

# *Jefferson County*

## *Public Service District*

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### **Jefferson County Public Service District Public Comment Hearing February 1, 2016**

The public hearing of the Jefferson County Public Service District for the USDA project loan for the sewer transmission project was held from 6:30PM to 7:30PM on Monday, February 1, 2016 at the District's office in Kearneysville. Those in attendance included: Chairman, Peter Appignani; Secretary, Richard Weese; Treasurer, Bill Strider; PSD General Manager, Susanne Lawton; Administrative Assistant, Ashley Stottlemeyer; District Legal Counsel, Jim Kelsh; from Thrasher Engineering, Wayne Morgan; from Dunn Engineers, Fred Hypes; and liaison for the County Commission, Commissioner Jane Tabb.

Chairman Peter Appignani called the meeting to order at 6:30PM.

#### JCPSD Intent to file an application for funds to the USDA RUS for a sewer project

Mr. Wayne Morgan, from Thrasher Engineer gave a brief overview of the project. The new project would eliminate five pump stations, upgrade pump stations 3-6, 4-2, and Ranson's Flowing Springs pump station, construct a 15 inch interceptor for northern Route 9 to the location of the existing Breckenridge Pump Station (3-7), construct a 24 inch interceptor from pump station 3-7 to a new Halltown pump station, and utilize the 8 inch District forcemain and Ranson's 12 inch forcemain to the Flowing Springs pump station owned by Ranson. Mr. Chuck Young, from CoxHollida & Professionals, reviewed the revised Rule 42 which uses the Fiscal Year 2015 data. The proposed rate for the project is projected to be \$17.92 per 1000 gallons, a 2.69% increase. Mr. Kelsh stated that the District will need to submit various components for the application of the certificate of convenience and necessity to the Public Service Commission including an approved Rule 42 and final engineering which are expected to be completed by the end of the month, as well as a public notice form that will be sent to the customers and advertised in the local newspaper.

Mr. Appignani informed the audience that the District received two written comments, one from Todd Milliron, and one from Gagan Batra, both PSD customers. Staff has provided a written response to each and will include as part of the record. The Board opened the floor to receive public comments.

Jane Arnett, Utility Manager for Charles Town Utility Board, along with board members Pete Kubic and Kristen Stolipher, expressed the concern of the Utility Board to make sure their interests were protected. Ms. Arnett stated that the Utility Board doesn't want to get in the way of progress for the project, but the impact to customers is a concern and the ability of the District to pay for treatment services. She also hopes the District looks into the septicity and odor control issues that Charles Town has at the Charles Town wastewater treatment plant.

Commissioner Dale Manual, PSD customer, and speaking on behalf of himself, was also concerned about the rate impact on current customers and suggested that the development community should pay their fair share for the project. He also commented on the Prevailing Wage legislation and if passed the approximate 30% savings could be provided toward rate impacts and not contractors.

Jacquelyn Milliron, PSD customer, questioned if the Rule 42 was based on new customers because the project was said to be based on no new customers. Chuck Young responded by stating the revised Rule 42 was based on billing records of actual customers being billed for fiscal year 2015, which showed more customers on billing than fiscal year 2014. Ms. Milliron also asked how much old pipe would be replaced in the new project and if it will take care of any inflow and infiltration issues. Mr. Morgan stated that no pipes would be replaced, but a new gravity interceptor and forcemains will be installed which will not have inflow and infiltration issues since they will be brand new. Ms. Lawton informed Ms. Milliron that the degree of inflow and infiltration varies throughout the District's system, but staff has done smoke testing in various areas and utilizes portable flow meters to help eliminate some of the problems. She also stated that most of the inflow and infiltration problems are seen at manholes. Ms. Milliron lastly asked how old the manholes are at the Breckenridge subdivision. Ms. Lawton explained there was a repair done to a manhole in front of the pump station in Breckenridge about two years ago, which she believes were installed in 1998.

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Marchel Pitcher, PSD customer, questioned what the benefits of the project are and what benefits the current customers will see. Mr. Morgan stated that six pump stations have reached their capacity and will be eliminated and a gravity interceptor will be installed which is actually cheaper than replacing all the pump stations. Mr. Morgan stated that if nothing is done, since capacity has been reached, overflows could occur at pump stations and violations could be incurred. Mr. Kelsh explained that the District has a duty to serve and provide service. Ms. Pitcher also questioned if all the customers on the map provided by Mr. Morgan will be paying for the new project. Mr. Morgan responded by stating yes, all current and new District customers will incur the same rate, as well as a capital improvement fee paid by new customers if approved by the Public Service Commission.

Heidi Parker, PSD customer, asked if anyone besides the rate payers are paying for the project and if other project alternatives were examined. Ms. Lawton stated that other alternatives were explored and this was the most cost effective. Ms. Parker also asked if the Ranson/District deal effected rates. Mr. Kelsh stated that the initial project costs were much higher prior to the agreement with Ranson, but with the use of Ranson lines and their pump station the cost was decreased by an estimated \$3 million.

Sarah Smith, PSD customer, stated that she does not care for this project and is concerned with the increase in rates. Ms. Smith urged the Board to look into other alternatives before submitting to the Public Service Commission and asked why the District doesn't ask for contribution for aid and construction from the developer community. Ms. Lawton responded by informing Ms. Smith that the District's capital improvement fee is a form of contribution in aid of construction and is currently being charged. Ms. Smith also asked if the District is still paying for the Flowing Springs project and Mr. Kelsh informed her that the District is still paying for the project.

Todd Milliron, PSD customer, thanked the District for answering his written questions he had submitted prior to the meeting. He referenced the map prepared by Thrasher Engineering at asked at what point in time the 1100 projected homes will be able to hook up. Mr. Milliron also asked if the sewer transmission project fails to move forward then what will happen to the Breckenridge pump station. Mr. Morgan stated that the Breckenridge pump station was a temporary pump station and would have to be relocated and upgraded. Mr. Milliron also asked what the project timeline is for the next project. Mr. Morgan replied that the capital improvement fee currently being collected would go towards the next project which is projected to be needed in the next three to five years.

Marchel Pitcher, PSD customer, stated that Jefferson County is not the only county that is growing, but that it has one of the highest rates and she wanted to know why. Ms. Lawton stated that the cities have a greater amount of people in a small area and the Districts system has more pump stations and more lines to serve customers that are more spread out. Being a fairly new utility, compared to the local cities, the District also has a lot of debt that was incurred to initially build the system.


Gagan Batra, PSD customer, was on speakerphone and asked when he would receive answers to his written comments. Mr. Appignani stated that staff will email the responses to him after the meeting.

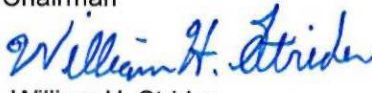
**Action: Motion made by Mr. Strider and seconded by Mr. Weese to adjourn. Unanimously approved.**

There being no further business at this time, the meeting was adjourned at 7:30PM.

The next regular meeting is scheduled immediately following this special meeting at 340 Edmond Road, Suite A at the Districts office in Kearneysville.

Respectfully Submitted,

  
Peter L. Appignani  
Chairman

  
William H. Strider  
Treasurer

On February 1, 2016 we had a public meeting for the sewer project. At that meeting we were asked a number of questions. Numerous people asked similar or identical questions so I (Susanne Lawton) will address the separate subjects of the questions instead of each individual's questions.

- I. Charles Town Utility Board is concerned that the District will be able to pay the monthly bulk rate to Them.

**My answer:** I responded to Ms. Arnett that the District now pays on time and we have included their bulk rate to our calculations for our "after project" rate.

- II. Charles Town is also is concerned about septicity and odor control issues that they have at the Charles Town wastewater treatment plant.

**My answer:** I explained that the District uses Bioxide at three of our pump stations and we have monitors at downstream pump stations to assure that our feed rate is accomplishing the goal of reducing odor and septicity by reducing hydrogen sulfide. Unfortunately, we cannot control how others treat the wastewater after it leaves our system. Bioxide does work and I forwarded the data we have to Ms. Arnett so that she and her engineer could see that it does. I also offered to add an additional monitoring point in their system to assure that all of our system is properly treated before it leaves our system.

- III. Commissioner Dale Manual, who is also a PSD customer and stated that he was speaking for himself, was concerned about the following items.

(1) The rate impact on current customers and suggested that the development community should pay their fair share for the project.

**My answer:** The District is also concerned about rates and we do not needlessly raise them. Developers do pay for the entire infrastructure within the new development and for the offsite infrastructure they need to reach our system per our Alternate Mainline Extension Agreements. The currently proposed project is needed to provide reliable and sanitary service to our existing customer base. It replaces existing facilities that are past their expected service life. When the District replaces any component to our system we have it sized based on general engineering and regulatory requirements and practices. The District shares Commissioner Manual concerns that the development community should pay their fair share for the project. The District has tried to include a capacity impact fee for its entire system so funding will be available for necessary improvements. The District welcomes any assistance the Commission can provide in establishing an impact fee for sewage service so that the development community pays their fair share. The District was the first utility in the State of West Virginia to establish a capacity impact fee but the Public Service Commission ultimately reversed its position and removed the fee from our tariff when they decided to deny the Flowing Springs Project. That impact fee included approximately \$2,500 for collection systems and \$5,000 for treatment plant capacity.

(2) He also stated that there is legislation that may eliminate the need for utilities to pay prevailing wage saving 30% on projects. He asked if the District will pass this savings on to our customers or give it to the developers.

**My answer:** If the prevailing wage in WV is eliminated of course we would not use it in our projects if we did not borrow any federal money for the projects. The most money for utility projects in WV comes from federal sources and the loans from those sources require the utility to pay Davis Bacon wages. So, even if we don't have to pay prevailing wages, we are still forced to pay Davis Bacon wages which are almost exactly the same amounts of prevailing wage.

- IV. Is the Rule 42 based on new customers or no new customers?  
**My answer:** The project is based on our existing customer base. The Bond Holders do not allow a utility to base loan payment on projected growth because it doesn't always come to fruition.
- V. How much old pipe would be replaced in the new project?  
**My answer:** There will be no direct replacement of existing pipe because the proposed project will take a different path than the current system.
- VI. Will the new system take care of Inflow and Infiltration (I & I) issues?  
**My answer:** The District's I & I problem is not significant. Infiltration and Inflow (I & I) are continual problems in all sewer systems. It does not matter where a system is, it will have some amount of I & I. It is challenging to quantify the amount of I & I in a system because it is not easy to calculate how much water actually goes down the drain. Since we bill by water meters, as many utilities do, we only know how much goes into a home. We can get a good idea of how much is pumped from our pump stations by the hours the pumps run, but this is, at best, an educated guess. Flow meters are helpful but they too are just an estimate as depending upon the flow rate, angle of flow as opposed to the flow gauge and numerous other anomalies, as these things can affect how well they work. Most utilities have found that measurements using pump times and flow meters give a good estimate to work from but cannot give a fully accurate reading. We track run times at pump stations and compare them to flow meter reads and water meter reads. The flow meter reads do occasionally show rises in times of precipitation, but not always. The District has 3 portable flow meters and we normally try to keep them in one place long enough to have a few good rain events to help us determine where we may have issues with inflow and infiltration. If problems are evident, we move them back in the system until we can better define where the problems are occurring. At that point we can use our sewer camera to look in gravity lines for cracks and root intrusion. We have used smoke testing where it is appropriate and have been successful in locating problem areas. These areas were not found strictly with smoke testing. We used other tools to get us to the point where smoke testing is helpful. We have found that significant inflow and infiltration has been due to open laterals (without caps) and inflow into manholes. Where we find that the problem is with inflow into manholes we have used "pans" in the manholes, which block the precipitation from getting in the manholes. The pans look like a large Frisbee that fits in the top of a manhole and rest on the rim. They work very well. We also have a manhole inspection program in which we make regular inspection of all our manholes, establish GPS coordinates and repair any damage that we find. Smoke testing is not the only way to find I & I, in fact, it has limitations as do the other methods. If the ground is saturated with ground water, many cracks and root intrusion will not show up, therefore effective smoke testing is seasonable. Smoke testing is good at showing areas where there are openings directly to the surface, such as rain gutters connected to the sanitary sewer line, laterals without caps and floor drains in buildings and we can use it for that year round. Smoke testing requires much planning to notify all customers and emergency responders exactly when the testing will occur as it can cause people to panic thinking that there is a fire. To sum up our I & I elimination efforts, we use a number of different tools to find and eliminate I & I. No system will ever be totally free of I & I but with experienced people, such as District personnel, working on the issue on a consistent basis, the District is successful in reducing excess flows. The District will continue to monitor its system for inflow and infiltration and make the necessary repairs.

Depending upon the final path of the new facilities, there will likely be between 100 and 125 manholes in the new system.

VII. What are the benefits of the new system?

**My answer:**

(1) It is the District's obligation to provide sufficient facilities to provide safe and efficient service to our customers and it gets impossible as time passes, to meet these requirements with aging and "at capacity" facilities.

(2) The relocation of the pump station that serves Breckenridge, Briar Run, Cambridge, Walnut Grove and Security Hills, Beallair and Sanitary Associates. The Breckenridge pump station was not installed to be a permanent pump station. It was not built in a suitable location to be able to handle the full buildout of the (then) three new developments of Breckenridge, Briar Run and Cambridge along with Walnut Grove. It was to be eliminated within a year or two of its construction because those flows were going to flow by gravity to a new wastewater treatment plant which was being planned in Millville. That plant was never built so the temporary Breckenridge pump station has now been in service for over 16 years. It now handles over 800 homes along with Sanitary Associates. The District has spent \$ hundreds of thousands to eliminate problems that come along with using a temporary station as a permanent fixture. Charles Town now has plans to remove the flows from Sanitary Associates but this will not eliminate our problems at this station. The station needs to be relocated lower in the watershed. The proposed project will address this issue.

(3) The other benefits of the project will be to replace or eliminate infrastructure that has reached its capacity and expected useful life along Old Rt. 9 and the Woodlawn Crossing Mobile Home Park.

**Feb. 1, 2016 Sewer Transmission Project Questions submitted by ratepayer Todd Milliron:**

*(District Answers in Red)*

1. From the November 2015 PER Wastewater Improvement Project (PER), Pg. 48 of 159 lists \$106,295 for property and right of ways.
  - a. Question: Once purchasing the right of ways, will the Jefferson County Public Service District (District) continue to incur fees for easement right of ways? For example, annual fees for easements across Media Farms. **No, it is a one-time payment.**
  - b. From the PER, Pg. 49 – 50 of 159; what is included in the “right of way council” fee; what is included in the “right of way” fee? Who makes up the council? What is included in the “lands and right of way acquisition” fees? How do these fees differentiate and are any duplicative with the aforementioned \$106,295 for property right of ways? **Our Right of Way Counsel is Jim Crawford, a local lawyer. His fee includes the following items: update real estate titles, review surveys and appraisals as necessary, prepare easement agreements, and if necessary, file law suits and follow up. The \$106,295 is the money that has been allotted to pay land owners for the easements.**
2. Page 18 of 159 of the PER suggests a smoke test be performed to isolate and confirm infiltration on the Breckenridge PS and associated lines. This is similarly recommended in the 2015 District’s Strategic Plan.
  - a. Question: Has the District performed this smoke test (Breckenridge PS and associated lines)? If so, what were the findings? If not, why? Please elaborate to any findings from the smoke test for this system, costs associated to repair and time to remediate. **The District has found some infiltration by using other testing methods. We have used smoke testing in other areas and may use it in the future at Breckenridge.**
3. When Ranson or Charles Town incorporates over existing District lines; do they reimburse the District for this infrastructure? **No because we keep the customers attached to the lines and ownership of the lines and other facilities in the area.** Do they assume responsibility for maintenance and upkeep of lines and pump stations? **No, we still own the pump stations and lines.** If so, provide an example? If not, why?
4. The PER states one home to have received sewer back up twice from the Breckenridge PS; what measures has the District taken to alleviate future SBU into this home? **The District has spent well over \$200,000 at the pump station in new controls, pumps, redundant alarms and back up pump.** What were the associated costs? **We have taken further steps at this home but the settlement is under a nondisclosure agreement so the District cannot give details.** If no mitigation for future occurrence has ensued, why? **In summary, the problem will continue to**

exist, but now with other homes, unless the pump station is move to a lower elevation which is suitable for a permanent pump station.

5. PER pg. 15 of 159 identifies 275 EDUs from Sanitary Associates. Per Charles Town Utility District's Strategic Plan (pg. 32 of 52 and WV-IJDC Project #2011S-1304), they have a project in 2016 that will divert Sanitary Associates flows from the Breckenridge PS and Flowing Springs PS alleviating the District of this responsibility; did the District take into account for future available flows? **Until Charles Town actually completes the project and remove the flows this option is not solid enough for planning purposes. If they do remove them we will have additional capacity at that station but it will not change the fact that it is in a poor location for a permanent station as it was only planned to be there until a plant was built in Millville around 1998. If not, why?**
6. PER pg. 13 of 159 outlines a future volumetric rate of \$18.15 per 1,000 gallons. Is the proposed rate inclusive of the State approving the District's use of existing CIFs in the current 42R? **The CIF has nothing to do with the currently proposed project. If the State does not approve the use of CIFs in the current 42R, will the project rate of \$18.15 be altered? If the rate is altered it will not be due to the removal of CIFs in the District's tariff. If so, what will be the volumetric rate? Currently we are under the impression from the most recent Rule 42 that the rate will be \$17.92 / 1000 gallons.**
7. PER pg. 15 of 159 states Ranson to have a projected growth of 2,583 customers placing assumption of responsibility for the District to provide capacity. **If you are talking about the line that goes through Old Town Ranson that takes in most of Ranson's flows as well as the District's flows from Old Rt. 9 customers, an "assumption of responsibility for the District to provide capacity" for 2,583 customers may be a stretch. It is true though that Ranson has asked the District to remove some of our flows from these lines through Old Town Ranson so they can utilize them for their own plans within the City. These lines have little remaining capacity and the infrastructure that gets District flows to these lines is in need of upgrades. When upgrades are done it would be silly to do them using the same size facilities or they will not last their normal expected lifetime. It is better yet if the District's flows are diverted from Old Town Ranson with a permanent solution instead of another temporary solution. If you are referring to the Northern Ranson growth where much of their development is planned to occur, if they utilize the District's lines we plan to enter into an agreement with them that is similar to the agreement for the District to use the Ranson owned Flowing Springs pump station. There will be an O & M fee to the District which Ranson will pay.**
  - a. Question, should Ranson pay for this expansion as stipulated in the Title 150 Sewer Rules? **Title 150 covers many "stipulations", which one are you referring to? If not, Why? If so, how will they compensate the District and when will this take place? If and/or when Ranson uses the District's facilities they will be subject to the District's CIF and they will pay us an O & M fee similar to the one in the agreement the District has has with Ranson for our use of their Flowing Springs Pump Station.**

8. PER pg. 25 of 159, the Jefferson County Development Authority is requesting capacity; have they contributed to the costs of construction of this Project? **No.** If so, how much? If not, why? **They no longer have money to contribute. We did ask. When individual businesses build in the Development Authority area of Burr/Bardane Industrial Park, they will be paying our CIF which will go to replace capacity that they use by adding to the CIF bank account which will go toward future projects which are specifically related to growth.**
9. From the 2012 nine alternative sewer projects, Alt. #2 for \$8.8M tends to be similar to both the PER currently being submitted for \$7.1M and the \$7.2M forecasted project. How do these two projects differ from Alt. #2 and associated cost increase?

**The alternative numbering in the PER does not correspond to the alternative numbering in the 2012 studies. The \$8.8 million project was to upgrade the collection through Ranson terminating at the Evitts Run Interceptor. The \$7.1 million project is the project currently proposed.**

10. To afford the current \$7.1M project, plus \$1,949,082 in interest for a total of \$9,049,082, the proposed \$2,080 CIF would require 4,350 new EDUs to recover costs. **We have consistently stated that the \$2,080 CIF is not intended to assist in paying for this project. It will be for future project needs specifically related to growth.** The PSD Strategic Plan's Appendix references Charles Town Utility District's 2015 Strategic Plan Appendix D, which consists of two different growth projections for the District service area:

- a. One indicating a 30-year growth of 3,471 or 115 EDUs per year, which is used in the PER.
- b. The other is a Discounted Level encompassing recent growth patterns projecting 798 EDUs over the next 30 years or 27 EDUs annually (Pg. 52 of the CTUB Strategic Plan, Appendix D indicating 101,066 flows / 180 gallons per EDU).
- c. For sake of argument, I averaged these two projections calculating 71 EDUs per year for the next 30 years. At this rate it will 61 years to pay for the project through the proposed \$2,080 CIF (4,350 total EDUs / 71 EDUs annually = 61.26 years). **The CIF is not intended to be used for this project.** Has the District considered alternatives to pay down the Project's debt before the 40-year loan expiration? Such as, requested contributions from developers? **Developers will pay for their onsite facilities and offsite facilities to reach the District's system. These will be sold to the District for \$1.00 and this is in our Alternate Mainline Extension Agreements. If other agreements are to be made they will be made through negotiations when the developers are ready to move forward. We always ask for more but they are not required to give more. To the extent the District would have funds available to pre-pay debt, so doing is not the most effective way to provide rate relief to existing customers. Such excess payments are applied to the last years of debt service. Reducing the amount borrowed on a future project is more beneficial. If not, why?**

#### Ratepayer Concerns:

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1. I maintain effluent borne on the west side of the Norfolk Southern railroad tracks should continue to flow to Charles Town using existing rights of way, pipe and pump stations to avoid costs associated with new easements and pipe for a cross-county connector subsequently diverting flows in a circular path.
  - a. Using existing easements would coincide with the District's 2015 Strategic Plan when constructing a waste line from the Harvest Hills SD south to the proposed Halltown PS area. **The District does not hold any existing easements from Harvest Hills to the proposed Halltown PS areas.** By doing so, existing institutions could utilize shorter runs, possibly gravity, to convey effluent through the Halltown Study Growth Area. Furthermore, allow for future growth north of Duffields expanding towards Shepherdstown. **Harvest Hills is working with the District, as is Pleasants Development (Breckenridge East) to plan the items we will need to take flows from Harvest Hills and any other areas in that area directly to the proposed Halltown Pump Station through Breckenridge East.**
  - b. Maintaining the current runs along North Mildred St. would allow for the numerous lots in the Ranson Urban Growth area to connect; **No, there are only 50 to 100 EDUs available in that line.** has this been considered **Yes, for many years now.** and has Ranson vested an interest? This also begs the question; is the District responsible for this west of the tracks group in the Ranson UG area? **As Ranson uses the District owned facilities, it will be subject to the Districts CIF and an O & M or transmission fee. "West of the tracks" can cover a very large area from the Evitts Run Interceptor almost up to the Berkeley County line where Ranson has annexed. Which entity will provide service will be determined as circumstances become more defined.**

*Sent by e-mail, January 28, 2016*

*From Gagan Batra*

*(District Answers in Red)*

Dear Ms Lawton / JCPSD BOD,

As a concerned Jefferson county resident and JCPSD rate paying customer I have reviewed the Preliminary Engineering Report For The Jefferson County Public Service District Jefferson County, West Virginia For The Wastewater Improvement Project and I have several questions that appear to have not been addressed in the report. Since, I do not have an opportunity to discuss this report with those who wrote it, or those who will officially review it or those who will be using it to make the decision, I am providing you my questions in writing here.

There is no doubt in my mind that JCPSD system in question is aging and in constant need for maintenance to keep it operating. It must be costing a lot to JCPSD rate payers to keep such a system in existence. So, my first question is -

- Is the system in question older than Ranson or Charles Town's system? No I cannot imagine that the age of the JCPSD's system in question to be that materially different than Ranson or Charles Town. This brings me to my next question –

*Some areas are newer and some are older.*

- Why is Charles Town and Ranson able to keep the rates so low compared to JCPSD? Charles Town and Ranson have paid off much of their debt for their systems and have more users per foot of pipe.

*Charles Town and Ranson have greater customer density. Due to the terrain, their systems are largely gravity systems as opposed to most of the District's system which is pumped. Gravity Systems last longer and have lower operating costs than do force mains.*

I think we should be looking at these two neighbors and learning something from them.

*The District shares information and cooperates with these systems.*

The report lays the foundation for the need of this project based on four reasons

- Aging Infrastructure - aka Breckenridge Pump Station and its Back-up problem
- Growth
- Capacity
- Request letter(s) from City of Ranson

Let's look these in reverse order - starting with the letters from City of Ranson. Reading the letters informs me of no founding basis that City of Ranson has with regards to their concern over JCPSD utilizing City of Ranson's available capacity and limiting City of Ranson's ability to economically develop the city. There is not a single piece of data presented to suggest that there is an opportunity for growth. So, the question I have is

- What has been Ranson's growth in last 30 years? For Last 20 years? and For last 10 years?
- What has been relative increase in permits being issued by building departments that suggests a growth?
- If there is growth, how much is expected? Over how much time?

The District has not reviewed Ranson's historic growth rates. Ranson has engaged in extensive annexations in recent years which indicates an expectation of growth. As you state later in your questions, Ranson has predicted 2,583 residential units in the future.

- What is the available capacity at the Flowing Springs Pump Station if JCPSD does nothing?

Jefferson County PSD has exceeded our contractual obligation by approximately 10,000 gallons per day.

- How much growth in the City of Ranson would wipe the available capacity?

Ranson has contractual obligations to all of the existing capacity of the Flowing Springs Pump Station to Ranson Developers.

I guess too many open questions from my viewpoint, especially since this is one of the reasons justifying the need for the project. To be fair, JCPSD engineering did provide some data on the available capacity for Ranson users in the report. The review of the data provided to justify the capacity concerns does beg few questions for the experts who design Sewer systems for a living. Repeating the text of the report for ease of reference:

"The Ranson Old Town Collection System is limited in its ability to handle the flows that are generated in the Northern Route 9 service area. The force main from PS 1-12A delivers flow at 310 gallons per minute into a 10 inch gravity sewer which flows through increasing diameter gravity lines and eventually through the 18 inch gravity interceptor along Evitts Run. Additionally, two other District pump stations, 2-13 and 2-14, deliver flows to the same 10 inch force main at 70 and 60 gallons per minute, respectfully. A 10 inch diameter line at minimum slope can convey 510 gallons per minute. The District flows total 440 gallons per minute which leaves only 70 gallons per minute of capacity for 260 EDUs in Ranson. This is not sufficient capacity, as the Ranson users in this area generate approximately 180 gallons per day of waste flows. New developments in Ranson are planned for the near future which will eventually need capacity for 2,583 residential users."

One aspect that jumps out is that the text fails to register if the flow rates that we are discussing are average flows or peak flows extrapolated from the average flows. Since, I know from research that a 10" line at minimum slope can carry up to ~510 gpm so it appears that we are discussing peak flow rates. Please note - this is a very important point - since we are talking peak flow rates which means all the numbers in the above text have been arrived at by using a peak factor applied to an average flows. What is a peak factor? Peak factor in technical terms is defined as flow capacity of the pipe divided by the average flows. Continuing in technical parlance the higher this factor the more margin (factor of safety) you have in the design or in layman's terms the more empty your pipes will be most of the times compared to a lower peak factor or in other words the higher the peak factor the less utilized your sewer system will be.

Having reviewed some of the prior JCPSD sponsored Engineering Reports on the same subject I recall the peak factor used in their design to be 4.0. This is very relevant because it implies all the peak numbers in the reference text above are arrived at by taking the average daily flows times the peak factor. So, for instance the PS 1-12A that delivers a peak flow at 310 gallons per minute implies the

average daily flow is only 310 divided by 4.0 = 77.5 gpm. This means the peak combined peak flow rate from all three sources (PS 1-12A, 2-13 and 2-14) of 440 gpm is based on an average daily flow of 110 gpm. If one reviews the industry literature for what is an acceptable peak factor ranging from 2.5 (WVDEP) to 3.5 (WVBPH). 4.0 is not a common at all. This implies JCPSD sponsored engineering design is 60% more conservative than WVDEP accepted peak factor and ~15% more conservative than WVBPH accepted peak factor. This means the average daily flow of 110 gpm x 2.5 peak factor would yield a 275 gpm peak flow rate. This alone tells us the available capacity in the 510 gpm minimum slope 10" line is 510 less 275 equals 235 gpm of peak capacity or 94 gpm of average flows available for City of Ranson to utilize. So, the question is What is their average flows entering the system?

This leads us to talk about 260 EDU's in City of Ranson. Assuming an EDU in Ranson is same as an EDU in JCPSD which is 3,848 gallons / month / EDU, which means 260 EDU's are equivalent to  $260 \times 3,848 = 1,000,480$  gallons / month, which is same as  $1,000,480 / 30 = 33,350$  gallons per day, which is same as  $33,350 / 24 = 1,390$  gallons per hour, which is same as  $1,390 / 60 = 23$  gallons per minute. Let's test if this is correct. The reference text above says "...which leaves only 70 gallons per minute of capacity for 260 EDUs in Ranson". Let's assume that Ranson is fully utilizing the available peak capacity. This means being consistent on the peak factor City of Ranson actually has an average flow of 17.5 gpm (70 divided by 4.0). Which means Ranson's EDU value in gallons per month per EDU is lower than JCPSD's EDU value in gallons per month per EDU. So, 17.5 average flows must be the right number.

This now has to be converted to peak flow rate to see how much capacity is needed.  $17.5 \text{ gpm} \times 2.5 = \sim 44 \text{ gpm}$  peak flow rate. This means out of the 235 peak available capacity Ranson only needs ~44 gpm leaving 191 gpm of capacity. Do you see a capacity issue?

I don't but let's try to hypothetically create a capacity problem. Let's say, if Ranson was to experience a growth that doubles their EDU in the same time as it took to get to the current level Ranson would still have capacity for another growth of similar size. Actually, Ranson can have a growth of 191 divided by  $\sim 44 = 4.0$  i.e. four times the current peak flow rate from Ranson can be absorbed in the available system.

Now, of course the data presented suggests that growth is a lot more dramatic 2,583 EDU's - which is 10 times the current levels. So, it seems we would run out of capacity...actually not. Before I start talking about why - Please note there is no mention of

The pumps in PS 1-12A are rated at 310 gallons per minute and that is the rate that they pump to the 10 inch gravity line. The 10 inch line has sections which are at minimum grade, that was not assumed. A point you missed in the regulations is that gravity lateral sewers shall be designed with a peak factor of 4. When you design a sewer line which is fed by pump stations, you have to assume that all the pump stations will be running at the same time because it will happen. If you ignore that, you will have lines surcharging and forcing sewage back into the service laterals coming from the homes and businesses and overflowing of manholes.

Interceptor sewers can use a peak factor of 2.5, but those lines are much larger. The District and for that matter the WVDEP relies on what is commonly called the Ten State Standards, which is the "Recommended Standard for Wastewater Facilities". The Ten State Method uses the method developed by "Fair, G.M. and Geyer, J.C. "Water Supply and Waste-water Disposal" 1st Ed., John Wiley & Sons, Inc., New York (1954), p. 136. This method uses the population served by the facility and is an industry standard.

- Over what period this growth happens? and

been installed at a slope higher than min slope say up to a maximum slope producing potentially 5 fps flows. Let's look at the numbers at these higher slopes:

- 4 fps results in ~980 gpm available capacity, leaving an available capacity of 980 less 756 = 224 gpm
- 5 fps results in ~1,224 gpm available capacity, leaving an available capacity of 1,224 less 693 = 468 gpm

So, clearly two variables are important to know:

- What is the slope of the pipe in duress?
- Why a peak factor of 2.5 acceptable to WVDEP is not acceptable to JCPSD sponsored engineering firms?

See the first response on page 3 above.

The point of all these questions is that I am not so sure we really understand the available capacity to call it insufficient or yet again we understand the potential for growth that might surpass the available system capacity.

Moving to the last reason reason that lays the foundation for the need of this project, which is address problem pump stations. The problem pump station being the Breckenridge Pump Station, which started as a temporary station and ended up being permanent. Located at the wrong place and built to the wrong size. However, despite being so many wrongs the only issue it has caused in its 15 year history is a back up on the same house twice. Please note that the report does not discuss the root cause of this back-up. I checked and found out that this house has a house on the left and a house on its right and there has been no issue of sewage back-up with either of the neighbors. This makes me wonder if I should be doing a root cause analysis based on the fact this is the only house that has experienced back-up in the entire subdivision of breckenridge and of course in the entire 2,400 number of customer base. I would say it would be a lot cheaper than the proposed project to fix this pump station problem with this one house. Has the thought of possibly purchasing the house been considered might be a cheaper solution in the long run. Of course no one else is buying a house with this kind of problem anytime soon.

An investigation was made. We found out that some of the homes in the development have basements served by sewage collection and some don't. Fixing the issue at the one home will only take care of the one home. The sewage will back up until it gets to the next house which has a basement served and then it will back up into that structure. The District has spent a lot of money having the pump station pumped when the pump station failed and will have to continue to if the pumps fail in the future. The permanent solution is to move the pump station downstream to a location which will not cause sewage to back up into homes or business in the future.

I believe there are enough questions been raised that those writing this report, those reviewing this report and those using this report to make decisions, should consider these questions to make sure you are making a data driven informed decision as opposed to relying on a whole bunch of speculations provided in the report.

With Kind Regards,

-Gagan

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