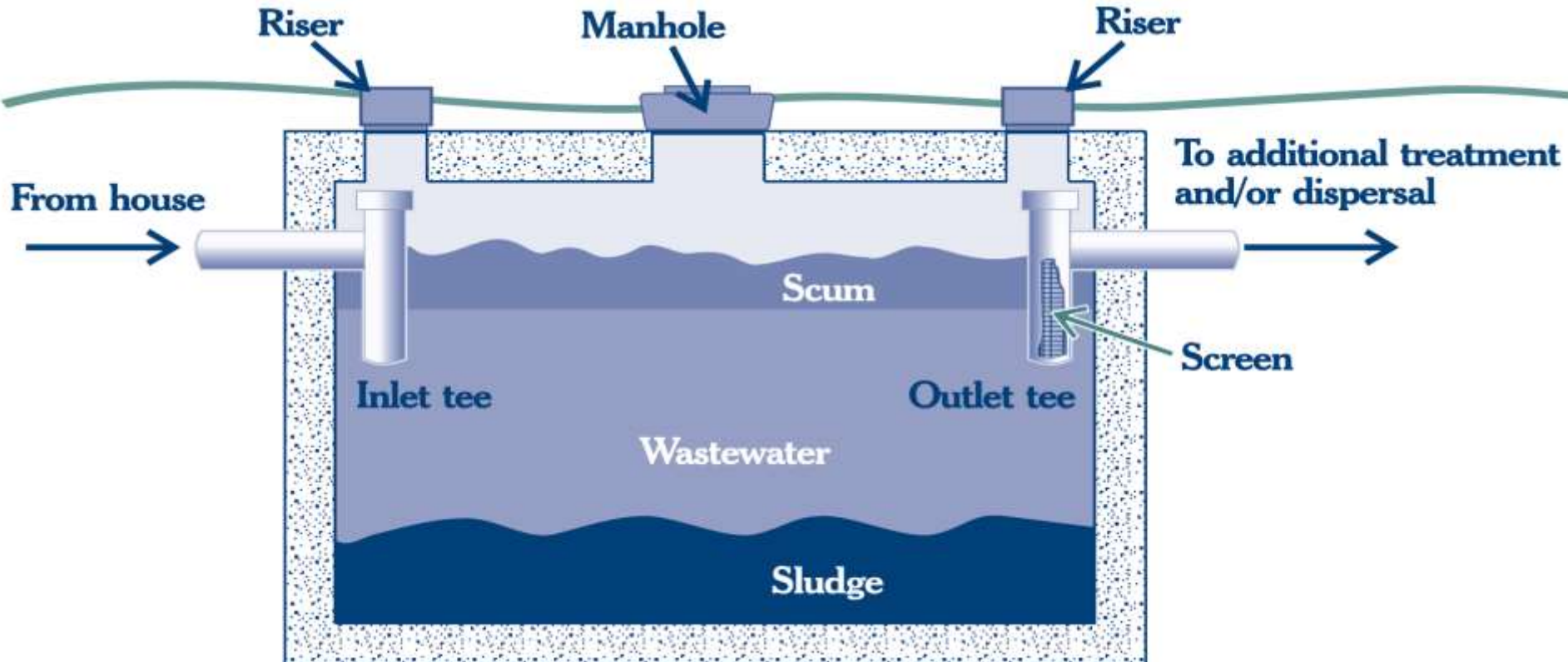
Typical Sewage System

- A typical septic system has 4 main parts:
- A PIPE from the home
- A SEPTIC TANK
- An absorption system (drainfield)
- And the SOIL
 - Microbes digest or remove most contaminants before it eventually reaches our surface waters (lakes, rivers, wetlands) or our groundwater.



Typical Septic Tank

- A watertight tank that separates solids from liquid & digests organic matter
- Septic tanks remain full of liquid between uses. When water is used the same quantity of water is displaced out of the tank and flows to the absorption system



ABSORPTION AND TREATMENT FIELD

- This is where the liquid portion of a home's wastewater is dispersed
 - The typical drainfield contains perforated pipe placed in a layer of gravel/stone
 - Wastewater flows through the pipe and stone and into the soil.



Trench type system above.
There are many types of
absorption systems

Not a septic system...



- Illicit connections to the storm drain or to the river
- Bleeder lines or overflow lines from a sewage system to the storm drain, ditch or to the river
- A field tile is NOT a septic system

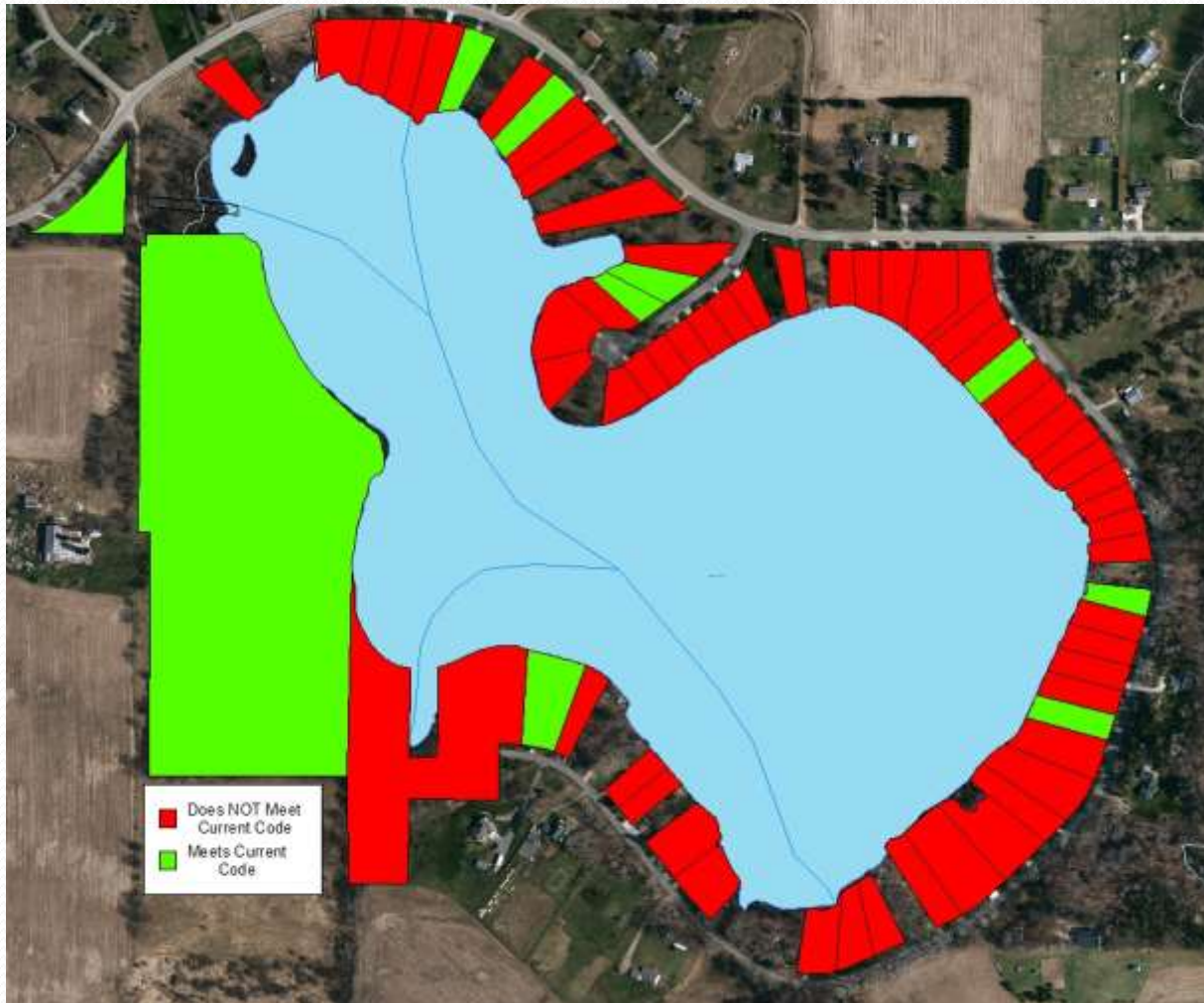
Limitations

- ❑ Limited additions and out buildings and/or remodels

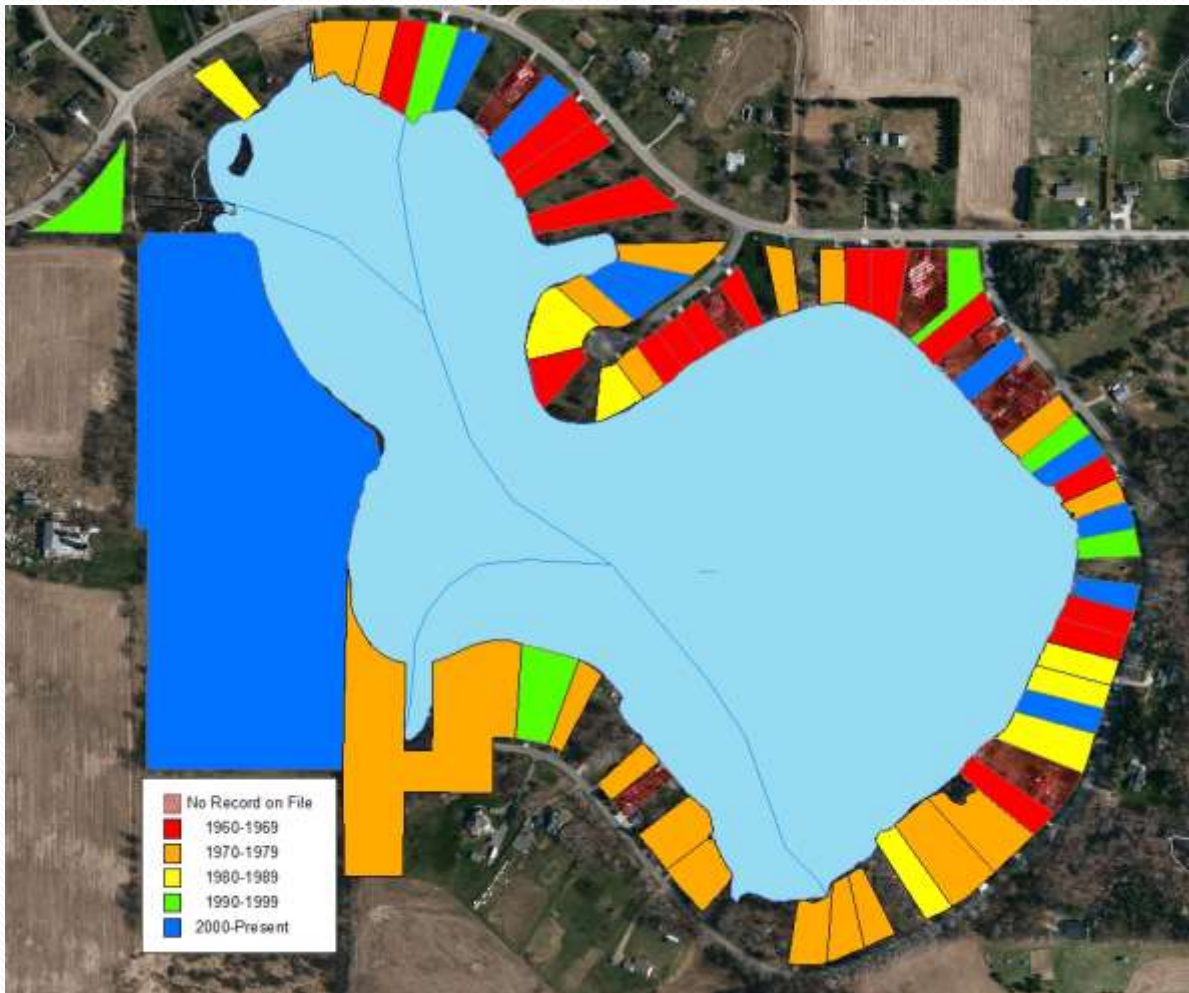
- ❑ Soil, slope and isolations
 - ❑ Poorly draining soil
 - ❑ Steep slope 10, 20, 50%?
 - ❑ Proximity to the river

- ❑ Alternatives (\$\$\$\$\$) Pre-treatment (Sand filter, Advantex)

Limitations CODE



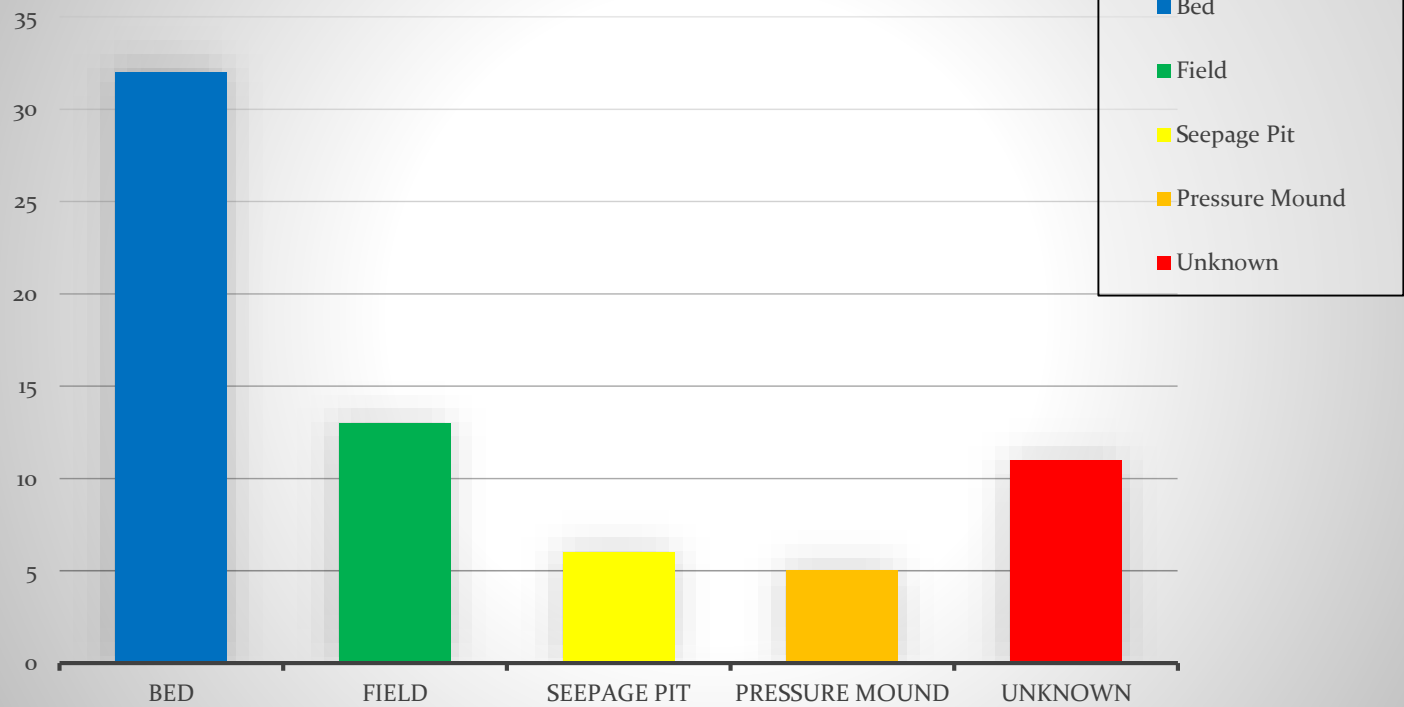
LIMITATIONS AGE



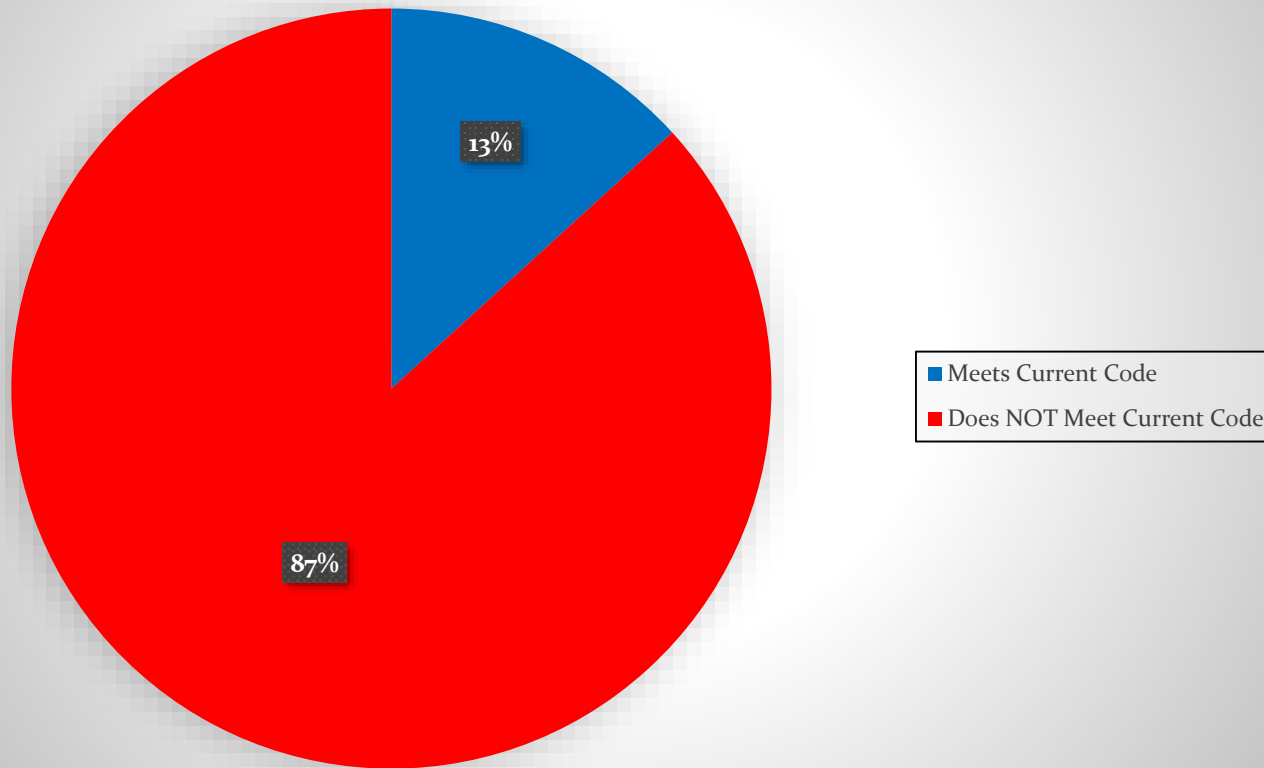
LIMITATIONS DENIED



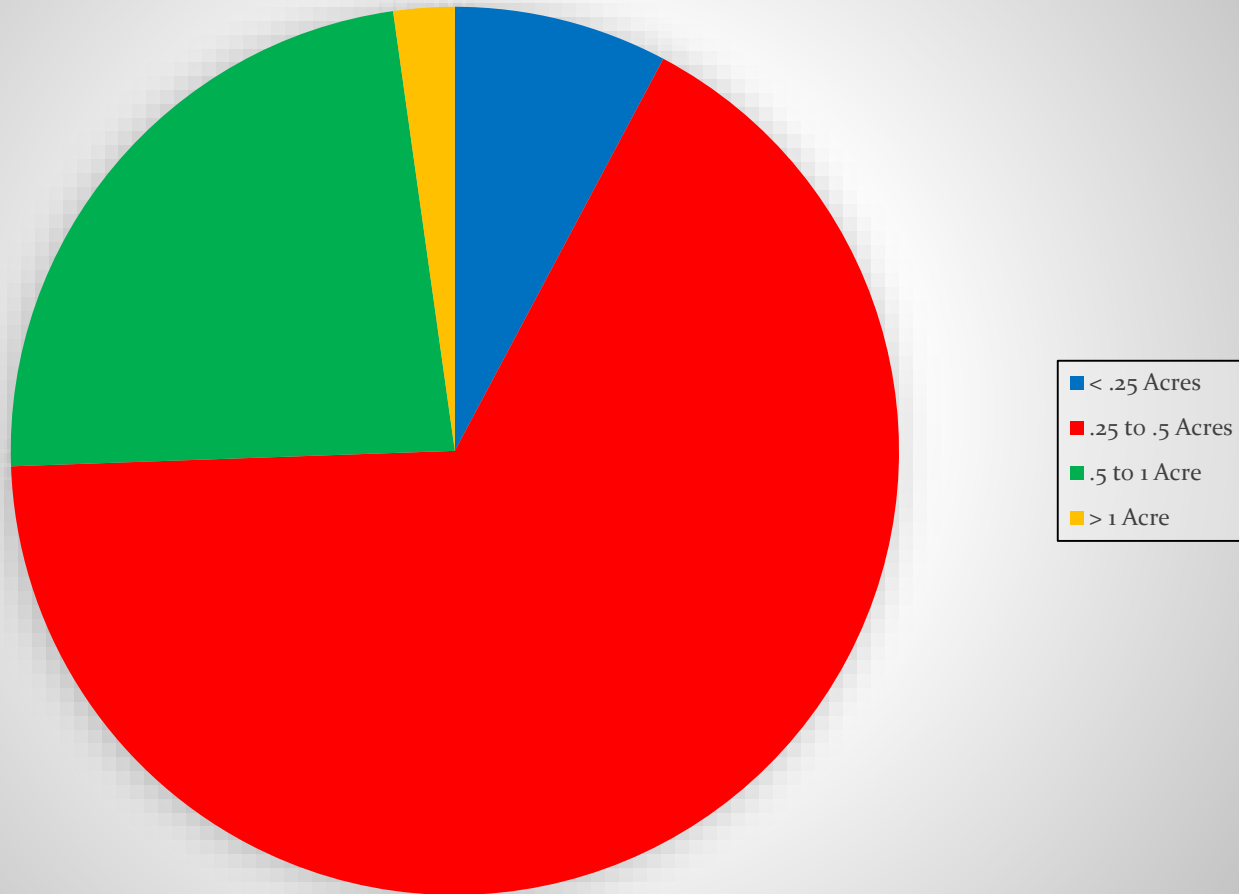
Types of Systems



Properties Meeting Current Sewage Regulations



Property Size



LET'S TAKE A TOUR

- LOT SIZE
- SLOPE
- ISOLATION DISTANCE
- ?? IN RED MEANS WE HAVE NO RECORD FOR THIS PROPERTY

LET'S TAKE A TOUR



TOUR



TOUR



TOUR



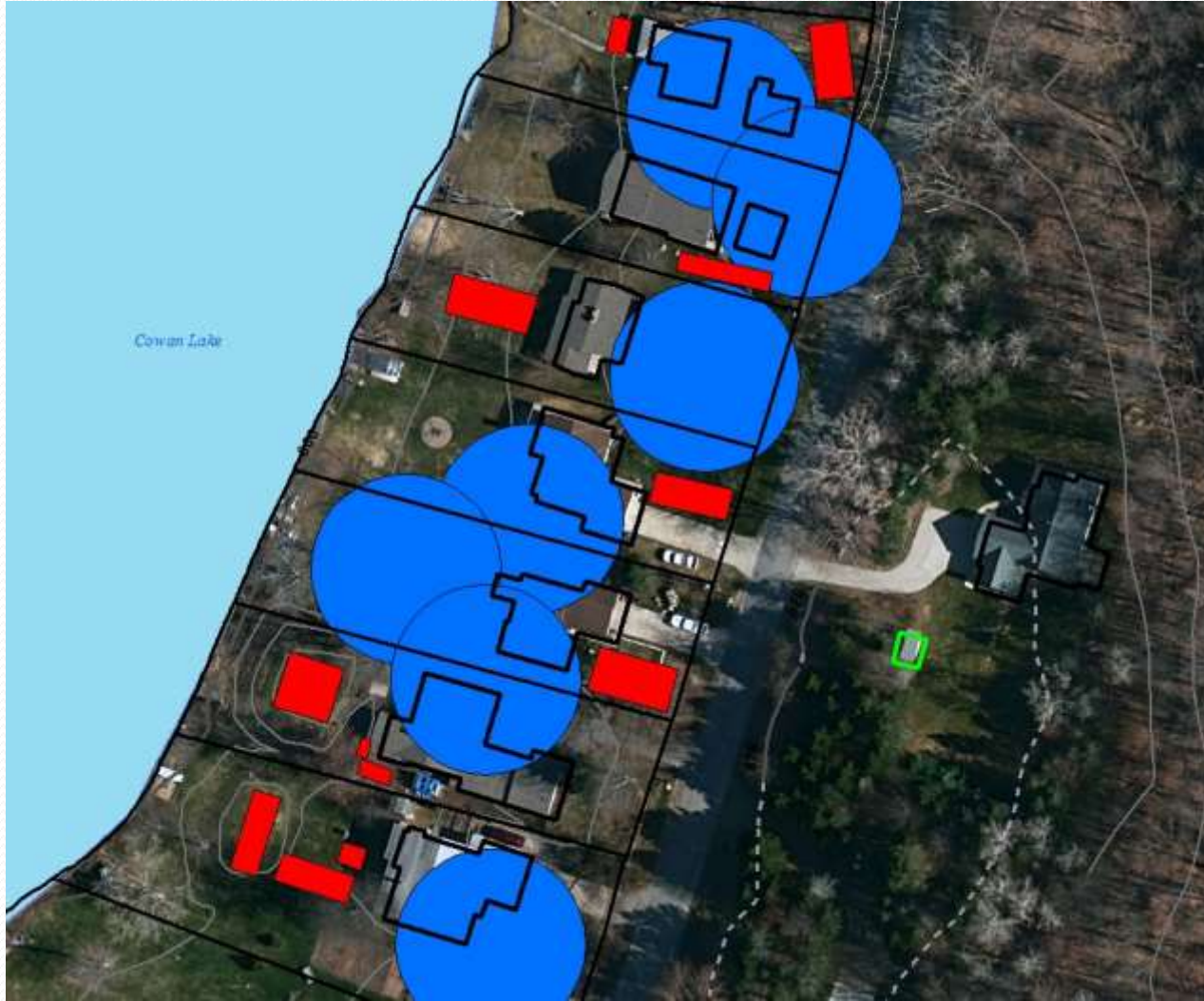
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QUESTIONS

Property Values at the Lake (Per Acre)

