

## **Item 24-1636: 2024 AWWTP Biosolids Compost processing expenditures associated with Hsu Growing Supply contract**

### **Utilities Committee**

Tue, Jan 07, 2025 4:30PM

#### **Alderson Vered Meltzer (District 2) 02:36**

We have one information item today 24-1636, the Appleton wastewater treatment plant bio solids compost processing expenditures associated with Hsu Growing Supply contract. And I did ask Director Stempa to just prepare some sort of contextual information for the committee.

#### **Director Chris Stempa (Utilities) 03:02**

I can start with the informational memo if that's okay, because it really is a—it's a good place to open the door for this discussion and really an update that the committee is going to be getting later on as part of the annual synopsis, and potentially a stand-alone presentation, because I think we've come full circle.

#### **Director Chris Stempa (Utilities) 03:20**

When I started with the city in 2007 this was kind of my baby. So, I started the comp—hit the reset button on reevaluating the potential of sludge composting, and so with that, 2010 we worked with the county. I think we've gone through—what?—10 plus years now of full-scale batching, not every year, but almost every year.

#### **Director Chris Stempa (Utilities) 03:45**

And it is a successful program. It did defer on the initial cost before we had regulatory clarity on phosphorus land standards That really was dictating do we build a sludge storage building, or do we pump the brakes and wait to see what that regulations potentially prohibit us from doing that application or not? And so that bought us time to really see what that might look like.

#### **Director Chris Stempa (Utilities) 04:13**

Now 2024, almost 15 years later, the phosphorus standards are pretty clear. We have—we know what we have to work with. We did need the 180-day storage, which was a sludge storage building. It gave us certainty, gave us some flexibility for some of the seasonal, wet weather, long winter kind of stuff. And so now it's really a decision, although the compost program was successful, do we want to continue doing it, carrying it forward?

#### **Director Chris Stempa (Utilities) 04:43**

From a cost perspective, I struggle mightily with it, and I love composting. I still compost at home. But it's really going to be a decision of costs, sustainability in whatever form that that means to folks—from a carbon neutral perspective, greenhouse emissions. But there are a bunch of regulatory hurdles that involve us in doing this or taking it forward.

#### **Director Chris Stempa (Utilities) 05:08**

And I gave you a snippet from a 2018/2019 report that when we're looking at a full-scale, large-scale compost facility that would replace anything that we would store on site. Part of that was—and again, this is just a snippet, and it was never finalized because we didn't know what direction we were taking it at the time. So, the consultant did a greenhouse emissions summary. And if this makes any sense, 'cause I know you haven't had a chance to read it, and it's a snippet. It takes into account just some common factors and how they normally would go about doing this from a bench top perspective, high level.

**Director Chris Stempa (Utilities) 05:47**

So, if you're just looking at carbon credits, there's a bunch of extra handling involved in composting and land application. It's less, but there's transportation costs involved, and they factor in some of the estimated CO2 releases from that.

**Director Chris Stempa (Utilities) 06:01**

So, in summary, just going to cover this quickly, the composting is slightly less or less than land app. There are some inherent flaws in this. For instance, it assumes there is no storage of land or of bio solids before you compost it. That's false. So that 2900 metric tons of CO2 and land application equivalent to storage, you'd have some of that still in composting. Composting doesn't take into account grandpa and grandma or the contractor picking up compost from wherever it's generated and then bringing it back and then blending it or distributing it. So, there's some—it's not a perfect analysis. It's just, again, a high level. So that was one of the factors.

**Director Chris Stempa (Utilities) 06:45**

Then we looked at along ago carrying it forward was greenhouse emissions, was cost, regulatory compliance, and then really just operating costs and operating feasibility. And where do you put a large compost facility? Nobody wants it in their backyard. And so, if you flip that page over, this was the capital alternatives at that time. These are what we looked at and vetted. I got boxed out in red what we ended up doing, which is, was the sludge storage building addition. The estimated costs at that time—that's what we based our capital budget on, was 7 million plus dollars. The actual cost of construction (we literally just did a punch list item last week to wrap this thing up officially) was \$6,148,000. So that was the actual cost. If you look at the other alternatives that are spelled out there for composting, they're substantially higher. Again, and go through some of the factors early on that steered us in the direction of sludge storage building.

**Director Chris Stempa (Utilities) 07:45**

So fast forward to today. If composting is something that the city wants to maintain to do, I would not recommend doing it for the cost perspective. Again, that's that table here, and I'll quickly go through this. In the green—and these are real costs. We only compost about 10% of our overall biosolids production. You can see what's the actual program costs are. In Orange is the bio solids land application and base costs. The simplest way to look at it is, what's the cost per ton? That's how we kind of measure everything. So, I gotta [unclear] and the biosolids and application, and on average, even if you haul it up to 70 miles on average, it comes out— because there are sites much closer than that—it's about \$17/\$18 a wet ton. For composting, it comes out to about \$66 on average. Depends how much; there's economy of scale. We're not doing huge volumes, but we're doing, I would think, substantially sized piles or material volumes. And so that, on its face—it's hard to cost justify it.

**Director Chris Stempa (Utilities) 08:56**

And then for feasibility on site, if we were doing something small. The landfill was only got limited space—or limited time for us to operate there. They're doing their expansion. They're speaking to where we're currently operating that we would have to find some other means to compost, and they've been very good hosts for us for the many years that we've been there. We've explored alternatives to move off that site even on top of an existing closed landfill section, which is pretty cool thought to do, but the cost to do that is substantial, and you still have to have equipment, and you still have to have leachate control and treatment, and it's still a costly endeavor. And now we've got a sunk cost into a building that's sitting there to give us 180-day storage.

**Director Chris Stempa (Utilities) 09:41**

To do something on site at about 500 to 1000 wet tons per year, very small, just meet the needs of the public if they wanted to go to the Glendale site and pick some things up, I cannot get regulatory confirmation on what would be needed to do that. That's what one of the reasons why we didn't even include it as a small addition

onto the sludge storage building project. We had initially a placeholder for basically a concrete pad that would be equivalently sized to handle about 500 yards of bio solids composting per year. But we could not get regulatory approval because it would have been one of the first in the state. And there's all these setbacks that are codified, and we would have had to work through the attorney's office, city planning, public works, and there just was not enough time to do that. And first and foremost, we never got a response on time.

**Director Chris Stempa (Utilities) 10:36**

So, for all those reasons (and this is why there needed to be a presentation to kind of consolidate what I just said) are reasons why I wouldn't recommend carrying it forward. It's one of the reasons we're looking at 2025 being the last year. But again, there's going to be another update to the committee in terms of that recommendation that that I'm making. So maybe not the news not everybody wanted to hear, but that's where things stand.

**Aldersperson Vered Meltzer (District 2) 11:04**

Thank you for the update, and certainly a lot to think about, and I'll probably wait for the next update while I formulate my thoughts on it. But I do, I do really appreciate the whole success story of this project, and you know, your involvement with it from the beginning, and, you know, whatever the future of this project might be, we did this project, it's been a really great thing for our city, and also just kind of our historical role as being some of the pioneers or test subjects of doing bio-solid composting in this sort of cold climate. I think that that's, you know, something very valuable in an area where you've helped Appleton and your department to be a leader for our state.

**Director Chris Stempa (Utilities) 12:01**

I appreciate that, and I do just want to make note staff really deserve the credit, because for 10 plus years, they've been the ones doing the work out there in facilitating and logistics, because there's an awful lot of logistics that go on with Laura's department, Public Works, to coordinate leaf drop offs and brush and all the stuff that goes with co-mingling this stuff and then processing it, monitoring temperatures. And so, for 10 plus years, staff have been doing that, and it has been a success. And to do it as long as they've been doing for the first in the state, I can assure you, the regulators have learned along with us. But that's where we're at right now.

**Aldersperson Vered Meltzer (District 2) 12:39**

Thank you. Alder Hayden.

**Aldersperson Patrick Hayden (District 7) 12:42**

Thank you. You mentioned challenges with regulations. I'm wondering, with the changing political climate in Madison, with former Alder Alfheim joining the Senate there, potentially being a champion, maybe it's worth one last swing to see if we could get regulations there, because there's a record number of representatives in the Senate and represent—and the Assembly in Madison from Appleton. So, it seems like we would be—they would be more likely to work with the city and represent our interest than they have in the past decade.

**Director Chris Stempa (Utilities) 13:20**

I would still struggle, and maybe I'm just a little bit too focused on the financial piece. But for the for the—to go full scale—if it's small scale and it's something we can do on the side, it may be. I just, I don't know if it's—it does, it does take up staff resources, and again, for them—so it's not only the money for the contract that it costs. It is it is a time consumer because of what's involved from a staff resource perspective. And so, you do get economy not only in cost, but you get economy of scale, and what that level of effort is, because if you're if

you're poking a pile for temperature monitoring purposes, or doing a turn or a blend, when you're doing 500 yards versus 6,000 it's an incredibly, entirely different cost per unit. And so, I struggle with that.

**Alderman Patrick Hayden (District 7)** 14:09

Thank you.

**Director Chris Stempa (Utilities)** 14:09

I struggle a little bit with the with the regulatory contaminants, in terms of the unknowns of the, on the regulated side the PFAS, specifically. And so just like milorganite's just kind of gone through that yet. So, if it was—first, it was PCBs down there when they struggled with that release from a sewer jetting task, I believe. Now it's concerns with PFAs and some of the unknowns with regulatory standards. And I'm still feeling that not only in the on the wastewater effluent side but the drinking water side. And so, there's no assurances that you'd commit to this, large or small scale, that that that needle might move in terms of what you can do with it. And if people don't want to buy it or put it on their gardens, or put it on their on their on their golf course, what are you going to do with it? And I can, I can tell you, Milwaukee dealt with that for more than one year of—um, they do not sell everything. And so that is not—I don't want to speak to the economics because I don't know it for sure, but I know when they were going through the PCB incident, that was a tough time for them to find home for—find a home for that material. So, I'm not saying it's not worth looking at. I just—I'm really reluctant.

**Alderman Vered Meltzer (District 2)** 14:43

All right. Well, thank you very much for the beginning of this discussion, and we will continue it.