From: Brad Ryan
To: DG_AssemblyMayor
Cc: William Seward; Julie Cozzi; Krista Kielsmeier; Scott Bradford
Subject: WWTP-Secondary
Date: Friday, December 09, 2016 10:49:26 AM

There seems to be some confusion about the Phases of the WWTP upgrade and what the end result will be. The current plan for upgrading the WWTP was a four phase project that would result in upgrading our current primary treatment plant. The four phases on a basic level are 1) The building replacement; 2) Rotary Screens; 3) Sludge press; and 4) Electrical. I have been estimating using information from Carson Dorn that this would cost around $6 million dollars. At the completion of this project not only would the plant be upgraded and a safer and cleaner environment for staff, it would significantly reduce the amount of screenings that the Haines Borough has to dispose of and reduce the water content in the sludge that we have to pay for by the pound. The good news is that we had phase two as an additive alternate and the bids came in low so we can complete phase 1 and 2 for $2 million.

I understand that there has been discussion of going to secondary and/or tertiary treatment and what that might cost. According to the email below it looks like we asked this question in 2009 and the rough estimate to go to secondary treatment was $15 to $20 million dollars.

I would also like to say that if I had any indication that our primary treatment plant was causing a health hazard or causing significant environmental impact I would be the first to pursue funding to upgrade to a more stringent treatment plant. However, I personally oversaw two years of testing Portage Cove for Fecal Coliform and enterococci under the safe swimming beach program while I worked at Takshanuk and only one time did we see an exceedance which correlated with sludge being placed outside at the landfill and running down a stream into Portage Cove. In addition, samples were taken during the planning of the harbor expansion to see if the soil was contaminated and could not be disposed of in the canal and/or used for uplands development and these tests did not indicate the substrate was contaminated.

I will conclude by saying I am not lobbying for or against secondary or tertiary treatment but trying to provide pertinent information about the sewer treatment.

Note: As an aside, I would also like to add that the $60,000 Designated Legislative Grant included with the funding summary for the wastewater treatment plant in your assembly packet may only be used for additive alternate No. 2, since the grant is for a sludge composting shed.

Thank you,

Brad A. Ryan
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Director of Public Facilities

From: Scott Bradford
Sent: Tuesday, November 08, 2016 7:23 AM
To: Brad Ryan
Subject: FW: Rough estimate for new sewage treatment facility

Here is a ruff cost estimate for a new treatment plant for Haines.
SB

From: Paul Weisner [mailto:p.weisner@ce2engineers.com]
Sent: Friday, March 20, 2009 1:32 PM
To: Scott Bradford; Tom Bolen
Subject: Rough estimate for new sewage treatment facility

Per your request, here is some information that you can present to your assembly for a very rough estimate for upgrading / replacing your existing sewage treatment system at Haines. Before I get into numbers, we need to know the nature of your wastewater stream. From talking with Scott, here is how I would characterize your sanitary wastewater influent stream.

Average daily wastewater flow: 300,000 gal/day

Peak wastewater flow: 1.1 million gal. This is due to snow melt / rain events, where water flows into the sewage collection system through manholes, bad joints, etc. For Haines, this would be difficult and expensive to eliminate it all.

Septage spikes. This involves septage hauler trucks putting sludge from septic tanks into the treatment system.

Sewage treatment plants like steady state flows to maintain high levels of effluent quality, so you need equalization tanks to store the spikes and slowly feed in the septage so as not to upset the plant operation.

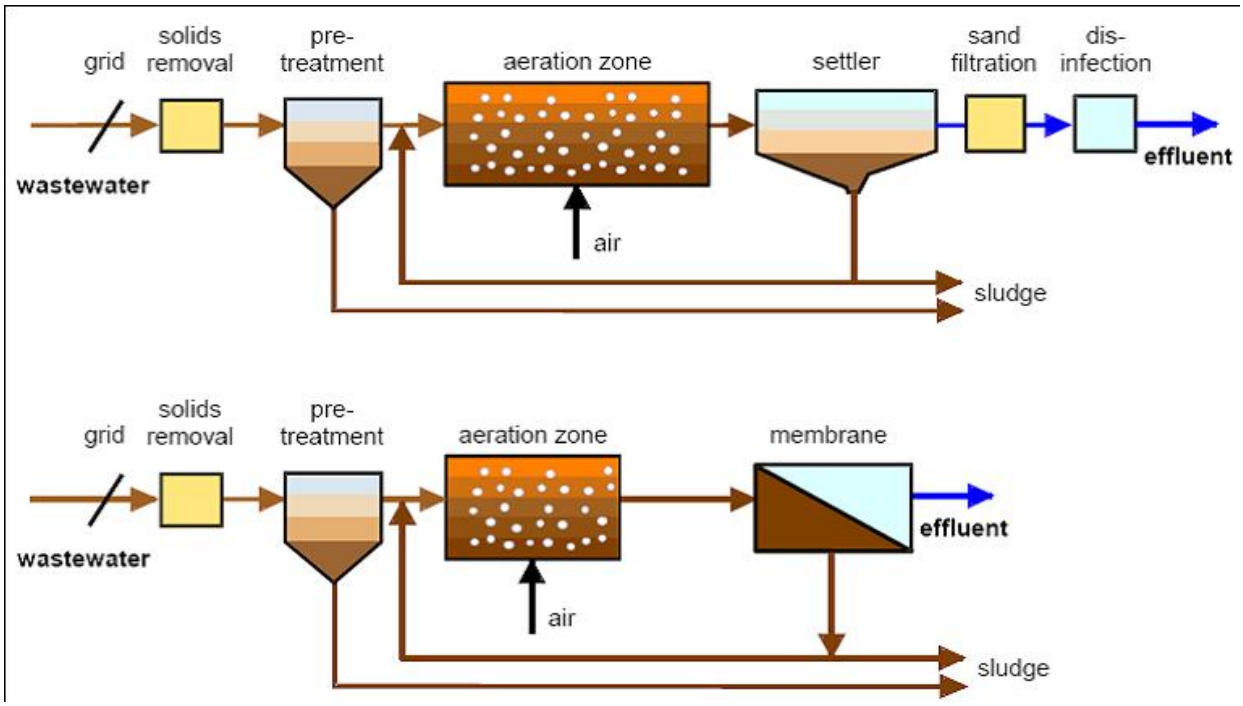
1. Presently, your system is operating as a primary settling operation, with the effluent flowing to the outfall in the channel. Sludge is aerobically digested, pressed to remove water, and is disposed of in the landfill. Some operations are grandfathered in of this type, like Anchorage. Effluent quality is fairly low, and is disbursed and diluted by getting into deep water through an outfall pipe. This is primary treatment.

2. The next step up is a primary-secondary treatment system. After passing through an equalizer tank, and any screens and other pretreatment, a tank that is aerated breaks down the sewage by bacterial action. The aeration feeds the "bugs" that break down the sewage with oxygen. Water flows from the aeration chamber to the clarifier, or settling chamber. The clarified water flows to the outfall. Some means needs to be taken to handle the sludge that is left over. We will assume that you must build a 1 million gallon per day plant to handle the peak flows, or you could go over the permitted amounts of effluent quality that DEC or EPA allows. Our very rough estimate for this plant would be $15 to $20 million.

3. For better effluent quality that meets the highest standards for effluent quality, you will need a third step, call tertiary treatment. This involves taking the effluent or output of the secondary treatment plant and running it through a multimedia filter system to remove the solids, then disinfecting it with UV light or a combination of chlorination and dechlorination. This step would add another $5 million on to the primary-secondary system.

4. The state of the art system with top effluent water quality would be a membrane bioreactor. This is a similar approach as the primary-secondary-tertiary system discussed in (2) and (3) above, but achieves the goal in a different way. Wastewater is aerated, then goes into a clarifier chamber. Water in the clarifier passes through a system of membranes where the clean water goes through the membranes, and the activated sludge goes back into the aeration chamber to be reprocessed. These plants are highly automated and reliable, but the critical and expensive items are the membranes. If they are not maintained, they will clog up. So the bottom line is maintenance. Our very rough estimate for this plant would be $28 to $36 million.

Here is an illustration of a primary/secondary/tertiary system versus an membrane bioreactor system in schematic form.



The cost of operation is a hard one to estimate without the system established. Scott tells me that the annual cost of operation for your system today is about $170,000. I would say that the cost for a new system with more aeration and processing would be in the order of $250,000.

I hope that this information helps you get your hands around the issue. What will be needed to do this right would be a detailed wastewater study, which would identify all the parameters of the various treatment scenarios, and they would in turn be described and cost out, for both operating and capital costs. Public involvement would be paramount in the process---it would be vital that the general public knows the pros and cons of each alternative in order to make a decision that they would be comfortable with in the long term.

Respectfully,

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