

RESERVOIR REPLACEMENT PUBLIC COMMENTS AND RESPONSES

TNAi comments on the proposed reservoir

February 1, 2017

E-mail From: Suzanne Gray

After much consideration, the Tanglewood Neighborhood Association, Inc. (TNAi) will not oppose placement of the new reservoir in our neighborhood provided the FPB takes the following steps to ensure the character of the neighborhood is maintained as much as possible and the property values are not diminished.

- 1) *The North tank should be replaced first as it is less visible to homeowners.*
- 2) *The existing earthen berm should remain in place. Extensive professional landscaping, which could include terracing, should be used to disguise the industrial look of the reservoir.*
- 3) *The TNAi prefers a flat roofed tank like the one currently on the reservoir. If that is not possible, the tank should be reduced in size so that it fits inside the existing berm as much as possible.*
- 4) *Any visible part of the tank should be painted by a professional artist so that it blends into the neighborhood as much as possible. This includes the roof as it is visible from other elevations in the city.*
- 5) *Every home adjacent to the city property or those potentially impacted by vibrations due to construction should be inspected prior to construction of the new reservoir.*
- 6) *The FPB agrees to go through Planning and Zoning Commission (as required by the City Commission) on this project at the reservoir and on any future projects at the reservoir exceeding \$200,000.*
- 7) *The TNAi requests further meetings with the FPB to discuss specifics of landscaping, painting, etc. It is the TNAi's understanding that the property at Tanglewood is not suitable for a third tank and should the city require a third tank in the future, that tank will be placed at another location.*

We appreciate the opportunity to provide input on this project and look forward to working with you on details moving forward.

Suzanne Gray

Tanglewood Neighborhood Association, Inc.

Response: Thank you for your comments. Following are responses to your requests regarding replacement of the existing reservoir.

- 1) FPB water staff has performed an evaluation and their consultant has reviewed the evaluation to assess which side of the reservoir should be replaced first based solely from an engineering perspective. Based on this evaluation, replacement of the south basin first offers more advantages such as reduced cost, better use of the site to centralize the new tanks, simplified construction and construction staging, and enhanced public safety (the south basin has experienced more degradation than the north basin). The Board's decision on which tank to replace first will take into consideration the public comments, the FPB water staff and consultant recommendations, and the rate payers best interests.
- 2) FPB water staff intends to keep as much of the earthen berm as possible to partially bury the proposed tank and reduce the overall visual impact. However, the top of berm elevation will likely vary depending on the final tank placement and site grading constraints. FPB water staff intends to flatten the berm slopes to allow for improved maintenance and landscaping elements will be incorporated into the design.

- 3) A flat-roof system for a tank of this size significantly increases construction cost by as much as 50 percent when compared to a domed-roof system. FPB water staff has evaluated tank sizing based on a variety of factors including distribution system requirements and system demands. The sizing as proposed is optimum in supporting the current and future needs of our system.
 - 4) The Board is open to suggestions regarding the appearance of the tank and will consider all reasonable alternatives. Typically, these types of tanks are painted a single color to provide a uniform appearance.
 - 5) No blasting will be permitted on the project site and all rock removal will be performed by mechanical means only. Therefore, ground vibrations that could impact nearby buildings should be minimized. A preconstruction survey will be performed by a third party to document existing conditions of adjacent properties.
 - 6) FPB water staff will follow the directives of its Board.
 - 7) FPB staff is open to participation in additional meetings and discussions regarding items such as landscaping and painting at the discretion of the Board.
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Reservoir comments

February 1, 2017

E-mail From: Eric Whisman

As the FPB plans are developed to rebuild the historic Frankfort water reservoir complex, I am concerned of a number of issues. Affordable, clean and accessible water is an absolute must for Frankfort and I am in full agreement that this service is imperative to the lives of our citizens. However, I am concerned the current plans do not adequately review the needs of our community.

Frankfort's public water system began in 1804 prior to the famous Chicago or Louisville waterworks and was in fact one of the first in the country. Throughout our history, Frankfort has been forward thinking. We build solid reliable systems that last for generations. The same is to be said with the current reservoir. Built in the 1880s the reservoir has served this community for nearly 140 years. Obviously it is a well built system and a testament to the original engineers and their abilities. As such I require the historic reservoir structure be preserved. I do not believe enough consideration has been given options to retrofit the current reservoir complex to continue service to our community.

The proposed replacement tank(s) while modern, provide 22% less capacity than the current system. Additionally, the process of removing and replacing one half of the reservoir may undermine the second pool, jeopardizing our entire communities water supply. This is not a risk we should take. I am concerned already that development on the site with a new "Head-In" building has undermined the reservoir structure. The current plans in no way consider preserving this historic structure in our community. The claim that the reservoir has reached the end of its useful life is false. The same claim has been made before when decisions were made to reline the pools provided another 50 years of usefulness in the 1960's. As my research has discovered a number of new structures around the US that resemble our historic reservoir in many forms. Therefore I believe a custom lining or tank can be made to retrofit our system and ensure its viability for many years to come. While a new custom tank lining might not be the most economical option, it is imperative to respect our existing system and plan for the future. As an advocate for preservation I respectfully request this option be developed and exercised that preserves the existing structure while providing the needs of our community.

Rebuilding at the current location is not acceptable. Already the available space is limited and a new tank must further encroach upon the neighborhood who have been negatively affected by FPB actions in the recent past. I request that any new tank be located at a new site in the form of a single tank that might be built in with an architectural façade to blend with the historic nature of our community. One such location with a higher elevation and available acres is the a very short distance, the site of the old Holiday Inn hotel not ¼ mile from the existing site.

As the Plant Board to consider the future needs of this community. Current capacity of our water systems meet the needs of the community as is. While future development and expansion of business and residential grown of our community may indeed require a larger system. Rather than diminish our current capacity, I hope the FPB will develop a system to meet a future increased capacity.

I hope you will consider the current and future needs of our community as you develop this project and respect the historic system that we have enjoyed for so many years.

*Thank you,
Eric Whisman*

Response: Thank you for your comments. FPB water staff and their consultant originally evaluated repairing and lining the existing reservoir. However, the results of that evaluation showed that the necessary roof structure repairs and lining system exceeded the cost to replace the reservoir with new tanks. The necessary repairs to preserve the existing reservoir also have a limited useful service life and additional repair work would likely be required within 20 to 25 years whereas a new tank would have a service life of 50 years or more with minimal maintenance costs. The existing reservoir can also be considered a functionally obsolete and structurally deficient structure, which are normally terms used to describe highway bridges, but are applicable here as well. Functionally obsolete essentially means the design is no longer functionally adequate for its task. In terms of the reservoir, it is functionally obsolete in its construction because of the earthen embankments, which result in an inefficient cross section. In other words, the existing reservoir requires a very large footprint to contain a relatively small volume of water when compared to vertical wall tanks. The existing structure can further be classified as structurally deficient because the existing roof system does not meet current seismic design requirements.

FPB water staff monitors water usage on a daily basis to support operations and planning for future facilities improvements. Based on evaluation of water usage over the past 20 years, staff believes that replacement of the reservoir with a single 7 MG tank is anticipated to support current and future demand requirements for at least the next 20-year planning horizon. The programmed option to add a second 7 MG tank in the future provides added flexibility to proactively address unforeseen changes that may occur with future water demand. In this manner, the FPB water staff is thinking about the future and planning for potential growth.

The FPB water staff and their consultant have evaluated several potential tank siting alternatives, however moving the tank to a different location significantly increases project costs based on several variables. Any additional capital required to relocate the reservoir would require additional borrowing and would most likely require a larger rate increase to all rate payers. The final decision on the tank location is at the discretion of the Board and a decision will be forthcoming.

Submission of Reservoir Comments
January 31, 2017
E-mail From: Jim Pierce

I very much appreciate the FPB now seeing the importance of taking public comments regarding your construction projects into consideration, allowing the community, your customers, and your neighbors to ask questions, express concerns and share other perspectives. No one was surprised to hear that your recent contacts with City Parks and the State led to learning that neither want the reservoir built in or near their location. Understandably, no one wants it. I believe it will happen here, but my wife and I certainly don't want it here as I'm sure is true for the large majority (if not all) of my neighbors. That said, though, I fully acknowledge that at the time we purchased our home in Tanglewood, we were clearly aware of the reservoir being located in our neighborhood, along with the ugly chain link fencing with barbed-wire strands representing the border between public utility and neighborhood. Because the reservoir preceded all of us up here, I thought it was reasonable that reservoir update would be located on the same property due to the existing infrastructure. I just want it to be something that I and my neighbors can live with. But, I have a few questions: (1) Will this re-build be done in such a way that respects the neighbors and the Tanglewood neighborhood? (2) Will reasonable and appropriate mitigation be done to eliminate or severely minimize loss of property values and/or a diminution of quality of life? (3) Will reasonable and appropriate measures be taken to assess, prior to the reservoir project construction begins, the existing soundness of neighborhood homes/foundations as well as post-construction assessments made of any possible property damages due to the project, if needed? (4) Will any and all damages resulting from the reservoir project be fully remedied by FPB? (5) The larger question, perhaps, is... Has anyone taken a studied, long-range view of where the best location for the new reservoir would be... away from existing neighborhoods, replacing much of the very old waterline infrastructure? (6) What solution would be best for the community of Frankfort in 50 years... 100 years? (7) If it happens here, then: Will the mitigation recommendations of the TNAi, especially those neighbors directly impacted, be honored? (8) Will the property be adequately maintained... landscaping cared for appropriately and grass mowed/maintained on the side slopes? I, also, very much appreciated the reservoir project presentation of 12/15/16 by David Billings, taking the time to answer or have answered our questions and to lead us on the physical tour of the reservoir perimeter. When that tour ended at the south end of the south tank and it was time to turn back, I and two to three other Tanglewood neighbors (accompanied by 2 FPB staff) walked 40-50 feet farther south to look at the headend construction from above. What I saw shocked me; it, felt like a kick in the gut. The monstrous headend building and its large concrete parking structure were crammed right up against the homes on Hay Ave, dwarfing them in the process. The large array of satellite dishes further south only made matters worse. I knew what happened to those neighbors and to our neighborhood was really bad, but I did not know how absolutely horrible it was until that moment. Any community member who ever had a doubt about the total inconsideration, the unbelievable lack of professionalism, displayed by those who had a hand in that decision and its execution should take a short hike to get that perspective. The land in Tanglewood on which FPB exists has been forever changed. It is not the park-like environment that it was a mere 15 years ago; it will never be again. The nature of the area has been altered. One of the main entry-ways into Frankfort, our capital city, has been forever diminished, replaced now by a major industrial complex. As a Tanglewood home owner and resident, I fear that Tanglewood, the neighborhood, its neighbors and its property owners will always have to bear the full burden, financially and personally, of the significant changes implemented by FPB in a matter of just a few short years as well as those going forward. (9) Is that fair? Should there be restitution or at least an acknowledgement by FPB of what they have done, and potentially will do in the future, to its near-by neighbors? I do believe that the way the reservoir project will be handled is night-and-day different from the abhorrent way

in which FPB proceeded with its headend project. I hope, and trust, that this means FPB administrators and board members fully understand their responsibility as a public utility to its ratepayers as well as to the community at large, with appropriate consideration for its near-by neighbors.

Sincerely, Jim Pierce

Response: Thank you for your comments. Your questions have been numbered and responses are as follows:

- 1) As you mentioned in your e-mail, FPB water staff are approaching the reservoir replacement project in a different manner than previous work done on the site. The goal of this approach is to develop the project in a manner that best accommodates the needs of FPB, the surrounding neighborhood and FPB rate payers. FPB is open to all reasonable suggestions regarding the look and feel of the reservoir site.
 - 2) FPB water staff are open to reasonable suggestions regarding the tank finish and landscaping to help the proposed tanks blend in with the surrounding neighborhood.
 - 3) A preconstruction survey will be performed by a third party to document existing conditions of adjacent properties. Possible property damages reported will be handled on a case-by-case basis.
 - 4) The contractor will be responsible for any damages to existing buildings near the reservoir project as a result of the contractor's work.
 - 5) FPB water staff and their consultant have evaluated other potential tank site locations. If any of these alternative locations were selected, they would significantly increase the overall project cost, resulting in a direct impact to all rate payers. FPB water staff has conducted a detailed review of future water demands based on historic water usage and projected trends moving forward. Based on this data, replacement of the existing reservoir with a new 7 MG tank satisfies current and future projected demands for at least 25 years. The current reservoir site also allows for the addition of a future 7 MG tank that would increase the overall capacity to 14 MG. This option provides added flexibility with the system to address the potential variability in future water demands and growth patterns.
 - 6) Predicting water usage needs 50 or 100 years into the future is very difficult because of a large list of unknown variables such as population growth and uncertainties with the potential for large industrial water users moving to the area. FPB water staff believes that replacement of the existing reservoir with an initial 7 MG tank and planning for a future 7 MG tank addition will responsibly address demand trends well into the foreseeable future.
 - 7) TNAi's mitigation recommendations are a result of a separate project from the reservoir replacement project and FPB water staff and their consultant cannot comment. Any questions regarding other projects should be directed to the Board.
 - 8) It is FPB's plan to implement maintainable landscaping.
 - 9) This question is beyond the limits of the reservoir replacement project. Any questions regarding other projects should be directed to the Board.
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Comments**January 30, 2017****E-mail From: Clyde P. Baldwin, P.E.**

I just watched a very professional and well delivered presentation on correcting the aging main reservoir. It was very informative and clearly presented the problems, alternative solutions and the recommended solution. This program needs to be run periodically to the public and on cable 10.

Clyde P Baldwin PE

Response: FPB has made the presentation available through its website and it has been run periodically on Cable 10.

Comments**January 27, 2017****E-mail From: Glenn Goldstein**

You have only mentioned cost as a factor for determining which site FPB prefers for the new tanks. While certainly important, is that the only factor you can give for your decision? It seems that even your most expensive site option is not too much to spend to get a 100-year decision right. What about site capacity for three or more tanks for the next 100+ years? You have said Tanglewood cannot accommodate more than two tanks, so can you also say that Frankfort will not need more than two tanks over the next century? Do you have any studies to support that? What kind of residential/industry growth would generate the need for more than two tanks? Would that be beyond the realm of possibility?

Thank you,

Glenn Goldstein

Response: FPB water staff and their consultant agree there are other factors to consider when determining a tank location, but cost is normally one of most significant factors to consider because it effects all the rate payers. Other factors obviously include impacts to the surrounding area, elevation requirements to work with the current water distribution system, and other infrastructure needs to accommodate the new tank site. The existing reservoir site has served Frankfort well for over 130 years and there is no reason to believe that will change in the next 100 years. The existing reservoir site will not support a third tank and if additional storage is needed in the future, then another tank would need to be sited at a different location to meet that need. FPB water staff and their consultant cannot predict if more storage will be required over the next century and to our knowledge there are no reliable tools available to predict storage needs that far into the future. It is unlikely that typical residential growth alone would exceed the two tank capacity within the next 50 or more years; however, industrial growth can bring with it the potential for highly varied water supply needs if Frankfort agrees to provide service to such customers in the future.

Tanglewood Reservoir Project
January 25, 2017
E-mail From: Natalie Wilkerson

Thank you for agreeing to speak to our neighborhood association this week about the upcoming reservoir replacement project. I will not be able to attend that meeting, but coincidentally, I spent this past Sunday in Louisville and visited their city reservoir off Frankfort Avenue. It is not only a architectural and engineering jewel, it is truly a "public" project. The path around the 100+ million gallon reservoir is 3/4 of a mile and there were many families and individuals there exercising and enjoying themselves.

Considering the tainted past and present of the Head End project, I would ask that FEWPB consider making the design an attraction for our community, or at least attractive. And please continue to involve and notify the public as the design progresses.

*Thank you,
Natalie Wilkerson*

Response: Thank you for your comments. FPB is open to all reasonable suggestions regarding the look and feel of the reservoir site. Continued public involvement is anticipated as the project develops.

Rendering presentation of the conceptual reservoir proposal
January 24, 2017
E-mail From: Gary Muller

David – I appreciate you sharing this with us. Last night the Commission directed that they want to hear and discuss any proposals – including platting and/or conveying property - before any administrative decision/approval is made by staff. I anticipate that Rob's/Tim's memo to the Commission will be discussed at the February 6th Commission Work session. (I haven't seen it yet)

In regards to the rendering - I don't recall if this was considered by you all, but I think if you were to install the first new tank at the other end (line south end instead, which had the leak) it would provide a better setback and lessen the impact upon Tanglewood, as well as the new headend building – since you are considering/proposing to build within 15 feet of the new building.

Response: FPB water staff has performed an evaluation and their consultant has reviewed the evaluation to assess which side of the reservoir should be replaced first based solely from an engineering perspective. Based on this evaluation and review, replacement of the south basin first offers more advantages such as reduced cost, better use of the site to centralize the ultimate tank configuration, simplified construction and construction staging, and enhanced public safety (the south basin has experienced more degradation than the north basin). The Board's decision on which tank to replace first will take into consideration the public comments, the FPB staff and consultant recommendations, and the rate payers best interests. Please note that based on the renderings presented, the proposed southerly tank will be more than 60 feet from the new headend building if it is selected for the initial installation as recommended.

Tanglewood reservoir
January 23, 2017
E-mail From: Reba Pierce

I think it's reasonable to keep the reservoir in Tanglewood. It was here when I purchased my home 22 years ago. What wasn't here was the headend building and mess. I'm fortunate that my home isn't severely impacted by the headend mess, but for those who are, it seems only right, though minimally helpful, to ensure the reservoir construction project has the best outcome. Hopefully their homes won't experience further damage and with proper landscaping and decorative painting, the reservoir itself won't be an eyesore.
Reba Pierce

Response: Thank you for your comments. FPB is open to all reasonable suggestions regarding landscaping and decorative painting.

Request
January 16, 2017
E-mail From: Paula Moore

Hi, Mr. Billings, I found your name at the end of the reservoir presentation on FPB's website and am wondering if I can get a more legible copy of one of the pages of the presentation? While watching the cable coverage of the meeting and then looking at the website, I'm most interested in what I think is page 16 of the presentation (page 31 of the report) which shows a map of the proposed relocation of the reservoir to Berry Hill. The map appears to show this actually at Juniper Hill Park, not Berry Hill? And between the existing tennis courts and US 60 behind the physicians' offices on Leawood?

Was wondering, if the above is correct, why it's called Berry Hill and Golf Course?

I'm a resident at the Villas at Berry Hill, as well as a ratepayer, so am concerned about a change in location from the present one. As a ratepayer, it will obviously necessitate a rate increase, regardless of whether it is moved closer to me. It appears that FPB staff has obviously taken all this into consideration, which I appreciate.

I didn't hear any discussion about what would happen to the existing reservoir and property if it is moved. Was this discussed, and if so, what has been proposed?

Thanks so much for your help with this. Please let me know if you need anything else from me.

Paula Moore

Response from David Billings, 1/16/2017:

Excellent questions. There were actually two locations identified on the north side of US60 that potentially could be utilized. One location is in front of Berry Hill and the other is near the tennis courts at Juniper Hills (see attached maps). In the presentation, I just referred to them both as the Berry Hill / Golf Course area for convenience because they are so close together and have very similar relocation costs when comparatively discussing other potential areas.

You are also correct that any additional capital required to relocate the Reservoir would come from additional borrowing, would most likely require a larger rate increase. This has been discussed and is part of Staff's reasoning in the recommendation to rebuild in place.

Staff is also under the impression that the existing Reservoir needs to come down regardless of whether it is rebuilt in-place or another location.

Thank you for your email and please do not hesitate to ask if you have any additional questions.

David Billings

Follow-up Email from Paula Moore, 1/17/2017:

Thank you very much! The Berry Hill location doesn't appear on the "large" map at all, but the smaller one does show it and helps explain staff's name. Still begs the question about what would happen to the current location, of course, but perhaps you can't answer that.

As a user of both Berry Hill and Juniper Hill for walking both myself and my dogs, I would hate to see those areas losing both acreage and the visuals now there, especially when the current location is sufficient and would also help keep costs down. The city also just applied for and received a grant to create paved walking at Juniper Hill, and a significant portion of that would be lost, too.

I do appreciate FPB taking public comment on this and also understand Tanglewood's concern given recent events. I wish the local paper did a better job of putting this information out, too.

Paula Moore

Response: The final decision on the tank location is at the discretion of the Board and a decision will be forthcoming.

**Reservoir Replacement
January 16, 2017
E-mail From: Glenn Goldstein**

Please re-consider the location for the replacement reservoir. This is a 50+ year decision at a minimum and more likely a 100+ year decision for Frankfort. The city decision makers who located the current reservoir in 1885 had the wisdom to locate it in what was then farmland away from the city and not surrounded by homes and other city development. Now the city has developed around and well beyond that location. The additional \$1.6 million to move the reservoir to Juniper Hill next to the tennis courts where it wouldn't intrude upon a residential area is not too much to ask you to spend for a facility which will serve the city into the 22nd century. Please employ the same wisdom used 130 years ago by now relocating to a more isolated area while you have the chance.

In your public meeting you showed nine photos of the type of tank you want to construct, and I don't recall any of them having adjacent residences. This is not the kind of facility you would willingly locate in a residential neighborhood, especially when you have the chance to move it to a less intrusive location. If, however, you decide to keep the new reservoir in the Tanglewood neighborhood, please consider the following to disguise the tank(s):

- 1. Paint the tank to blend in with the sky (sky blue/white/gray).*
- 2. Earthen berm along the sides to minimize the size of the tank and help it blend in with the surroundings.*
- 3. Hedges along the top of the berm to further disguise the tank.*

Thank you for your consideration,
Glenn Goldstein

Response: Please refer to previous responses in regard to the tank location. The final decision on the tank location is at the discretion of the Board and a decision will be forthcoming. Please keep in mind that the Juniper Hill location would not necessarily be considered an isolated area because of the adjacent golf course, Aquatic Center, tennis courts, Berry Hill Apartments, and the Berry Hill Mansion. While this location does not necessarily intrude upon a residential area, it does intrude on a highly valued public space. The Juniper Hill site location has been unanimously denied by the City of Frankfort Parks, Recreation, and Historic Sites Department in a letter dated January 12, 2017.

The Board will take all reasonable painting and landscaping recommendations/requests into consideration regarding the final appearance of the tank and site.

January 31, 2017
Letter From: Orman Wright

Dear Mr. Billings:

I am in receipt of your letter of December 1, 2016. And although I was unable to attend the presentation FPB staff made to the neighborhood on December 15, 2016, I appreciated receiving the personal notification. I have had the opportunity to watch both the site tour and the replay of that meeting on Cable 10.

I am probably the oldest resident of the neighborhood, but having built my house in 1987-88, I'm still a relative newcomer to the neighborhood. When I hear some of the neighbors discuss their antics or those of their children some 50 or 60 years ago, I am moved. It is hard to imagine in a world so mobile and interconnected that lives could be so stable and firmly rooted in one place. Yet, as I believe you pointed out in a recent presentation, the experts in these matters are predicting that Frankfort will only grow .2% over the next 20 years. If I understood the presentation correctly, the FPB planning for this project reflects that projection by specifying the installation of a new, single tank which will lower the capacity of the system by almost 2 million gallons. The life expectancy for the new tank is 50 years. Thanks to the expectation of low growth and improvements in water conserving technologies, the new tank will provide ample water for the next 20 years, barring some unforeseen water intensive use like a new industrial client or distillery.

One of the advantages of being in the ninth decade of my life is that it provides me with a perspective that most people do not have. For example, every time I travel to Lexington I am struck by how much it has changed since my undergraduate days in the 1940s. In fact, if you look at the changes from decade to decade since, you see a city that has morphed into something entirely new. The growth in this past 'low growth' decade is astounding in both rate and volume. But Lexington is not alone. Louisville is also growing. Thanks to the recent Toyota expansion, Georgetown continues to grow. For the past several years, Anderson County has been among the fastest growing counties in the state. If the projections turn out to be accurate about Frankfort's low growth rate, that doesn't address the ripple effect Frankfort will continue to experience by growth in these surrounding areas.

Neither Frankfort nor Kentucky exists in a vacuum. When you look at the nation as a whole, water is always a topic of conversation. Large portions of Kentucky's sister states to the south (North Carolina, Tennessee, Georgia, Alabama and Mississippi) are abnormally dry to drought stricken. To the west, the states of Missouri and Oklahoma fall entirely into the 'water-stressed' categories. To the north, most of New England is affected especially the populations centers along the coast starting in Maine and extending through the Mid-Atlantic states into the now 'abnormally dry' Maryland, DC and northern Virginia. Public policy research and recommendations once reserved for the naturally dry western states are now commonplace in a variety of locations east of the Mississippi River.

To say that a safe and plentiful water supply is important is an understatement. It is vital to all life, human and otherwise. As I have been mulling over this matter, it has occurred to me that population growth and climate considerations are not the only pressures affecting water supply going forward. We are now using water in new ways. A good example of this is hydraulic fracturing or "fracking." Oil and/or gas exploration companies now mix a proprietary cocktail of chemicals with water and then force that mixture into fissures in the earth. This process extracts oil and natural gas trapped in layers of rock. The technique was conceived in the late 1940s but became commercially viable around the turn of the 21st century. While the technique does not require the kind of water we drink, it does permanently remove the water used from the world's fresh water supply.

More relevant to Kentucky's agricultural heritage, I have included for your review an article from the January 9, 2017 issue of "The New Yorker." The subject of the article is a salad greens growing operation in an abandoned industrial building in Newark, New Jersey. It is about a new technology called "vertical growing." The process is highly technical with no sun needed, no soil needed and very little water required. The greens are grown "aeroponically" which requires 70% less water than a typical hydroponic setup. As a point of reference, hydroponic operations require approximately 70% less water than traditional in-ground grown salad greens. As I was reading, it occurred to me that these aeroponic growers were not pumping untreated water out of the Passaic River or Newark Bay. They were either using water from the municipal system or were treating the water as part of their process. Either way, this is a new way to use water. Even if the water is from Newark's excess capacity, it is safe to assume that this new way to use water was not planned by the officials in charge of estimating local needs and calculating water storage to accommodate those needs. Similarly, I believe that the future needs of the Frankfort water system are far from being certain.

How do you plan for unforeseen problems/opportunities? I would propose that the City needs to give itself some 'wiggle room,' both physically and conceptually, by leaving enough options open to accommodate unanticipated technologies and breakthroughs. It goes without saying that physical space for additional capacity at the current location is in very short supply. The best option would be to acquire space currently occupied by neighborhood housing stock.

So, while the FPB sees the need for a single tank with diminished capacity, I see the need for additional capacity at a location which would not restrict the City's ability to add even more capacity in the future. This is not the time or the circumstance to cut costs. That would be 'penny-wise and pound foolish' to use a very old cliché. I believe that Frankfort's municipal water supply and its attendant water storage capacity will be an even more important resource going forward.

As an adjoining property owner, I am strongly in favor of a complete upgrade to the City's water storage system and believe it should be moved to a location which can easily accommodate future

growth. Please record my response as opposed to the proposal to install either a single or double tank on the current reservoir campus.

I appreciate the opportunity to comment on the reservoir proposal.

Sincerely,
Orman R. Wright
310 Owsley Avenue

Attachment B

Questions submitted by Orman Wright, 310 Owsley re: FPB reservoir replacement project

I. Improved perspectives needed on new and existing renderings.

- A. *The new tank will be 18 feet taller than the roof of the current reservoir.*
1. *Please provide dimensions of existing tower on drawing indicating, relative to that tower, the height of the current and the highest point of the proposed structure.*
 2. *In an effort to further clarify the perspective and actual mass of the tank, please provide a scaled drawing of a vehicle, preferably the same make and model of the FPB cargo vans currently parked on the reservoir site. In one presentation, FPB staff stated that a flat area, suitable for use as a driveway, would encircle both tanks at the top of the berm to improve access for maintenance. Please position the properly scaled drawings of the cargo vans on this perimeter driveway. This addition should be made to all current perspective drawings and the additional drawings requested in further questions.*
- B. *Additional perspectives needed.*
1. *Currently there are pine trees planted on the western edge of my property at 310 Owsley Avenue where it adjoins the reservoir campus. These pine trees and the existing tower mentioned above are clearly visible from Daniel Boone's grave and a host of other grave sites located on the western bluff of the Frankfort Cemetery. Please provide a rendering of the proposed tank(s), both single and double, from the perspective of Daniel Boone's grave.*
 2. *All of the attention given to the appearance of the proposed project is from the western side (roughly facing Tanglewood Drive) and the southern aspect (facing Hay Avenue and Reservoir Road.) No perspective drawings or renderings have been offered for the eastern or northern exposures. At minimum, please provide a rendering of the proposed project from the corner of Owsley Avenue and the alley which connects it to Commonwealth Boulevard. Preferably there will be three renderings: first of the tank replacing the south basin as proposed, complete with driveway and vehicle; second, of double tanks, including perimeter drive and vehicle; and, third, a rendering of a north basin only replacement tank currently under consideration by some of the adjoining neighbors. The third drawing should include the height of the tank, location of the perimeter drive and the properly scaled vehicle to assist neighbors in assessing the mass of the installation.*

II. Need and outline of the property assessment and ensuing construction process.

- A. *Will the installation of the temporary liner in the north basin be the first step? If not, what will be the first step?*

- B. *Which houses will be assessed for condition issues prior to the beginning of the construction process? Will the homes which adjoin the south basin be assessed? Those which adjoin the entire reservoir campus? Properties which adjoin the adjoining properties? The entire neighborhood?*
- C. *When will the properties be surveyed to assess their condition?*
 - 1. *Will the property owners be provided with photos and documentation?*
 - 2. *Will FPB take out insurance to protect itself from potential liabilities relative to potential damage to surrounding properties? If so, will bids be taken on this insurance? If not, will the FPB attempt to self-insure? If so, how much money will be set aside to cover any potential damage? What is the cost of any necessary insurance(s)?*
 - 3. *Who will do the surveys? FPB staff? City staff? Private contractors? What is the estimated cost of the process?*
 - 4. *What features of each property will the survey assess? Foundations? Basements? Crawl spaces? Slab constructions? Driveways? Sidewalks? Patios? Water gardens? Retaining walls? Exterior masonry? Fireplaces? Interior surfaces? Plumbing? Ductwork? Any other rigid construction feature? Built-ins (i.e. cabinetry in kitchens and baths, bookcases, etc.)? Furnishings and accoutrements like dishes and glass ware inhabiting closets, cabinetry and furnishings? Finally any potential damage to art hanging on interior walls?*
- D. *When will the new drain be installed? What is the cost of the drain?*
- E. *Will the site be leveled first?*
- F. *Will the site be excavated and backfilled?*
- G. *When will the drive(s) around the top(s) of the tank(s) be constructed?*
- H. *Will the drive be paved? If so, what materials will be used and what is the cost? If not, what materials will be used? How will it be maintained?*
- I. *If the project goes forward as planned, will the north basin be drained when the new tank is completed and filled? If so, will the existing basin remain? If it does, will the roof remain intact? Will water remain in the basin? If not, will that portion of the site be leveled? Will it be graded? Planted? If so, what plants be used? If not will it remain a green space? Will it be used as parking?*
- J. *In the event that the project moves forward on this site, but with the current north basin as the location of the tank, please answer the questions posed in sections II. E. thru I above from the perspective of a north basin replacement tank.*

III. Need a timeline for the construction

- A. *Prior to the decision, please provide a projected timeline for the project*

IV. Breakdown of costs associated with construction on current reservoir campus

- A. *I have noted that in the presentation much effort was expended outlining the costs associated with moving the water storage to another location. However, relatively little was said about the costs associated with the construction on the current campus. Please provide a detailed listing of those costs, including the following items:*
 - 1. *Cost of the temporary liner for the north basin*
 - 2. *Cost of re-routing the drain line from current location to proposed location crossing Tanglewood Drive, down past the pumping station and into the ravine?*
 - 3. *Cost of environmental assessment to determine the feasibility and cost of draining 9 million gallons of water behind the homes on Tanglewood Drive and Leawood Drive in Thistleton, under old Lawrenceburg Road and finally into the Kentucky River*

4. *Cost of surveying Tanglewood properties prior to beginning construction*
 5. *Cost of insuring Tanglewood properties against construction related damage*
 6. *Cost of necessary excavation*
 7. *Cost of hauling fill off-site*
 8. *Cost of actual construction of the tank*
 9. *Cost of grading berm to surround tank*
 10. *Cost of paving*
 11. *Cost of landscaping*
 12. *Cost of all security measures required during construction*
 13. *Cost of security rneasures (i.e. fences, cameras, monitoring, etc.) after the completion of the project*
 14. *Any other costs not previously noted associated with construction and future operation of the new facility at the current location.*
- B. *Please provide a breakdown of the costs to the other stakeholders immediately involved in this project*
1. *Costs to the City of Frankfort when the tax base of existing Tanglewood properties is reduced by 40% (based on a conservative estimate of the change in values to these homes)*
 2. *Costs to the county when the tax base of existing Tanglewood properties is reduced by 40%*
 3. *Costs to the Frankfort Independent School District when the tax base of existing Tanglewood properties is reduced by 40%*
 4. *Costs to the Paul Sawyer Public Library when the tax base of the existing Tanglewood properties is reduced by 40%*
 5. *Costs to remaining civic institutions which are funded by property taxes*

V. **Concerns and questions specific to the property 310 Owsley Avenue**

- A. *The reservoir is almost due west of my home. There are mature pine trees on my side of the property line which serve as a buffer, obscuring the view of the current reservoir for me and my neighbors. Currently the afternoon light is able to filter through these trees. However, the reservoir itself is very close to the property line. Increasing the height of the tank will block the afternoon light, effectively shortening the number of hours of daylight on my property year around. Please provide the times the shadow cast by the current reservoir crossed the property line on the summer and winter solstice and the vernal and autumnal equinox in 2016. Then please provide the same information for the same dates based upon the increased height of the reservoir.*
- B. *As noted previously, please provide a rendering which is accurately scaled of the view of the north basin tank, as proposed from the corner of Owsley Avenue and the alley which connects Owsley with Commonwealth Boulevard.*
- C. *The original presentation contained a rendering of a birds eye view of the proposed single tank replacing the south basin. However, that rendering did not include sufficient reference data to determine its proximity to neighboring property owners. The drawing also lacked any indication of the driveway which is planned for the top of the berm encircling the tank. Please provide a scaled drawing with the proposed north and south tanks in position. The drawings should include sufficient information about surrounding properties so that the property owners can readily identify their homes in proximity to the proposed water storage tanks. The drawings should also include the proposed drive and any out buildings and appurtenances existing or proposed on this site. Finally, please include the dimensions of the tanks, the drive and the distances of same to the shared boundaries of property*

owners. These measurements are something everyone can understand. They will aid the adjacent property owners and the neighborhood as a whole in assessing the impact of the proposed reservoir replacement project. For it is clear to the entire neighborhood that the FPB proposal will clearly change the value of everyone's property, the appearance of our neighborhood and the lifestyle we enjoyed before the intrusions of upgraded FPB facilities which would be more appropriately located in an industrial area.

Response: Thank you for the letter and comments. According to your letter, you are opposed to locating the proposed tank, or tanks, on the existing reservoir site. FPB water staff performed an evaluation of three site alternatives for potential relocation of the existing reservoir facility. This also included an assessment of capacity requirements and type of tank necessary to meet the capacity and existing water system requirements. FPB's consultant reviewed the water staff's evaluation, as requested, from a purely engineering perspective. Based on this evaluation, FPB water staff recommended (and its consultant concurred) that the existing reservoir be replaced with a single 7 MG ground storage tank on the existing site with the south basin of the reservoir being replaced first. This recommendation is based on several factors, such as current and future water demands, operational flexibility and future capacity expansion gained by allowing space for an additional future 7 MG ground storage tank, seamless integration and implementation into the existing water system, and reduced initial capital investments by eliminating the need for additional infrastructure necessary to accommodate an alternate location, to name a few. The final decision on the tank size, configuration, and location is at the discretion of the Board and a decision will be forthcoming.

FPB water staff will follow the directives of its Board in regard to additional renderings of the proposed reservoir. The initial rendering locations were chosen because they offer a relatively unobstructed view of the existing reservoir from public areas.

A preconstruction survey will be performed by a third party to document existing conditions of properties adjacent to the reservoir site, assuming it is decided the reservoir will be replaced on the existing site. Project specifics and construction sequencing have yet to be determined because the final decision regarding the reservoir replacement is pending.

Detailed project cost opinion information is not available at this time. FPB water staff can provide this information upon request following final design.