INFORMAL MEETING OF SEPTEMBER 19, 2016

Informal Meeting of the City Council was held in the City Council Chamber, Room 219, City Hall, on Monday evening, September 19, 2016.

CALL TO ORDER

Council President James Walsh called the informal meeting to order at 6:00 o'clock p.m.

ATTENDANCE

Eleven (11) Councillors were present, including President James Walsh and Councillors James Boone, Nathan Boudreau, Craig Cormier, Ronald Cormier, Scott Graves, Karen Hardern, James Johnson, Marc Morgan, Paul Tassone, and Matthew Vance.

Others in attendance were Robert P. Sims, P.E., CDR|Maguire and OPM for the City's Project; Kevin Olson, Project Designer, Wright-Pierce; Matt LaPointe, Suez Project Manager; Dane Arnold, DPW Director; and, Christopher Coughlin, Assistant City Engineer.

Robert Sims presented the following Power Point slides:

History and Future of Sludge Disposal in the City of Gardner

Robert P. Sims, P.E.
Project Manager
CDR Maguire Inc.
September 19, 2016

Background

- **First Collection System install about 1908**
- **Treatment consisted of screening and sand filter beds, sludge removed by hand raking and disposal with municipal waste at landfill**
- **Plant upgraded in 1948 with new screening**
- **Plant upgraded in 1968 with new screening, enhanced treatment and capacity expansion**
- **Plant updated in 1984 to include additional treatment processes and updated screening**
- **Sludge-only landfill constructed and utilized in 1984**

Recent Activities

- Performed Detailed Facility Plan of Treatment Plant (3 Phase Plan)
- Facility Plan identified areas for improvement and evaluation of technologies
- Concurrently performed evaluation of sludge landfill
- Suez applied and received permission from DEP for vertical expansion. Permission included odor control analysis/modifications
- Implementation of Phase I of Facility Plan – New Screening Facility

Mr. Sims noted that the area of the parcel inside the fence is under the control of Suez, while the City controls the area outside the existing fence. He said that Suez has been addressing the odor emanating from the vertical landfill and has received only one complaint in the past 15 months. DEP has tentatively approved the expansion plan, he added.

Concerning the new Screening Facility, Mr. Sims noted that the phase is about 25% completed.

Phase II

- Upgraded the dewatering technology
- Determine sludge disposal plan

Dewatering

- Less water translates to less volume
- Less volume translates to less material to transport/dispose
- Less material to transport/dispose translates to savings

Mr. Sims stated that the current operation utilizes a belt filter press, after which the sludge is hauled to the sludge landfill.

Dewatering Technology Evaluation

- Belt Filter Press
- Rotary Drum
- Fournier Press
- Centrifuge

Belt Filter Press

- Current technology
- Produces sludge cake at 22% solids
- Building Improvements
- New chemical feed

Mr. Sims stated that the existing building would have to undergo structural improvements, and a new chemical feed comprising polymers.

Inclined Screw

- New technology for employees
- Produce cake at 22% to 26% solids
- Building improvements
- New chemical feed
- Delicate optimization

Mr. Sims stated that inclined screw technology is akin to a bucket with holes whereby the water drains from the container and is returned to the plant and the sludge is hauled away. He said that he and others conducted a site visit to a similar operation and noted that the operator "is required to spend a lot of time to make it work," including many adjustments.

Fournier Press

- New Technology for employees
- Produce sludge at 21% to 23% solids
- Building Improvements
- New chemical feed

Mr. Sims stated that the Fournier Press is similar to the inclined screw technology, except that "it goes around in a circle and comes out at the sides, after being squeezed out."

Centrifuge

- New technology for employees
- Produces cake at 28% to 32% solids
- Building improvements
- New chemical feed
- Computerized optimization

Mr. Sims stated that the Centrifuge system creates much drier cakes, "spinning similar to a washing machine on spin cycle." He said that the system is computerized and can dictate the moisture content in the end product. At a site visit to a Centrifuge operation, he noticed that the vibration of the Centrifuge is minimal "and the operators loved it."

Cost of Options for Dewatering

- **Belt Filter Press - $14,500,000**
- **Inclined Screw - $14,300,000**
- **Fournier Press - $16,000,000**
- **Centrifuge - $12,800,000**

Mr. Sims stated that the cost of the various options includes additional electricity and building upgrades. He said that the team felt that the Centrifuge is the best option for dewatering the sludge.

President Walsh questioned whether there is a relationship between odor and the amount of water in the sludge.

Mr. Sims responded, saying "Yes, the bugs are going to use oxygen to generate the odor (oxygen sulfides), which the water provides. He added that odors at the landfill are caused mostly from aeration and is controlled by cover management.

Councillor Marc Morgan questioned whether the Centrifuge option included incineration.

Mr. Sims replied that no incineration is involved.

Councillor Morgan asked if the cost for an incinerator has been ascertained.

Mr. Sims stated that the cost for permitting an incinerator "would be outrageous."

Noting that the Centrifuge method is less costly than the other presented options, Councillor Boone questioned whether the Centrifuge process would cost more in the future.

Mr. Sims responded, saying that the additional electricity costs and the addition of polymers have been taken into account in the cost projections. He noted that electricity for the plant is purchased from Templeton Municipal Light and Water Plant.

Councillor Matthew Vance questioned the time frames that the estimates are based.

Mr. Sims responded, saying that they are 20-year estimates, adding that in strictly financial terms, the longer the loan, the more spread out the costs. The figures "are the present worth" spread over twenty years, he said.

On questioning by Councillor Tassone, Mr. Sims stated that capital costs, operational costs, and maintenance costs are all included in the projections for all four options, the cost data having been provided by the manufacturers.

President Walsh confirmed with Mr. Sims that the cost projections provided by the consultant are for a twenty-year period.

Councillor Boone questioned the Centrifuge option and whether it is being utilized elsewhere in Massachusetts.

Kevin Olsen stated that Manchester, New Hampshire operates a Centrifuge system and that the City of Haverhill is operating two new Centrifuge systems, which "is tried and true" and what [the industry] considers "a higher speed technology."

Mr. Sims announced the four different options of disposing of the sludge, as follows:

Composting

- New building and infrastructure required
- Siting at sludge landfill
- Odors more likely and costly to control
- New equipment
- Training required
- Disposal concerns
- Additional testing

Mr. Sims stated that if the City decided not to expand the sludge landfill, then the land could be used for composting. He cited the Town of Pepperell's composting operation, as an example.

Anaerobic Digestion

- Significant Infrastructure
- Siting at the sludge landfill
- Training needed
- Collection and storage of food waste
- Energy discharged to Electric Grid
- Concerns with Viability
- Disposal of material not eliminated, byproduct created

Mr. Sims stated that anaerobic digestion has been a popular option in the last few years, where food waste is mixed with sludge from treatment plants which produces a fair amount of methane, which can be run through a methane generator and sold back to the grid. The downside is that the economies of scale are very difficult to maintain.

Private Hauling

- Minor infrastructure
- Expensive
- Volatile Pricing
- - Fuel Costs
- - Regulation Changes
- - Disposal Site Availability
- - Term of Contract

Sludge Landfill

- Minor infrastructure (already exists)
- Entire site already permitted (in 1986) – DEP would only have to permit the design of the sludge landfill.
- New procedures have greatly reduced odors
- No new equipment
- Lifespan beyond 20-years (35-40 years with new technology)

Cost of Sludge Disposal Options (20-years)

- Private Hauler - $12,800,000
- Landfill - $7,500,000

Customer Base

- City Maintains 5,600 accounts
- Bills quarterly
- Sewer charge directly related to water use
- Average sewer bill is $107 per quarter

Cost Impact to Customer

- Private hauler - $29 per quarter (27%)
- Landfill - $17 per quarter (16%)

Summary

- **Landfilling Saves $5,300,000 versus hauling**
- **Equates to 10%-15% in savings for each customer versus hauling**
- **Stabilizes cost for the long run**
- **Odor concerns reduced**
- **Use of existing technology (no training)**
- **Recommend continue the disposal of sludge at the landfill based on cost, volatility and new odor control procedures.**

President Walsh questioned whether there is an option to haul the sludge to an incinerator, one that would provide less expense and less volatility.

Mr. Sims stated that there are 6 to 8 incinerators in the state, but that none have been permitted in over 20 years. He noted that the cost for incineration is very expensive; however, he would provide the Council with incineration estimates based on 30% sludge cakes. He added that incineration leaves approximately 10% ash.

Councillor Marc Morgan asked that if sludge landfill is expanded, then would sludge from outside the City be transported to the landfill.

Dane Arnold responded, stating that only sludge from the Gardner WWTF would be hauled to the landfill.

Mr. Sims said that it was his belief that the DEP Permit allows only Gardner WWTF sludge.

Councillor Scott Graves questioned whether odor-control measures included only covering.

Mr. Sims responded, saying that tests were conducted "with sludge and the sun." When sludge is deposited, covered with daily cover, sits for a weekend, then "turned" on Monday, odors are then generated, he said. He noted that the landfill is being treated with excess cover when weather conditions warrant additional cover and that DEP is pleased with the efforts.

Councillor Paul Tassone questioned the options that the City might have available for dealing with the sludge after 35 years.

Dane Arnold expressed hope that new technology would become available to deal with the sludge in the future.

Mr. Tassone followed up, asking what effect, if any, an expansion would have on the abutting properties and what barriers are in place.

Citing the "Gardner Sludge Landfill Expansion Area, Drawing No. 2," Mr. Sims said that the areas highlighted in green are identified as wetlands and that the portion of the land in between is not an option, since expansion in this area wouldn't make sense. He said that the plan proposes to expand the landfill easterly of the existing sludge landfill and noted that there is a 50' buffer between the landfill and the solar array, which is northerly of the proposed expansion area. He added that there would remain a significant buffer zone in the southern portion of the parcel (the area between the defined wetland areas). Mr. Sims stated that the 37-acre section has already been permitted for a sludge landfill and that the proposed expansion is within the permitted area.

Councillor Nathan Boudreau suggested that should new technology not achieve the desired effect in 35 to 45 years, "will Gardner anticipate rolling hills of sludge landfills for the next generation?"

Mr. Sims responded, saying that the proposed landfill will be at the same elevation as the existing [sludge] landfill, which is about 60 feet lower than the City's closed landfill. He added that he cannot predict the City's sludge situation in 35 to 45 years.

Citing the anaerobic digestion option, Councillor Vance questioned whether Gardner has sufficient food waste to make the option financially viable.

Mr. Sims suggested that the amount of food waste that could be generated and hauled to a facility likely would not be sufficient to make it financially feasible.

Mr. Arnold noted that when the sludge landfill is full in 35 to 45 years, perhaps an anaerobic digestion facility could be an option. He added that siting an incinerator in Gardner on State-owned land (i.e. NCCI), if allowed by the DEP in the future, both sludge and the City's solid waste could be handled there.

Councillor Karen Hardern questioned the makeup of the materials that are used for the daily cover in order to reduce odor, asking whether certain agents or chemicals are added.

Mr. Sims responded, saying that the cover is made up of mostly sand and gravel.

Councillor Scott Graves asked if the DEP Permit for the unused portion of the property for use as a sludge landfill is still in effect, even though 30 years has passed since its issuance.

Mr. Sims responded, saying that DEP, formerly known as DEQE, issued the Permit in 1986 and it is still valid.

Councillor Paul Tassone requested clarification of the number of Massachusetts communities that operate sludge landfills.

Mr. Sims responded, stating that 20% of the communities operate sludge landfills.

Councillor James Boone questioned whether [sludge] incinerator technology "is completely dead" or has improved to a point whereby Gardner could stop storing sludge at a landfill and begin incinerating it in the future.

Mr. Sims responded, saying that "we're looking at 40 years out, so anything is possible."

Dane Arnold noted that there is a moratorium on incinerator siting in Massachusetts.

The meeting was adjourned at 7:03 p.m.

Accepted by the City Council: *October 3, 2016*