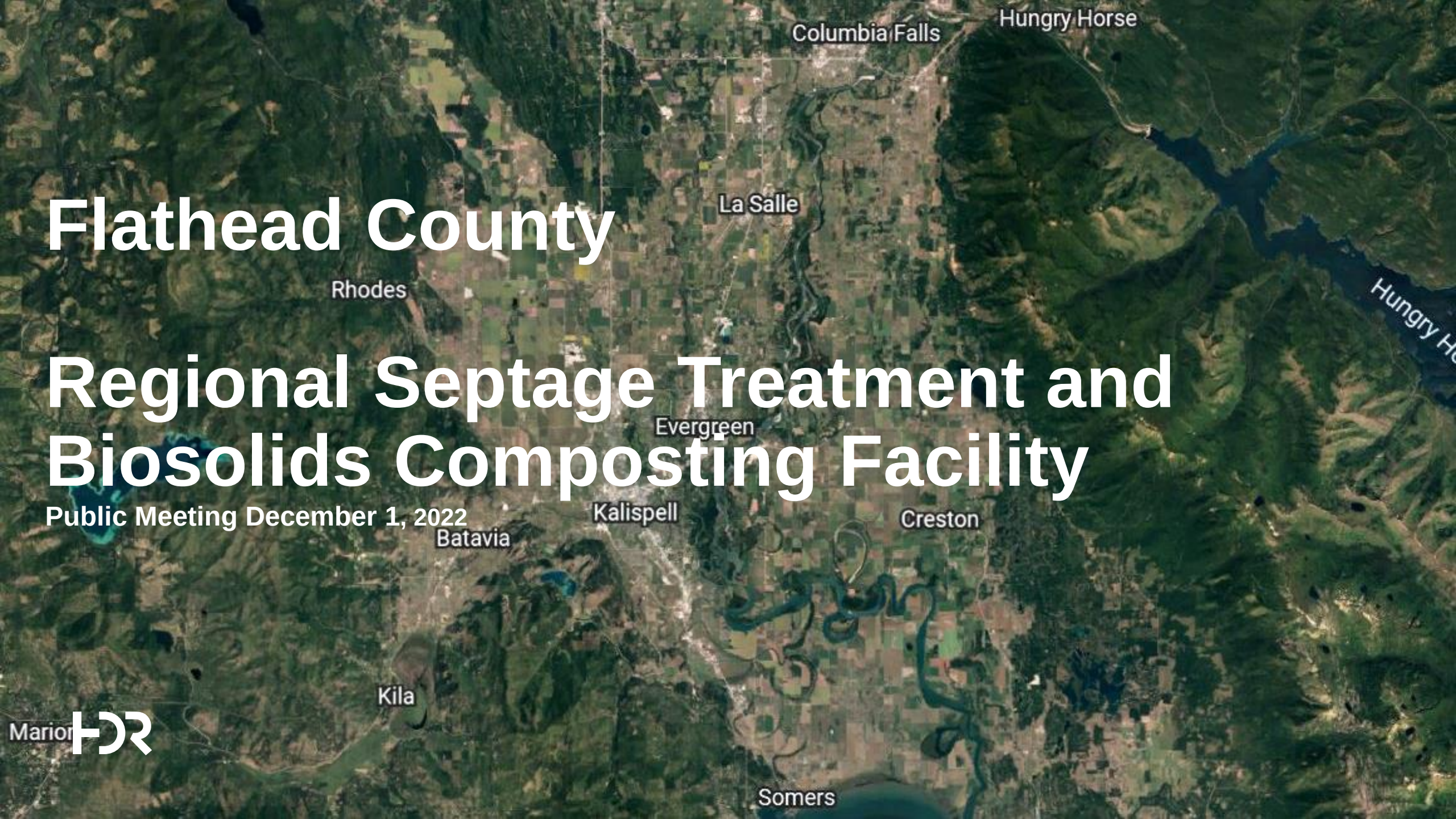


Flathead County

Regional Septage Treatment and Biosolids Composting Facility

Public Meeting December 1, 2022

Meeting Topics

01 Introductions

02 Need for Project

03 A Problem Years in the Making

04 Site Selection

05 Septage Treatment Plant and Biosolids Composting Facility

06 Next Steps and Schedule

1. Introductions

- HDR
  - Bill Buxton, PE

2. Need for Project

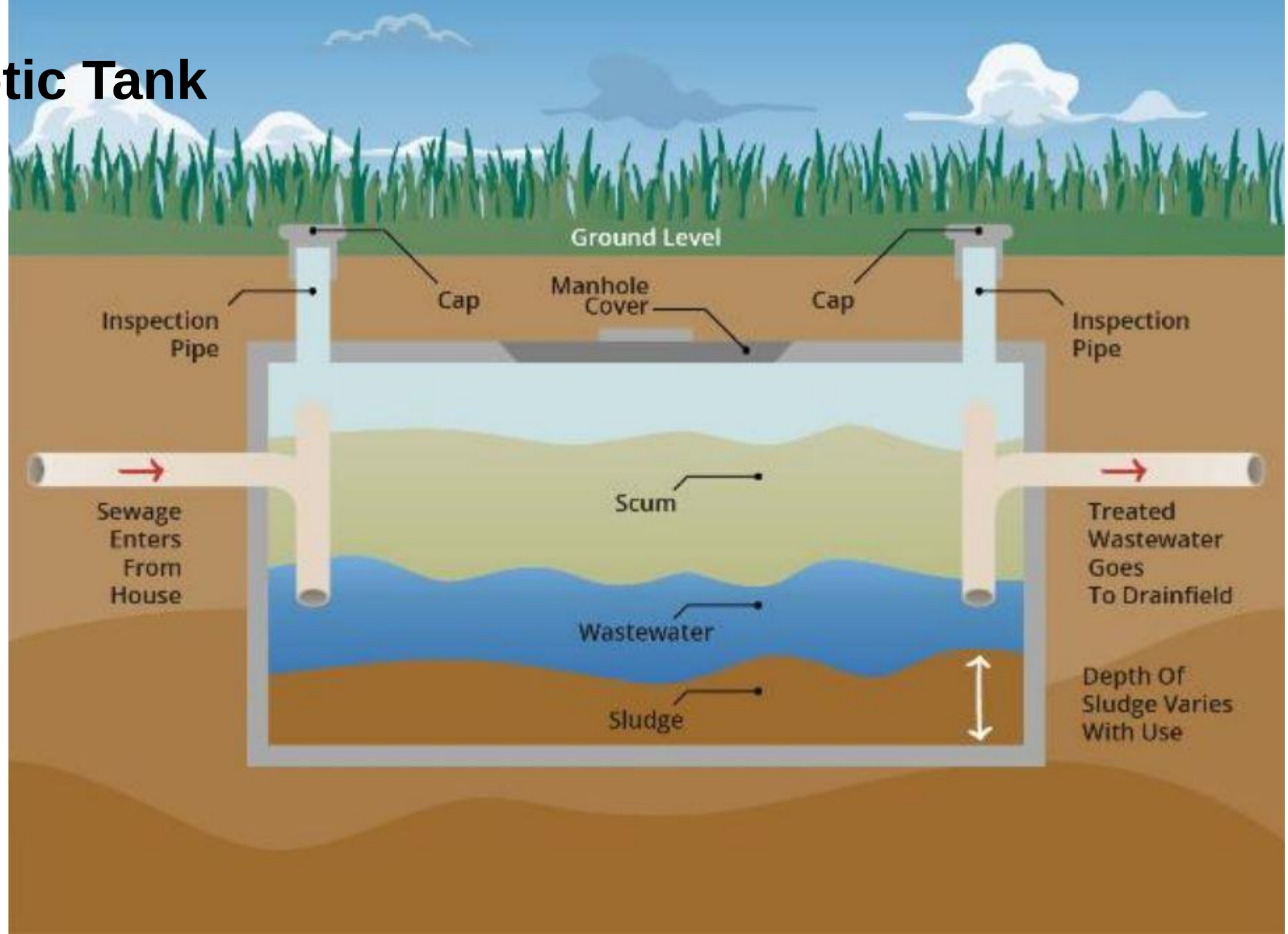
Why does the Health Department think this project is important?

- What is an onsite Wastewater Treatment System (WWTS)?
- How do you maintain a WWTS and why is it important?
- What is septage and where does it go when pumped from a septic tank.
- What are biosolids and why are we discussing this?
- What are the challenges we are facing as a community?

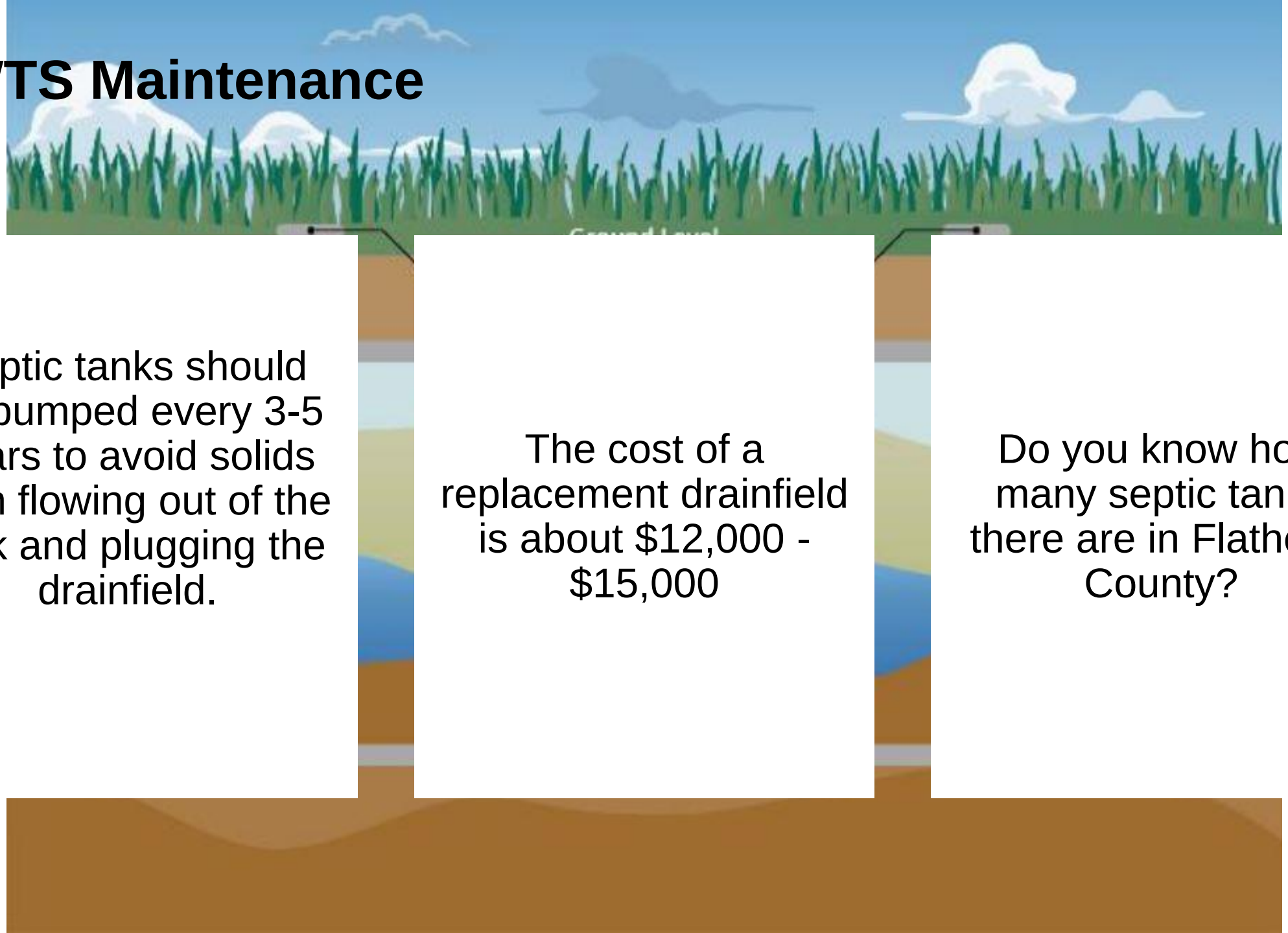
What is an onsite WWTS

- Commonly referred to as a ‘drainfield’ or ‘septic system’.
- Comprised of a septic tank and drainfield.
- The septic tank removes solids and provides ‘primary’ treatment.
- The liquid from the tank is discharged to the groundwater via the drainfield.
- Sometimes advanced treatment is required to avoid degradation of the groundwater.

Septic Tank


Ground Level
Cap
Manhole Cover
Cap
Inspection Pipe
Inspection Pipe
Scum
Sewage Enters From House
Treated Wastewater Goes To Drainfield
Wastewater
Depth Of Sludge Varies With Use
Sludge

WWTS Maintenance



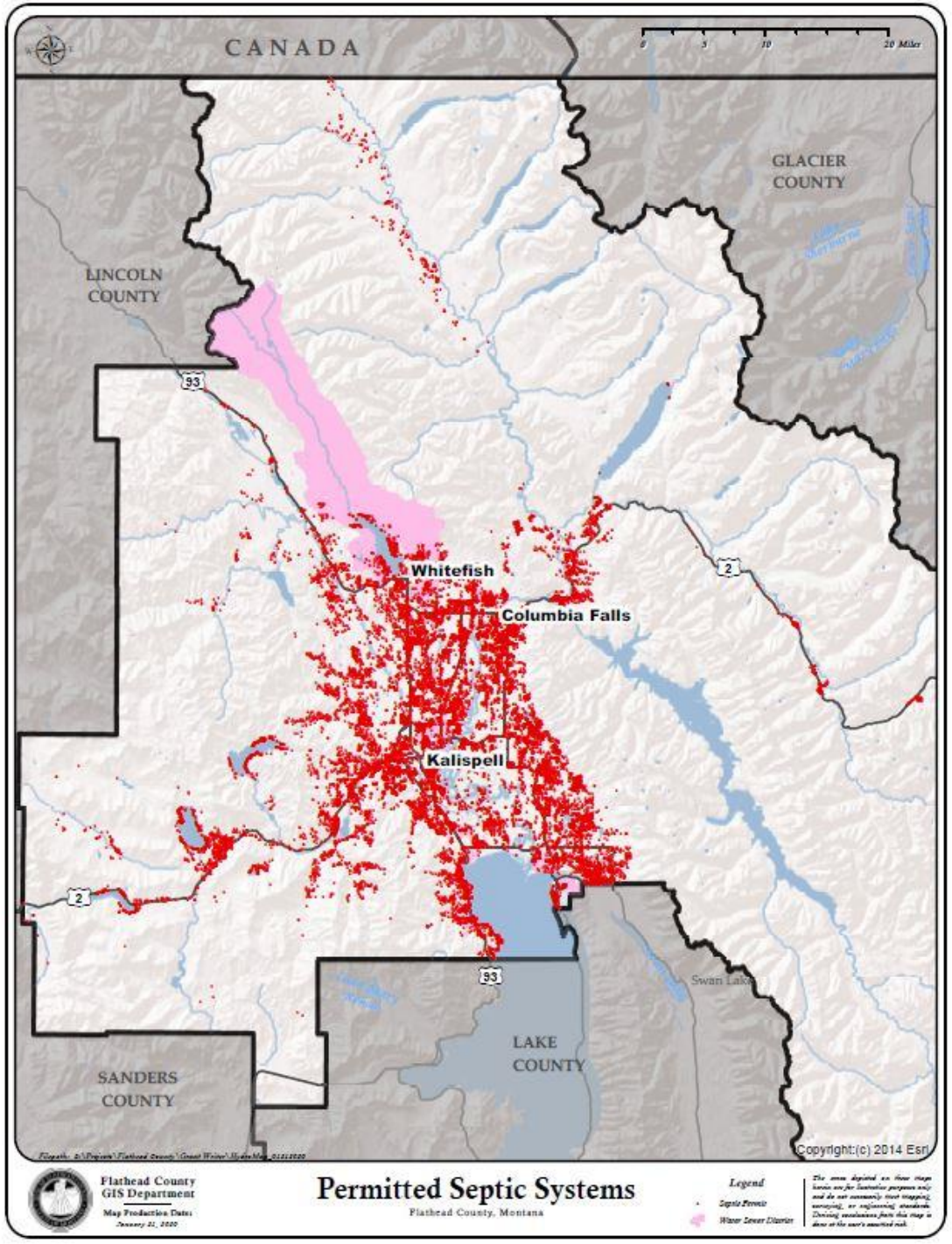
Septic tanks should be pumped every 3-5 years to avoid solids from flowing out of the tank and plugging the drainfield.

The cost of a replacement drainfield is about $12,000 - $15,000

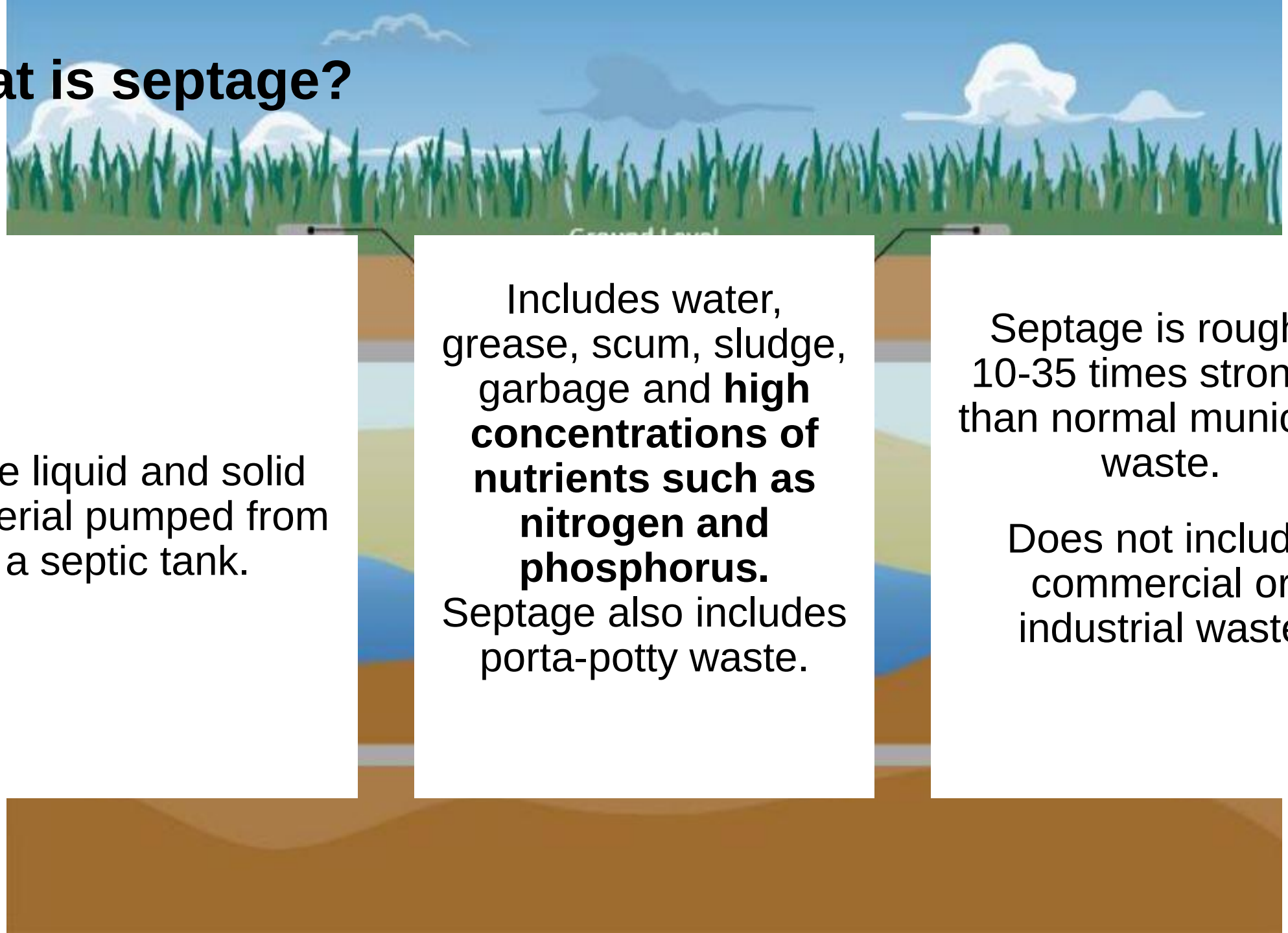
Do you know how many septic tanks there are in Flathead County?

Flathead County Septage

- The Health Department estimates there are 30,000 septic tanks in Flathead County.
- 678 new onsite WWTS permits have been issues so far in 2022.
- On average 20,000 – 40,000 gallons of septage is pumped every day.



What is septage?



The liquid and solid material pumped from a septic tank.

Includes water, grease, scum, sludge, garbage and **high concentrations of nutrients such as nitrogen and phosphorus.** Septage also includes porta-potty waste.

Septage is roughly 10-35 times stronger than normal municipal waste.

Does not include commercial or industrial waste

Challenges with Septage Disposal…

- Today septage is primarily disposed of via land application, but there is a problem…
  - Land is becoming less and less available for septage disposal due to growth.
  - Difficult finding new applications sites due to soils, setbacks, etc.
  - Porta potties at construction sites and at special events cannot be emptied.
  - In 2022 the Health Department received calls almost daily related to this problem.

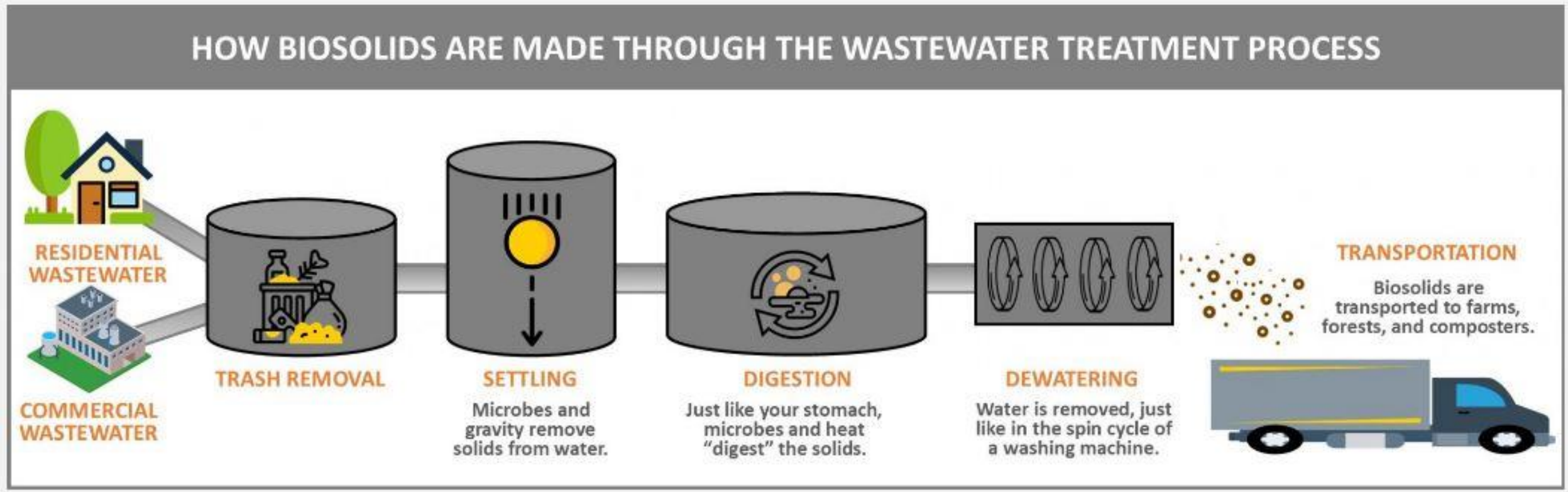
Lack of septic tank maintenance (pumping) leads to drainfield failure…

Challenges with Septage Disposal…

- Municipal WWTPs (e.g. Kalispell, Bigfork, Lakeside, Columbia Falls, and Whitefish) can’t take it due to stringent nutrient limits and sensitive treatment processes.
- Full septic tanks mean primary treatment is not occurring affecting the quality of the water being discharged to the ground and septic tanks are not being maintained.

…and drainfield failure results in costly replacement and environmental pollution!

Where do biosolids come from?

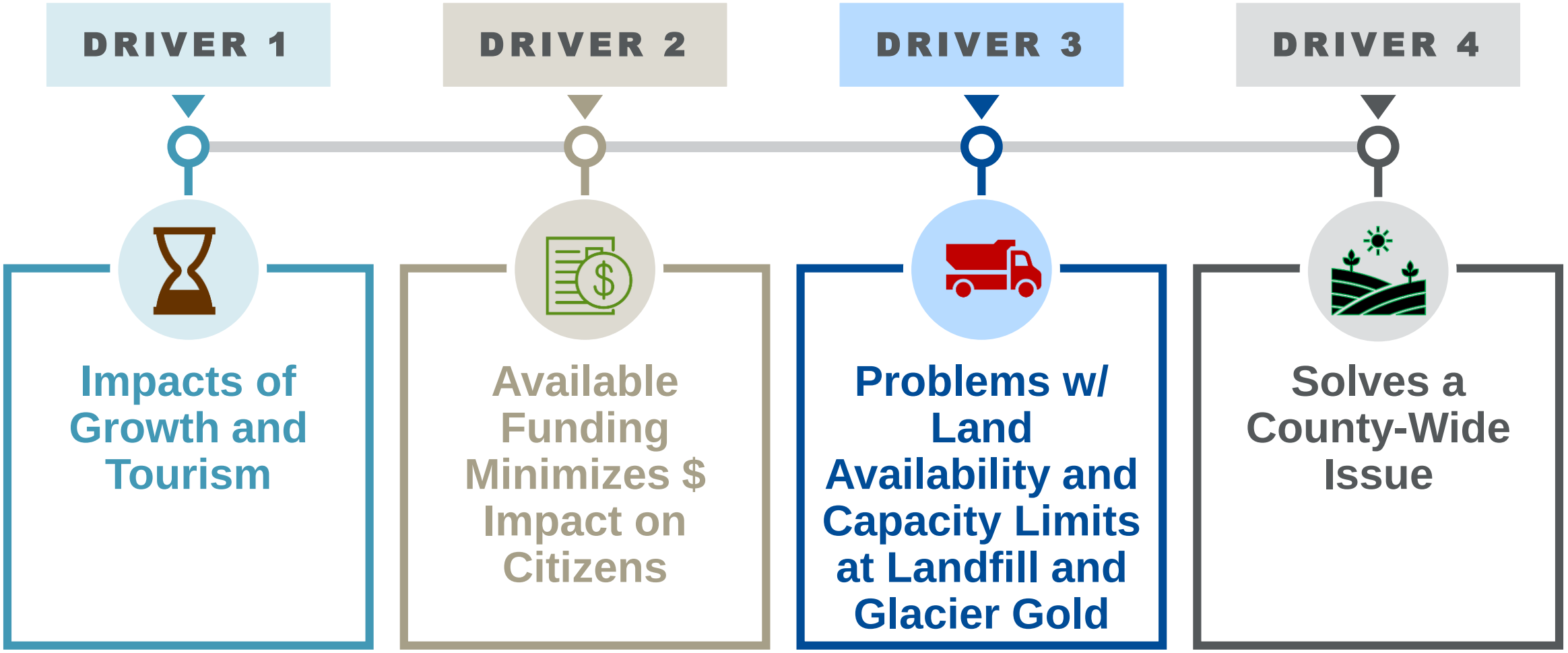


Challenges with Biosolids Disposal…

- Similar to septage application, we are running out of areas to dispose of biosolids.
- Land application is limited for the same reasons as septage disposal.
- Glacier Gold is at capacity.
- Landfill limits biosolids disposal due to capacity issues.

In summary…septage and biosolids are a by-product of wastewater that we must address.

A Regional Facility solves these problems.



3. A Problem Years in the Making

Problems with Land Availability Date back to 2008!

- Septage haulers have been raising this issue with the Health Department for over a decade. Funding has always been an issue with respect to implementation.
- In 2020 Glacier Gold reached its capacity for taking biosolids creating severe biosolids disposal limitations
- In the summer of 2022, the Health Department received calls almost daily related to this problem. Numerous pumpers had to stop pumping because there were no disposal sites.

4. Site Selection

What were we looking for in a site and why?

- What sites are being evaluated?
- Access and Location
- Size
- Connection to a public sewer.

What sites are being evaluated?

- Bigfork Sludge Farm
- Kalispell and Flathead County owned sites along Cemetery Road.
- Flathead County Landfill and Surrounding Private Property.
- CFAC Site in Columbia Falls.
- City of Whitefish owned property
- Lakeside W&S District Property
- Dyer Property

What were we looking for with respect to size, access and location?

- Ideally centrally located in the Flathead Valley to keep travel costs for pumpers and biosolids haulers reasonable.
- Easy access from a highway
- Rural in nature.
- Reasonably close to a public sewer system.

What were we looking for with respect to size, access and location?

- 30-50 Acres.
- The size of the property needs to take into consideration…
  - The size of the treatment/composting process
  - Setbacks
  - Buffers for landscaping

Why is connecting to a public sewer important?

- We have 3 options for the disposal of treated water:
  - Discharge to Surface Water
    - Requires surface water discharge permit which may not be obtainable.
    - Requires a larger site.
    - Likely requires advanced treatment for nutrient removal…very expensive to construct and operate.
    - Subject to future nutrient regulations which could affect the viability of the facility in the future.

Why is connecting to a public sewer important?

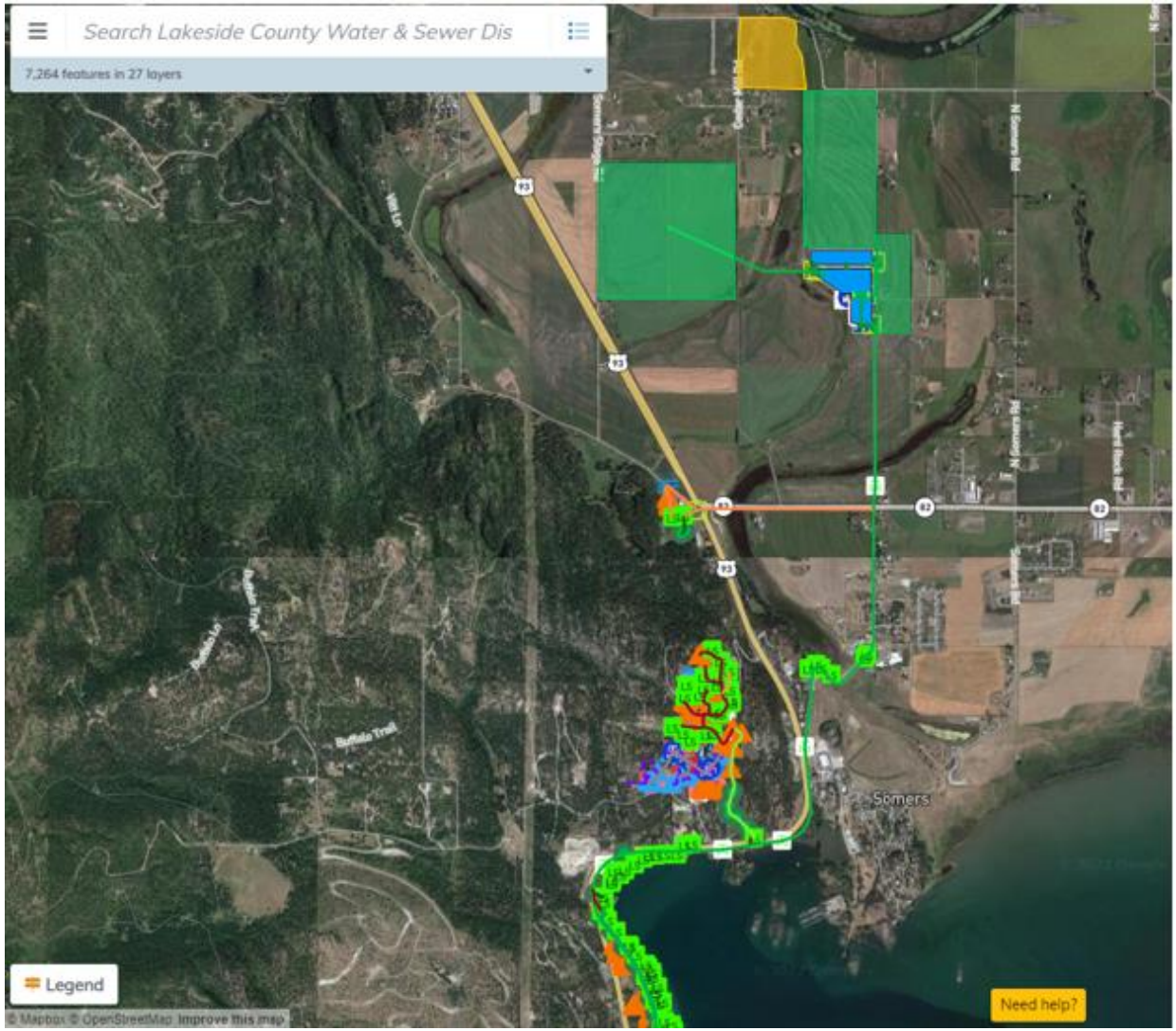
- We have 3 options for the disposal of treated water:
  - Discharge to Groundwater
    - Requires groundwater discharge permit which may not be obtainable in a timely enough fashion.
    - Requires much larger site.
    - Likely requires advanced treatment for nutrient removal…very expensive to construct and operate.
    - Subject to future nutrient regulations which could affect the viability of the facility in the future.

Why is connecting to a public sewer important?

- We have 3 options for the disposal of treated water:
  - Discharge to Public Sewer
    - Connecting to a public sewer simply makes us a ‘customer’.
    - Discharge permit not required for this project.
    - Only need to treat down to residential strength waste…stringent nutrient limits would not apply.
    - Future nutrient limits would impact the public system and not this project.
    - Minimal site requirement and cost.

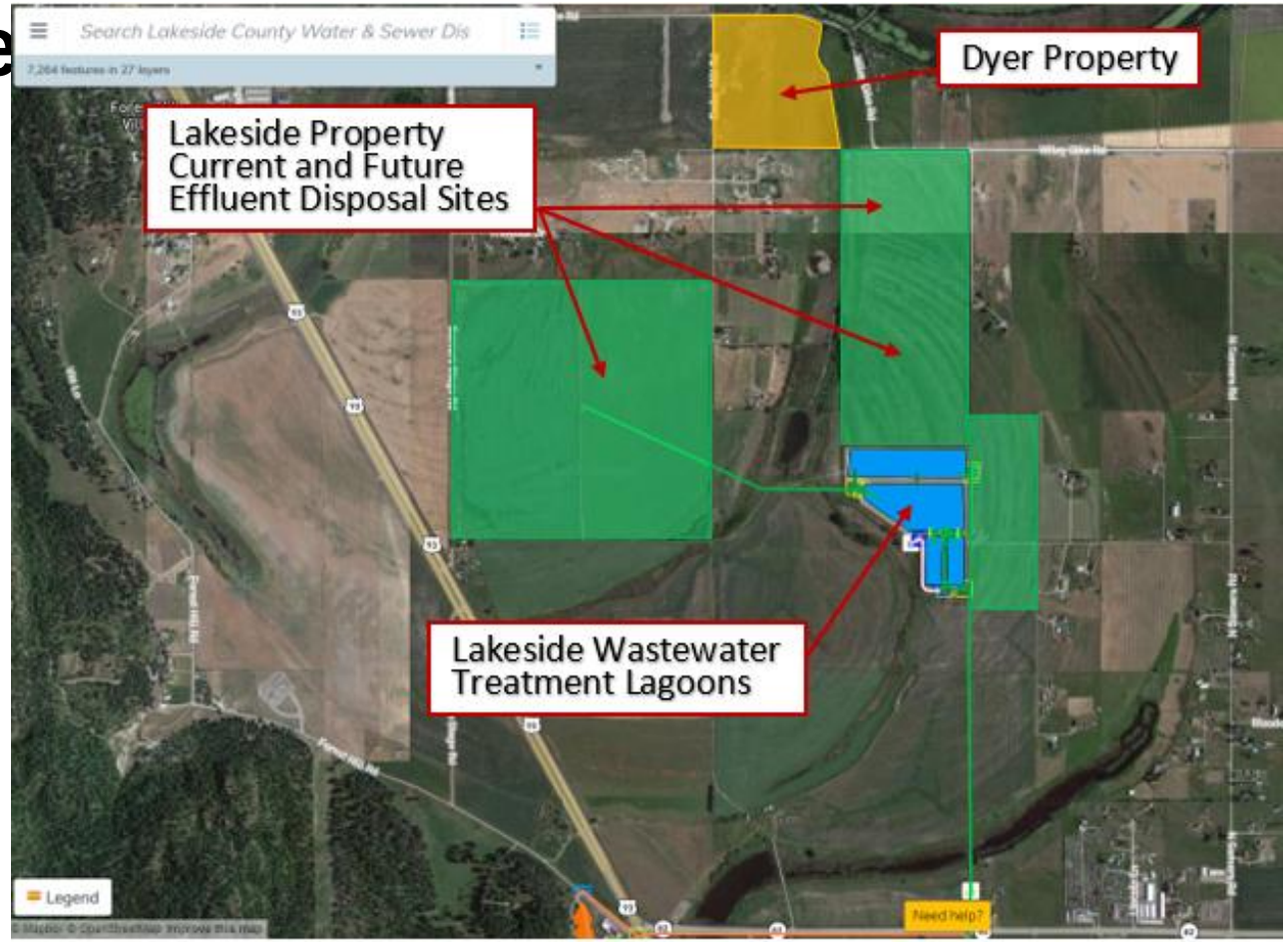
Why is connection to Lakeside W&S so beneficial?

- Lakeside already provides treatment for 1,800 homes from south of Lakeside to Somers.
- Treatment provided by an aerated lagoon followed by effluent storage and spray irrigation disposal.
- No discharge permit therefore we can eliminate the uncertainty of future nutrient standards.
- Spray irrigation puts treated wastewater to beneficial use.



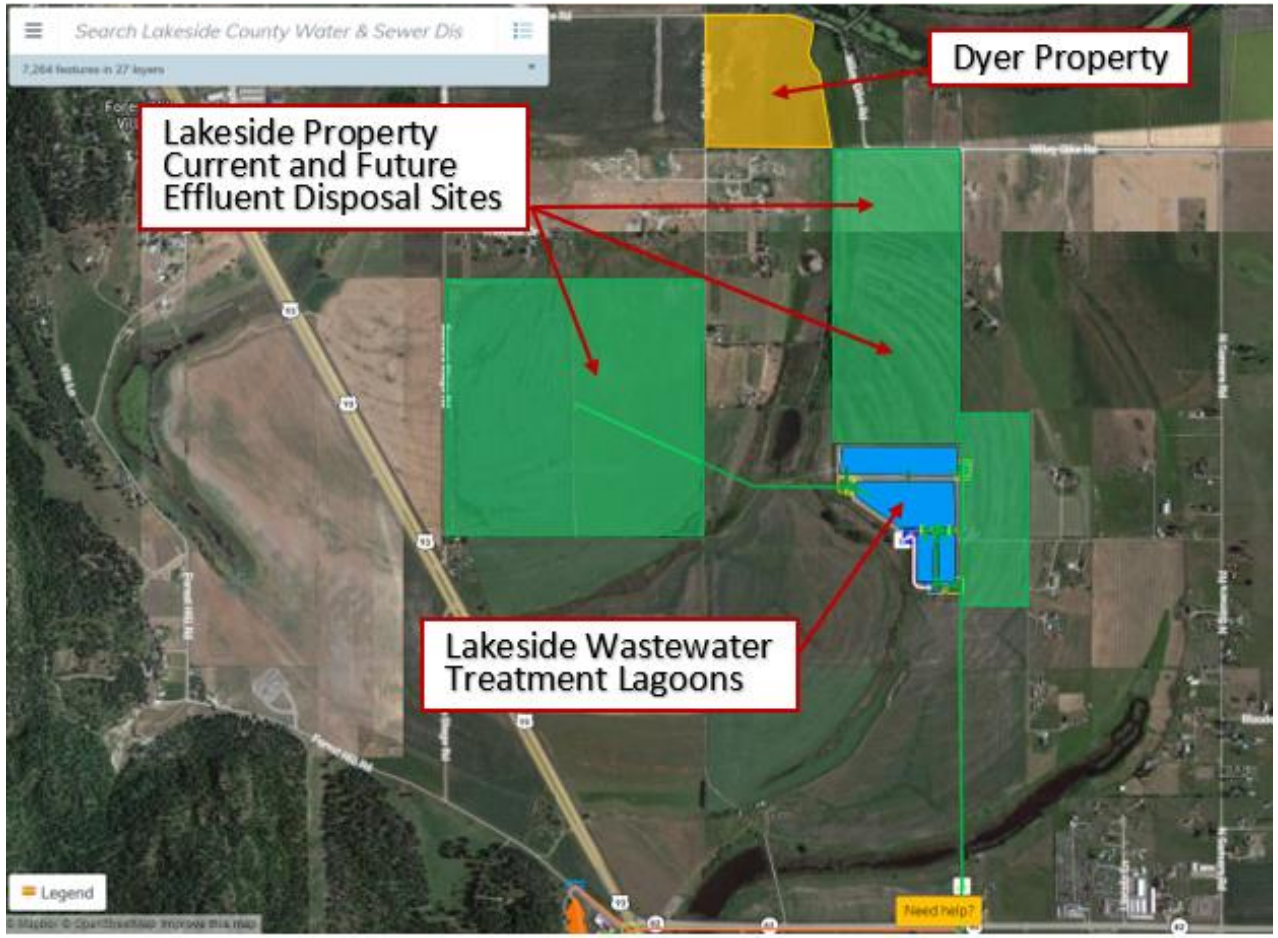
Why is the Dyer property the most promising?

- It was for sale and under budget.
- It is of adequate size located in a rural area with easy access from both Highway 93 and 82.
- There is already an existing treatment plant and effluent disposal near or immediately adjacent to the property.
- Minimal offsite costs.



Dyer Property…Next Steps

- Appraisal
- ALTA Survey
  - Detailed survey showing property boundary, easements, etc.
- Geotechnical Investigation
  - Determine if there are soil issues that could significantly impact the cost of construction.
- Environmental/MEPA
  - Quantify the existing environmental issues, determine impacts, and develop mitigation if necessary



5. Septage Treatment Plant and Biosolids Composting Facility

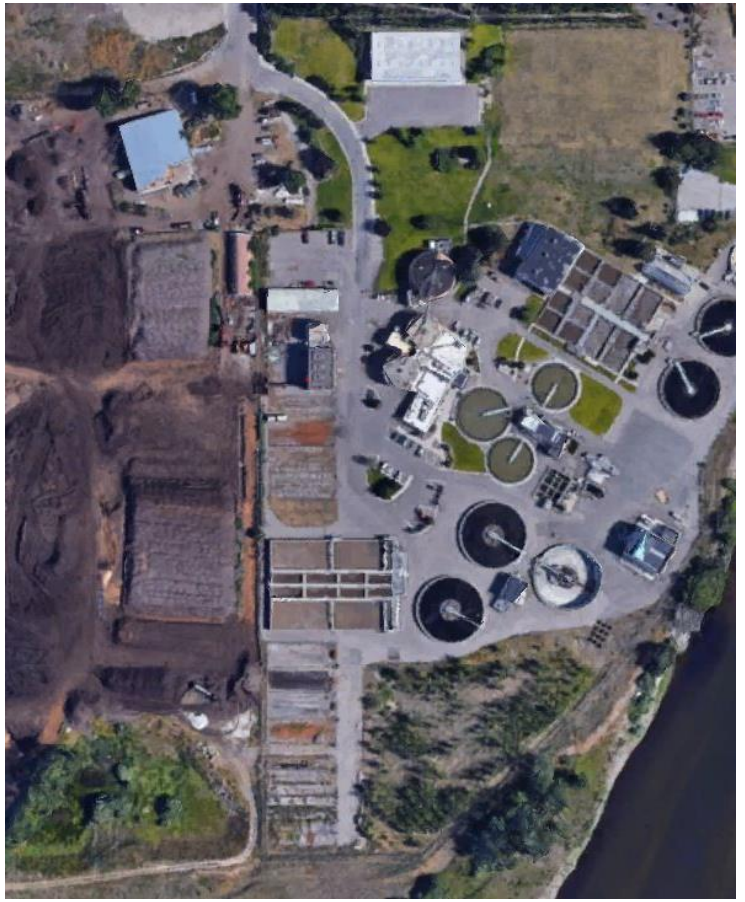
What exactly is a septage treatment plant and biosolids composting facility?

- Septage Treatment and Composting Process
- Odor Control
- Example Projects
- Who will Operate?
- Who pays for O&M Costs?

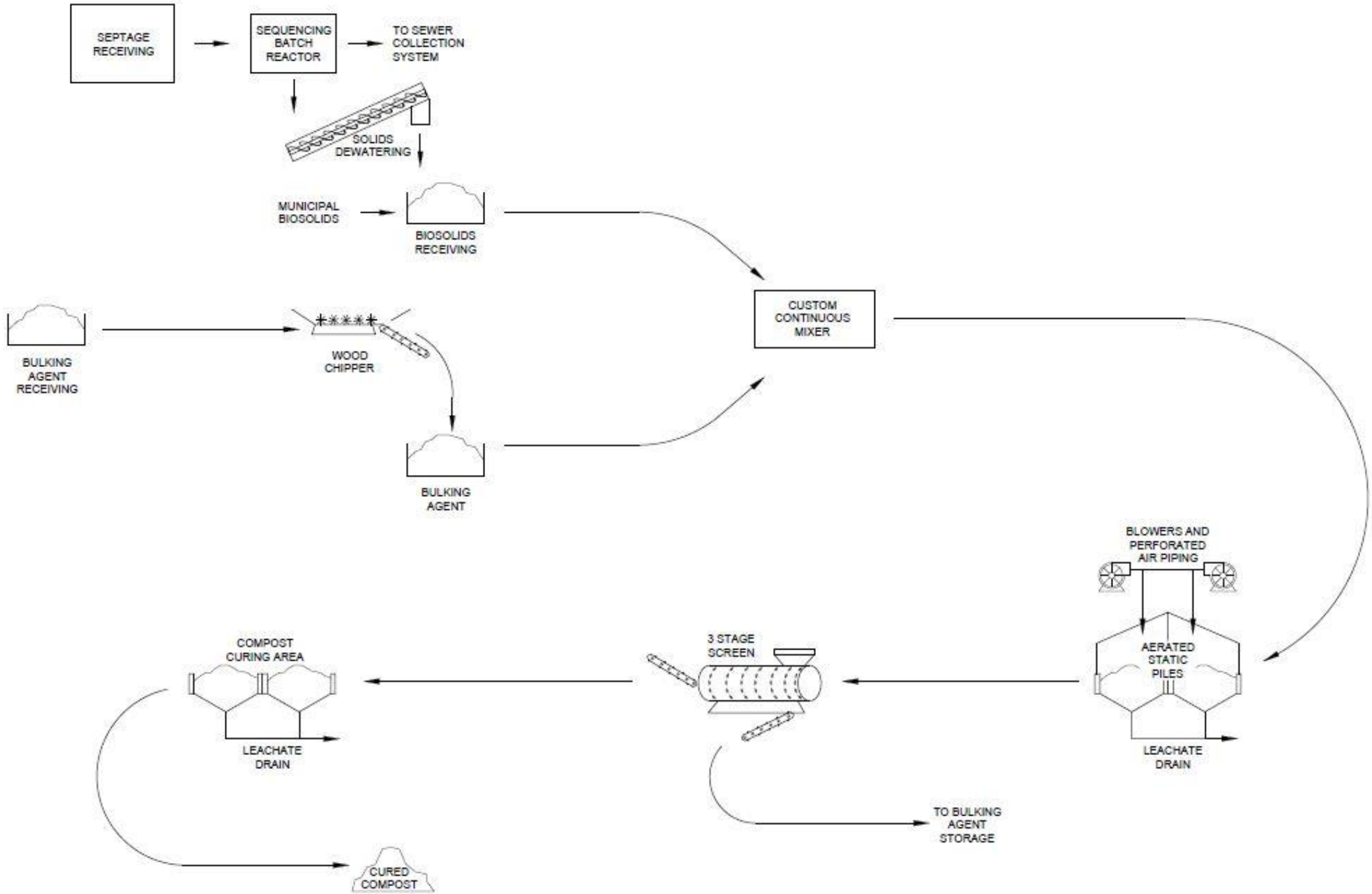
What a Septage Treatment and Biosolids Composting Facility is not…

Discharge of sludge of septage onto the ground

A wastewater plant with outside basins



A large industrial complex


SEPTAGE RECEIVING
SEQUENCING BATCH REACTOR
TO SEWER COLLECTION SYSTEM
SOLIDS DEWATERING
MUNICIPAL BIOSOLIDS
BIOSOLIDS RECEIVING
CUSTOM CONTINUOUS MIXER
BULKING AGENT RECEIVING
WOOD CHIPPER
BULKING AGENT
BLOWERS AND PERFORATED AIR PIPING
AERATED STATIC PILES
LEACHATE DRAIN
3 STAGE SCREEN
TO BULKING AGENT STORAGE
COMPOST CURING AREA
LEACHATE DRAIN
CURED COMPOST


WILEY DIKE ROAD
NORTHLAND OUTPOST ROAD
500'
500'
500'
40' ROAD EASEMENT
PROPERTY BOUNDARY (TYP)
WILEY DIKE ROAD
MAPLE WAY


Odor control includes forcing smelly air through a biological odor control system made of…compost!

Existing WWTPs…what could this look like?

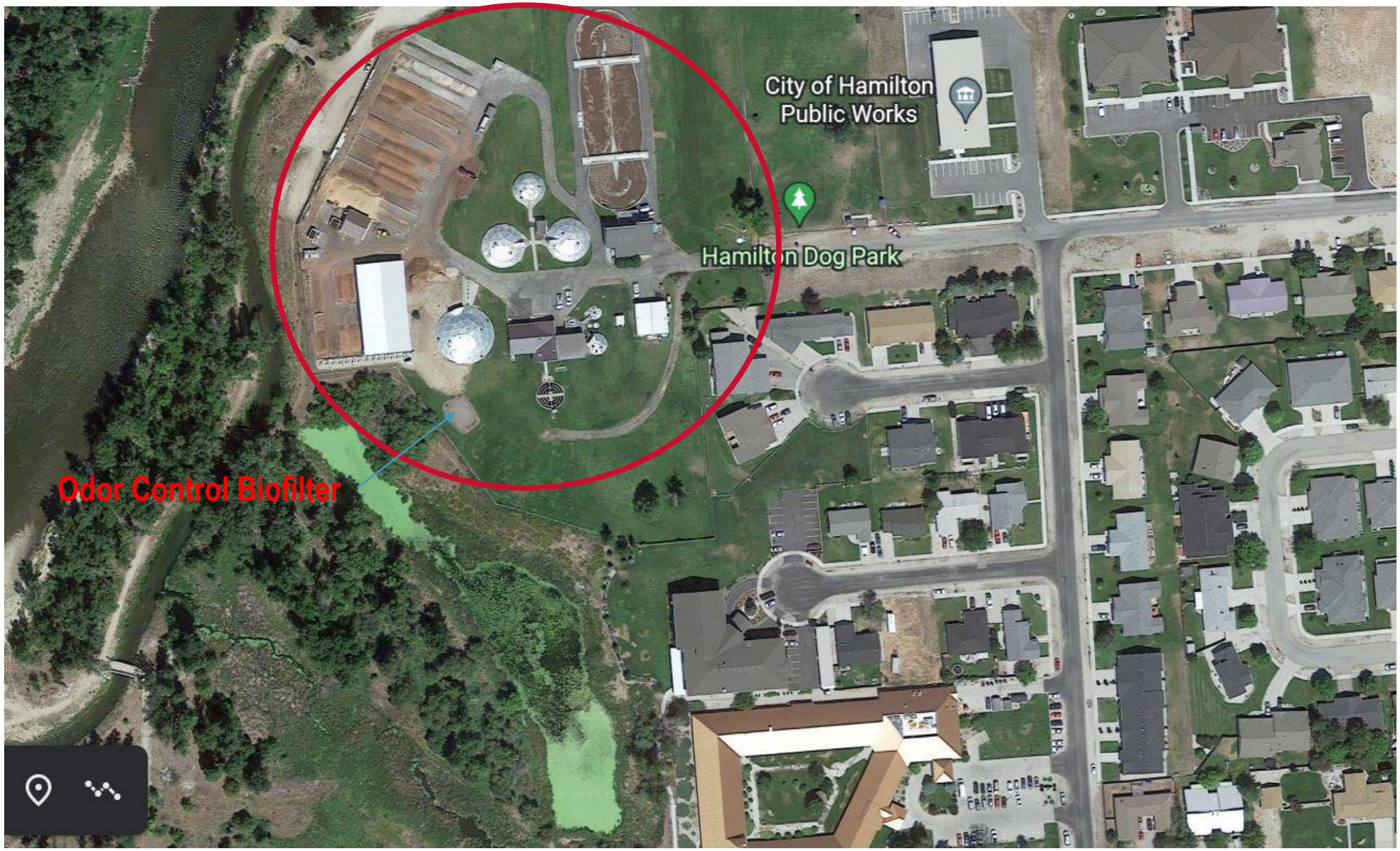
Cascade, ID WWTP

Kuna, ID WWTP

Shelley, ID WWTP

Existing Bigfork, MT WWTP

Existing Hamilton, MT WWTP



Existing Hamilton, MT Biosolids Composting Facility

- Aerated static pile biosolids composting.
- Located about 350 feet from a neighborhood and adjacent to the Bitterroot River
- An enclosed building was planned for Phase 2 but deemed not necessary since odors were not a problem.

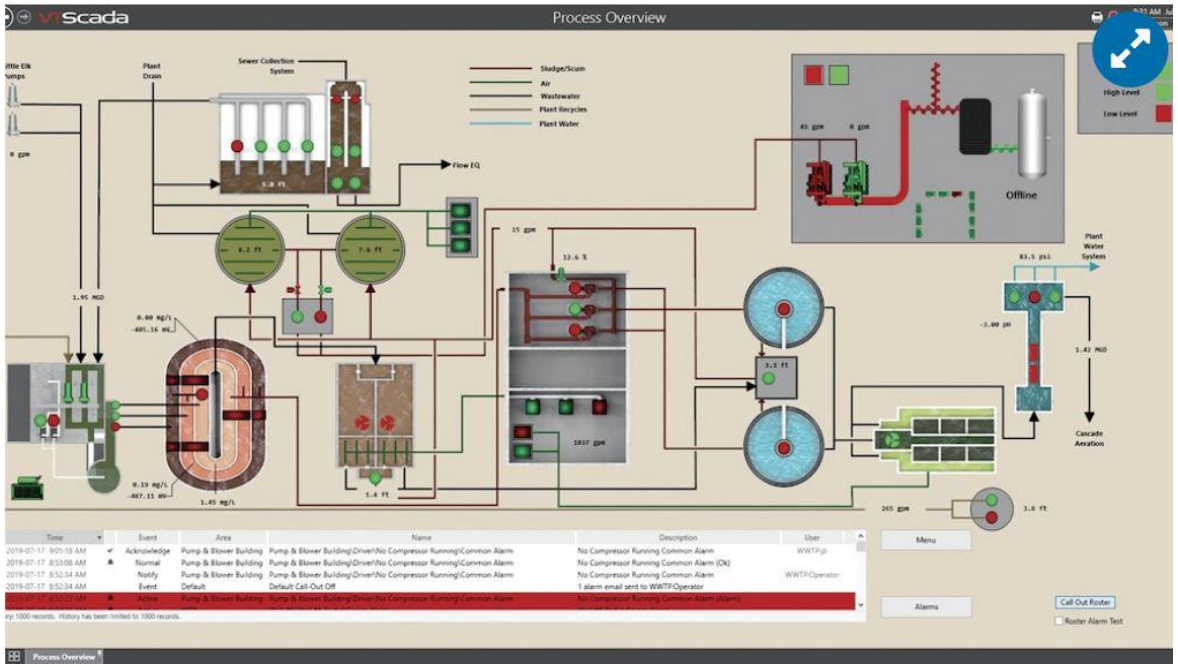
Existing Coeur d’ Alene, ID Biosolids Composting Facility

Existing Coeur d' Alene, ID Biosolids Composting Facility

Left: North side of composting facility
Right: High density residential

Facility Operation

- Yet to be determined.
- A separate district could be formed.
- Operation could be contracted to a private company.
- Operation could be contracted to another public entity.



Who Pays for O&M?

- The people who use the facility will pay for O&M via tipping fees.
- A business plan is being created to provide estimates of tipping fees.
- Considerations includes costs to operate, depreciation, equipment replacement.
- Consideration includes revenue from selling compost.

6. Next Steps and Schedule

What happens next?

- Appraisal to be Completed 12/6/22
- Geotech, Survey, Environmental, and Business Plan to be Completed 12/16/22
- Purchase property…tentatively schedule for 1/13/23.
- Final design of the facility…2023.
- Bidding and contractor procurement…early 2024
- Construction…2024-2025.

Questions