

Meeting notes. Public Works, HDR, Land Use Committee 27 October 2016, HDR offices
-Gary Matson, with amendments added by Committee member Bruce Troutwine

Attending: Steve Nelson (Bonner Milltown Community Council Land Use Committee), Cora Revis (HDR), Craig Caprara (HDR), Kate Washington (County Community and Planning Services), Carol Kenyon (Bonner Pines resident), Shannon Therriault (Director, Environmental Health, Missoula County Health Dept.), Bruce Troutwine (Land Use Committee, Amy Rose (Missoula County Public Works), Burt Caldwell (Bonner Milltown Community Council), Gary Matson (Bonner Milltown Community Council).

HDR accepted the Council's proposal to participate in the Nov 15th meeting with an introduction, as we've outlined at our meeting, assistance monitoring the meeting (3 minute limit to public comment), and closing the meeting. HDR requests holding questions until the end. Burt will arrange to change the meeting place from the Cafeteria to the Community Room.

Gary will put together some Power Point slides for the intro and closing; will run past the Council first, for editing and approval, then forward to HDR.

Two information items have been added to the list we've all agreed on: 1) Include with the introduction an explanation of how community preference will be evaluated, leading to a Commissioners decision to hold a vote on a wastewater proposal or not to hold a vote (note enough community support). 2) Addresses for public comment (at the end of the presentation)

Normally, the Community Room is set up with chairs only (no, or few tables), the School's PA system, a screen, any necessary extension cords, and a table for the projector. One of us should coordinate with the School's maintenance staff to ensure: 1) A set-up time for the meeting about an hour before the scheduled 6PM start; 2) There are enough chairs in the room and some tables around the outside for information. I think the Council can provide: 1) 4X6 cards for participants to write their comment, 2) several clipboards with sign-up sheets for participants' email addresses, 3) Signs directing participants to the meeting room. Gary volunteered to take care of these things.

Arrangement for public comment: HDR will provide some cards for attendees to express their general concerns about matters relating to wastewater treatment (possibly would include things like cost and annexation to the City). Public works will investigate the use of the County web site for public comment. There may be a mail address for comment as well. These addresses for comment can be included on the final, closing Power Point slide.

Craig – Requests the description of the study be given as “Wastewater *Feasibility* Study” and not “Preliminary Engineering Study.”

Topics discussed at the Oct 27 meeting

Ingredients of the process of determining community preference, leading to a wastewater treatment proposal being included on a ballot for community vote:

1. Input at the HDR public meetings
2. A “show of hands” at the 4th HDR meeting
3. Community Council gives opportunity for further public input at its regular meetings, then makes a recommendation to the Commissioners about whether community residents have shown enough interest to put the choice on a ballot for a vote.
4. The Commissioners create the voting process, the mechanics of which may vary (e.g. Do all landowners have an equal vote no matter their parcel ownership size? Do some landowners have more say because of larger use (e.g. does Bonner Mill Site have 1 vote for all properties including houses?).
5. HDR requests that this process of whether or not to vote, and how that decision is arrived at be included in the introduction to the Nov 15th meeting.

Linkage between Option 1, connect to City sewer, and annexation. It was generally accepted that annexation would rule out Option 1 because of community opposition. It may be possible to hook up to Missoula’s plant without annexation. The town of Evergreen, Montana has made an arrangement to hook up to Kalispell’s sewer treatment plant without an annexation requirement, so there is precedent for that arrangement. Gary and Burt will pursue an appointment with the Mayor & City Finance Officer to clarify whether the City would consider Bonner Milltown connection without annexation.

The matter of “waiver of protest” condition that accompanies new septic installations or upgrades of existing ones: Landowners sign an agreement, as part of their permit to install or improve a septic system, that they will not protest establishing public sewer connection. The details of how/when this works are unclear. It is expected that this topic can be clarified at one of the two HDR public meetings.

Bruce expressed concern that the City would sue the County if any arrangement other than connecting to the City sewer was accomplished. Presumed grounds for such a suit are that the City would depend upon their entire, defined sewer service area to bring in revenue to pay for improvements. Craig and others thought this concern to be groundless.

Bruce described an EPA report directing Counties to diversify wastewater treatment instead of centralize it. The reason for this direction was the inefficiency and environmental impact of extending long, leaky connections from remote sources to a central one.

Bruce described Passive Aerobic Treatment as a wastewater treatment option available to individuals, affordable, and environmentally sound. Cora noted that this type of option would be included in Option 4 (do nothing) of the HDR feasibility study.

-gm

Land Use Committee member Bruce Troutwine suggested the following amendments.
Committee members Karl Uhlig and Steve Fisher concurred:

Suggested amendments to the meeting notes!

“Deed Restriction / Waiver of Protest”

When I first mentioned the deed restriction issue, it was in praise for the Missoula City-County Health department for replacing the Deed Restriction requirement with a **Maintenance and Operation plan** requirement for PATS (Passive Aerobic Wastewater Treatment Systems). I was giving the Health Board praise for recognizing the health advantages of this simple low cost next generation solution for individual systems as well as large community systems.

As I understand this new Heath Code, the County is now partially in line with the recommendations of the US Congress and the EPA. For nearly 20 years they have been attempting to educate State and Local governments how to design and manage de-centralized solutions like the PATS. That is why they created the following documents. I presented several of these at the meeting:

- Management Guidelines: Voluntary National Guidelines for Management of Onsite and Clustered (Decentralized) Wastewater Treatment Systems
- EPA Guidelines for Management of Onsite/Decentralized Wastewater Systems
- Onsite Wastewater Treatment Systems Manual
- Handbook for Managing Onsite and Clustered (Decentralized) Wastewater Treatment Systems
- Response to Congress on Use of decentralized Wastewater treatment systems
- Fact Sheet: Voluntary National Guidelines for Management of Onsite and Clustered (Decentralized) Wastewater Treatment Systems
- Decentralized Wastewater Treatment Systems A Program Strategy
- USEPA’s Onsite and Cluster Wastewater Treatment System Data Management Tool

They have also created these websites with the above information and other management tools and webinars.

<https://www.epa.gov/septic/2014-decentralized-wastewater-management-mou>

[2014 Decentralized Wastewater Management MOU | Septic ...](#)

www.epa.gov

Decentralized wastewater management memorandum of understanding between the U.S. Environmental Protection Agency and partner organizations. You will need Adobe Reader ...

- <https://www.epa.gov/septic/webcasts-about-onsite-wastewater-treatment>

[Webcasts about Onsite Wastewater Treatment | Septic ...](#)

www.epa.gov

EPA's Decentralized Wastewater Management MOU Partnership sponsors quarterly webcasts to discuss issues of interest to the decentralized community. Below are ...

- <https://www.epa.gov/septic/onsite-wastewater-treatment-and-disposal-systems>

[Onsite Wastewater Treatment and Disposal Systems - EPA](#)

www.epa.gov

A design manual for onsite wastewater treatment and disposal systems. You will need Adobe Reader to view some of the files on this page. See EPA's About PDF page to ...

- <https://www.epa.gov/septic/decentralized-wastewater-systems-technology-fact-sheets>

[Decentralized Wastewater Systems Technology Fact Sheets ...](#)

www.epa.gov

A collection of fact sheets on decentralized wastewater treatment systems technology.

-

<http://www.nesc.wvu.edu/wastewater.cfm>

[Wastewater - National Small Flows Clearinghouse and ...](#)

www.nesc.wvu.edu

Onsite Wastewater Regulations Database - This database helps customers access onsite wastewater regulatory documentation. It also helps the NESC determine if it is ...

•

These documents already answers many of the design and cost questions that the current Study/Report is attempting to answer. These documents already guide local governments on how to design and manage decentralized solutions whether they are large or small, public or private.

Example (1995 \$):

Fringe community consist of 1,550 people in 443 homes (Includes future growth)			
	Capital Cost	Annual O&M Cost	Total Annual Cost
Centralized system			
at 5 mile from existing sewer	\$5,377,800	\$95,900	\$529,300
at 1 mile from existing sewer	\$3,322,900	\$83,800	\$351,600
Cluster Systems	\$3,783,700	\$18,000	\$322,900
On-Site Systems	\$2,117,100	\$59,240	\$229,900

“This table shows that for the fringe community, in this instance, installing new onsite systems to replace the old onsite systems that are failing and new onsite systems for new homes would be the most cost-effective option however, construction of cluster systems with alternative collection might be the preferred option in this type of growing community where space may be limited for individual onsite systems. In cases where a fringe community is relatively close to a sewer interceptor (e.g., 1 mile), and the existing centralized collection and treatment facility can accept the additional wastewater loadings, It might be cost-effective if a fringe community is located relatively far from a sewer interceptor (e.g., 5 miles), centralized collection and treatment may not be cost-effective, especially if treatment and collection facilities require upgrading to handle additional flows.”

...Although, excluded from this analysis, the relative costs of failure for centralized systems can be far greater, given that all wastewater is concentrated at a central location.”

Today’s cost of just the connection/impact fee to the MWWTP (City of Missoula Wastewater Treatment Plant) are probably higher than the total annual O&M cost listed in the table above.

By eliminating the deed restriction requirement for PATS, it shows the board recognizes the health advantages of well-designed and maintained decentralized wastewater treatment systems have over pumping to a centralized system like the MWWTP through a collection system.

Even if the City’s treatment plant had no risks to the environment, the collection system from W. Riverside to the plant is a greater threat to the environment then clustered and onsite treatment systems. The collection system would have to take raw, untreated sewage, pump it into a pressurized pipe and run next to the Clark Fork River, expecting 99.999% of it to make it to the MWWTP.

Additionally, a collection system would take water from the water table in W. Riverside, transport it to the MWWTP and discharge it back to the ground or river downstream of the plant. This could potentially reduce the level of Missoula's Aquifer and East Missoula's Aquifer.

The EPA is moving towards strict nutrient pollution limits for centralized facilities when they discharge to rivers like the MWWTP does. Decentralization can reduce or eliminate nutrient removal upgrade costs required to meet the new EPA requirements.

Unintentional entry of surface and ground water into the collection system is typically caused by broken pipes and defective joints, as well as cracked manholes. The extraneous flows of this Infiltration and Inflows adds unwanted loads to the MWWTP, thus reducing efficiency of the plant making harder to meet discharge requirements.

To help meet the discharge permit requirements, the City WWTP is applying partially treated wastewater on the ground instead treating and discharging to the river. Simple logic tells us that the environmental risk of an expensive collection system to pump raw sewage next to a river, only to apply it onto the ground is waste of the County's resources.

When asked if the more restrictive nutrient removal systems (Level II) are required for the W. Riverside area the engineer replied that conventional dispersion systems (perforated pipe and rock drain fields) may be sufficient. This implies there are no surface waters or ground waters in this area that would be influenced by subsurface treatment systems, thus eliminating the need for expensive mechanical treatment systems.

The Study/Report is not complete if doesn't identify potential surface and ground water hazards.

Studies show the nitrates travel as far one and a half feet below a drain field. That means W. Riverside has a 30 to 40 foot buffer before drinking water is influenced by a dispersion system.

The PATS has advantages over a conventional drain field because it is not a dispersion system. To my knowledge, it does not use the earth for treatment. It uses multiple living, breathing ecosystems and the System Sand works as the "lungs" of the system, providing a controlled intake of oxygen and release of gases produced as a by-product of bacterial digestion of wastes. The gases are released through high vent (usually above the roof) or through the system sand to the atmosphere with little to no odor.

PATS is passive and requires much less land, lasts longer, costs less, has no moving parts or computer controls, doesn't use electricity and treats wastewater more effectively. Most importantly it can be scaled up as the community grows.

The above EPA Guidelines encouraging State and Local governments to decentralize are based on dispersion systems. The health advantages of non-dispersion systems like PATS makes the decentralization the preferred solution for areas like W. Riverside.

By replacing the deed restriction requirement with the maintenance and operation plan requirement for PATS, implies that acceptable management entities such as special governmental units (sanitary districts, county service districts, etc.), public or private utilities, private corporations, and nonprofit organizations could operate PATS.

The engineer stated that the current Study/Report is only for public systems and will not address On-site systems. This appears to be in direct conflict with the County's document and the EPA objectives to keep wastewater local to the extent practical and to direct some or all of the flow of treated wastewater to ground rather than surface waters.

The current Study/Report must include the PATS option and the conventional dispersion systems option for servicing all or parts of the study area.

Alternate D (Dispersed Treatment) of the 1996 Missoula Wastewater Facilities Plan was ruled out because the available systems at the time required large amounts of land and a large management effort. The Passive Aerobic Treatment System was not studied in the Plan. PATS virtually eliminates these requirements. The Plan is the basis for the deed restriction in the County's health code. Because the Plan is deficient, the deed restriction no longer has valid justification. The Plan is also in conflict with new goals of the EPA.

Local requirements, such as septic system setback requirements, often have the effect of forcing systems onto less favorable sites without providing any additional benefits. At the same time, extending sewer service to developing areas does not necessarily discourage sprawl. An alternative to both single-family onsite systems and centralized wastewater treatment is the use of cluster systems, which consolidate the land required for individual septic leach fields into one area and effectively decrease the amount of open space consumed by each lot.

The City-County Health Board appears to be addressing the issue of sprawl in the Code for PATS by offering to "approve deviations" from the conventional treatment requirements. Possible deviations to reduce sprawl are:

1. Reduction of septic setbacks from property boundaries.
2. Reduction of septic setbacks from wells and surface waters.
3. Reduction or elimination of a full size replacement area.

These deviations should be allowed because PATS treats waste before it is absorbed by the ground thus eliminating risks to ground water.

As I was giving the County praise for recognizing the Next-Generation waste treatment solutions by replacing the deed restriction requirement, Shannon Therriault of the

County Health Department said I was mistaken and that there is another deed restriction requirement that needs to be signed by the owner when installing a PATS.

A deed restriction requirement and the study of only public options is in direct conflict with the above EPA Guidelines.

A deed restriction that prevents (sanitary districts, county service districts, etc.), private utilities, private corporations, and nonprofit organizations is in direct conflict with the above EPA Guidelines.

The engineer express his opinion that a local public sewer it could be allowed but stated that clarification is needed. I also stated it would be a non-issue of the Health Board updated the service plan area to not include this area.

The County was well represented at this meeting and they stated they could not answer if not connecting to the MWWTP would be allowed in its service plan area. The Health Department is strong support of the centralized sewer and public sewer.

I stated no more time or money should be spent until the Health Board puts a determination in writing. Gary and Burt from the Bonner Council offered to ask the City of Missoula's mayor, administer and attorney if they would allow separate sewer districts that are not connected to the City's plant. Of course this is a moot point if there is no deed restriction on PATS systems.

Shannon has agreed to meet with me to show me the deed requirement for PATS. I am willing to sit down (at her convenience) so she and her colleagues can enlighten me of any mistakes I may have made in the above notes.

I wish I had more time to add more information but I am scheduled correct several design flaws in a Water Treatment Plant this week and the way things are looking in the news, I may need to correct the programming irregularities of ballet tabulation machines next week.

Question presented at the 10-27-2016 meeting with the County at HDR

Passive Aerobic Wastewater Treatment System (PATS)

1. The new Missoula City-County [Alternative Systems Manual](#) (18.4.2) states:

“A maintenance and operation plan must be signed by the owner”

Does this mean that the DEED RESTRICTION is no longer needed if the owner installs a PATS (Passive Aerobic Wastewater Treatment System)?

2. Can PATS be used for individual and for cluster developments?
3. Can a PATS be managed by either public or private entities?
4. Can the Health department or DEQ oversee the maintenance and operation plan of a private entity?
5. Missoula City-County Health Code [Regulation 1](#) (Section 13. (F)) states:

“All alternative system designs, with the exception of pit privies, must provide for replacement areas equivalent to those required for conventional systems in the event of system failure.”

- a. Conventional drain fields are dispersion systems that use the earth for treatment. The replacement area is needed if the earth becomes saturated.
- b. A PATS is not a dispersion system and does not use the earth. If abused and it cannot be rejuvenated then it can be replaced in the same location because it does not use the earth for treatment.
- c. Can the Code be deviated to not require replacement area for a PATS because it doesn't need the earth for treatment?
- d. Alternative Systems Manual 18.3.4 States:

“The Department may approve other deviations from Missoula County Health Code, Regulation 1, Section 12 (Conventional Secondary Treatment) evaluated as necessary to accommodate system specific design/function.”
- e. Can the Code be deviated to not require the full setback distances (10. (C) Table 2) for PATS that don't use the earth for treatment?

Dwelling Density

1. Dwelling Density: I understand subdivision regulations do not restrict the number of dwellings and that sanitation regulations are effectively restricting the number of dwellings per acre.
 1. Section 10 (D) generally states: The maximum land application rate of wastewater is 700 gallons per acre/day or essentially two dwellings per acre. But the EPA requires a 500' mixing zone to be on the owner's property. This reduces the density to about one dwelling per two acres or a density of .5 dwelling/acre. Correct?
 2. Exception
 1. (a) 4 dwelling units are allowed if not subdividing.
 2. (b) A Level II can have 1,400 gallons acres/day.
 3. (c) Rate may be increased if monitoring of nitrate levels in the effluent is done.
 3. What is the maximum density for conventional systems?
 1. Single family
 2. Multi family
 4. What is the maximum density for clustered PATS?
 1. Single family

2. Multi family
5. What is the maximum density for clustered Level II systems?
 1. Single family
 2. Multi family
6. A Level II system is required when close to surface water. Are there any locations in this study that are not close to surface water? Is a Level II required in W Riverside?
7. Is there any ground waters affected by onsite systems in W Riverside?

Bruce Troutwine

brucet@abtcontrols.com

Voice 406.549.6500 Fax 406.549.6550

401 Dixon Ave. Missoula, MT 59801