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**Town of Middlebury
Infrastructure Committee
Thursday, September 10, 2020
Meeting Minutes**

NOTE: Due to the need for separation to prevent the spread of COVID-19 virus, the meeting was held remotely via video conferencing with participants.

Members Present: Heather Seeley, Candy McLaughlin, Gary Baker, Judith Wiger-Grohs, Luther Tenny, and Erik Remsen arrived after the approval of minutes. Lindsey Fuentes-George and Matt DeBisschop were absent.

Staff Present: Town Manager Kathleen Ramsay, Accounting Services Manager/Treasurer Jackie Sullivan, Director of Public Works Planning Dan Werner, Director of Public Works Operations Bill Kernan, Police Chief Tom Hanley and Wastewater Superintendent Bob Wells

Others Present: Dexter Lefavour and Steve Landry of Tata & Howard Engineering, and Steve Maier, Howard WidELITZ and Richard Hopkins of the Middlebury Energy Committee.

1. Call to Order

The meeting was called to order at 9:00 a.m. by Chair Heather Seeley

2. Approval of Agenda

McLaughlin moved to approve the agenda and Baker seconded the motion.

Changes to the agenda included postponing the Police Department water softener discussion and adding change orders for the Adaptive Reuse Project at the Police Department. Seeley said she also wanted to have a brief discussion on the possible need for an additional meeting to discuss the Capital Improvements Budget.

The agenda was approved with 5 in favor, 2 absent

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3. Approval of August 13, 2020 Minutes

Baker moved to approve the minutes of 8/13/20 and Wiger-Grohs seconded the motion.

Changes:

Line 227 – add coma after fuel tank

Line 278 – change to read "...met with Mr. Cameron again in August of 2019."

The minutes were approved with 4 in favor, 1 abstention (Tenny) and 2 absent.

3. Citizen Comments

Wiger-Grohs wondered what had happened with the writing on the sidewalk between Mary Hogan School and Buttolph Drive that she brought up in the last meeting.

McLaughlin said she was there a few days ago and it's been painted over. Tenny mentioned the vegetation is growing up over the sidewalk and there is a private property on Buttolph Drive with significant overgrowth and wondered if the Town had a way of dealing with those types of issues. Kernan said he hadn't done anything about it in the past and wasn't sure if there was a policy or not.

4. Project Updates

Werner said the Dow Pond Water Line Project is underway and it will take 6 to 8 weeks to complete. He reported the applications for the State Revolving Fund Loans were sent and we were notified they'd received them, and the Ilsley Library Window Restoration Project is underway. Werner said the application has been submitted for the Flood Resiliency Project in East Middlebury and FEMA is almost at the end of the public comment period for the Environmental Assessment Report. He also said that a Stream Alteration Permit was submitted on August 14th and that has a 30 day comment period.

5. Change Order for Police Department Adaptive Reuse Project

Werner said on the original bid, Alternate #2 was for additional support of the cruiser garage wall at a cost of \$17,000 because we weren't sure what would be involved until the roof was removed. It has since been determined it won't be that expensive and they'll attach some 1/2" treated plywood to the masonry wall, and that will cost \$4,344 instead of \$17,000.

81 He said the 2nd change order is a deduction for deleting the 1" x 3" strapping to the
82 cruiser wall, since the plywood will be screwed to the rafters to give better clearance for
83 the door track, so that is a deduction of \$1,141.

84
85 Werner said the 3rd change order is a change to the roof structure over the south side of
86 the Storage Building (control building). He said the original design required a membrane
87 on the outside ceiling deck over a section of the digester basement with an integral floor
88 drain and constructing a roof over the old valve operating structure between the old
89 digester tanks. We've moved away from that design for several issues: it eliminates a
90 security and safety concern by removing an out-of-sight access to the building and a fall
91 hazard for humans & animals, and it eliminates rain, snow, and debris issues within that
92 space. He said a single roof will be built over the area at a cost of \$5,575.

93
94 He said including these change orders, the project balance is \$95,547.67

95
96 Tenny moved to recommend the Selectboard approve the three change orders, as
97 described, for a total of \$8,778. Baker seconded the motion. The motion was approved
98 with 5 in favor, 2 absent.

99

100 **6. Review of Draft Wastewater Treatment Facilities**

101 **Evaluation and Facilities Planning Study**

102
103 Project Manager Dexter Lefavour and Project Officer Steve Landry of Tata and Howard
104 were present to go over the draft study with the Committee. Lefavour said at this point
105 they have submitted a 60% report to the State and had a review meeting with them
106 about a month ago. He said so far they've identified needs and alternatives and they
107 have a sense from DPW and Treatment Plant staff what their desired options would be,
108 so they plan to head in that direction, while also welcoming input from the Infrastructure
109 Committee.

110
111 Lefavour said the objectives of the project were to evaluate the conditions of the existing
112 wastewater treatment facility and to develop a plan for upgrades. He gave a description
113 of the existing facility from the main pumping station at the old facility location by the
114 Police Department and went over the process involved as the waste moves to the
115 wastewater plant on Industrial Avenue. He said the plant processes a Class A product
116 that is suitable for public distribution and it all goes to one local Middlebury farmer.

117
118 Lefavour went over the conditions of the plant and said there is no deficit, but there is
119 some maintenance needed and the HVAC system needs to be replaced. He said there
120 were no major problems, just routine maintenance for a 20-year-old facility. He said the

121 grit removal equipment at the plant is redundant and is showing considerable wear, so
122 they will be recommending eliminating that equipment and relying solely on the grit
123 removal system at the main pump station. He said the controls should be upgraded and
124 there is a deficit in the UV disinfecting system, so if it went down for some reason, we
125 would only be able to disinfect at half the capacity, which is a risk to the town and
126 should be corrected. He went over the remainder of equipment requiring some
127 upgrades but said there was nothing major.

128
129 He went over the flows and loads, which show a significant industrial flow to the plant,
130 but the bottom line is the plant is at 65% to 70% of its design capacity, which he said is
131 a good place to be at 20 years of age. He said there is not any significant residential
132 growth planned over the next 20 years, which is what their study is looking at, and there
133 is enough capacity for any commercial or industrial growth so they are not
134 recommending an upgrade to the size of the plant.

135
136 Lefavour went over the summary of design flows vs. actual flows. He said the plant is
137 designed for an average annual flow 1.6 mgd and the actual flow is 1.0 mgd, so we're at
138 66% of design capacity. He said the peak hourly flow is designed for 6.2 mgd and our
139 actual is only 4.5 mgd due to the limitation of the pump station that is not able to meet
140 the peak design flow.

141
142 He reviewed the industrial loads and allocations, and said Cabot is the largest with
143 450,000 gpd, which is more than 25% of the design capacity of the plant and their BOD
144 allocation is about 50% of the design capacity.

145
146 Lefavour went over the considerations when evaluating the facility upgrades, including
147 the use of an anaerobic digester (AD). Tenny asked if anaerobic digestion was less of a
148 carbon footprint in the terms of electrical uses and off-gassing. Lefavour said that's true,
149 and although they did not evaluate greenhouse gasses, they did look at energy
150 recovered from the anaerobic digesters and it was part of the consideration of the Town
151 and they are recommending an AD, since generating electricity on-site would have the
152 greatest impact on greenhouse gas omissions on a global scale. He said there are
153 some opportunities for heat recovery, but they're small.

154
155 Lefavour then went over the three primary treatment options. He said Option 1 is
156 circular clarifiers and Option 2 is rectangular clarifiers. These are settling tanks that are
157 12 to 14' deep where the water goes in and the solids settle to the bottom where they're
158 removed as sludge and the clearer liquid goes on to the biological process. He said
159 there is room near the head works for these, which works well with the layout of the
160 existing site, but the rectangular ones would fit best due to limited space. He said

161 because the rectangular clarifiers have common wall construction, it's a more effective
162 structural option and also the lower cost options. He said Option 3 that they looked at
163 was a mechanical drum filter where the wastewater flows through a screen that
164 removes the solids and the cleaner water goes on to the biological process, but it is a
165 more expensive option.

166
167 Lefavour reviewed the various biological treatment options. He said the existing plant
168 (Option 1A) has 4 basins in services, and all the options they looked at would not use all
169 4 of the existing tanks, so not only would they fit into the existing footprint, but they
170 would free up the other tanks for other purposes. He said all options provide the
171 required treatment for BOD, TSS and Phosphorous, and they all provide nitrification as
172 well. He said nitrogen removal is not required by the permit, but was built into the
173 current plant 20 years ago, so it has been Middlebury's practice to reduce ammonia to
174 nitrite, so they have kept that as part of the plan to nitrify, even though it's not part of the
175 current permit. Tenny asked if the plant upgrade would require a new permit that would
176 require nitrogen removal, and Lefavour said it depends who you ask. He said it was
177 built into the plant 20 years ago anticipating it would be a requirement now, but it has
178 not yet become a requirement and there is no plan to make nitrogen removal a
179 requirement in the future. He said nitrogen effluent and nitrogen in steams has not
180 been identified as a water quality issue in Lake Champlain, and phosphorous remains
181 the water quality issue in the Lake. He said Middlebury's efforts to reduce nitrogen is an
182 honorable thing and it's quite affordable and Bob Wells wants to continue that process.

183
184 Lefavour said looking at the different configurations allows for different design flows. He
185 said the current flow is 2.1 mgd and all the options provide at least that amount, with
186 options 1B and 2B providing a much greater hydraulic capacity. He said when looking
187 at costs, they've looked at power savings and added an energy credit for anaerobic
188 digestion option. Providing identifying primary clarifiers makes a slight improvement in
189 the amount of energy produced at the plant, so credits went to those options with
190 identifying primary clarifiers, and energy costs were looked at separately for each
191 process. He said they also looked at the present worth analysis, and added to the
192 construction cost, they get a total life-cycle cost, so their recommendation on a cost-
193 effective basis is to look at the lowest life-cycle cost. He said Option 3B with an AD with
194 a primary clarifier is the preference of the wastewater treatment plant staff because it's
195 a flow-through system and the current SBR system is a batch system. He said the
196 existing SBR system operates on 4 cycles a day, and there are 4 tanks, so each tank is
197 developing its own biology based on its own wastewater received during a certain time
198 of the day. He said because of that all the sludge's are different, all the chemical
199 requirements are different, all the air requirements are different, and the operators find
200 the best way to deal with that, but it's not possible to address all those conditions

201 optimally because of the differences. He said the flow-through process would create
202 one biology consistent throughout multiple reactors and eliminate the concerns the
203 operators have now with the SBR system.

204
205 Next Lefavour went over the evaluation of the 3 disinfection options; the open channel
206 UV, the enclosed UV, and the chlorination and de-chlorination option. He said currently
207 we have the open channel UV, where the wastewater is in an open channel and the
208 lights disinfect it. He said the enclosed channel UV is the least expensive option, and
209 while the chlorination and de-chlorination process is the most expensive, it doesn't look
210 at the savings realized by reusing one of the SBR tanks and that would amount to a
211 \$200,000 credit. He said even without that consideration, the operation costs will be
212 cheaper because chemicals cost less than power, and while not as friendly, they are
213 less expensive, so on a cost-effective basis, the lower chemical cost relative to power
214 makes chlorination/de-chlorination a much cheaper option. He said when they made
215 the decision 20 years ago to go with the UV system, the system was popular because
216 operators wanted to get away from the chemical handling, but the operators today are
217 handling chemicals all the time and are finding that the UV units are harder to maintain
218 and the equipment is obsolete and they now have to find a custom source for bulbs, so
219 keeping the unit running has been a real challenge. Tenny asked about the chlorine
220 storage, and Lefavour said it would be store appropriately in a separate storage
221 building.

222
223 Wiger-Grohs asked if the UV and the chlorination/de-chlorination were equally efficient
224 in removing pathogens, and Lefavour said they are and chlorine is more reliable. He
225 said with the UV system the lights get dirty and UV efficiency goes down and there isn't
226 a good way to control it when you get into a problem, while chlorination is much easier
227 to address and correct problems. Wiger-Grohs asked if there was an analysis of the
228 water discharged to the creek, and Lefavour said there is and it's based on e-coli in the
229 effluent, and he believes it's tested daily. Wiger-Grohs also asked about the testing of
230 PFAs, and Lefavour said he knew they had tested for PFAs at the plant and Middlebury
231 came up clean, which is not the same for other towns. He said towns that receive
232 septage are more apt to have PFAs, so the fact Middlebury receives septage and still
233 came out clean is good news. He said PFAs are also a chemical of the past, so there
234 will be less and less of it in the future. He said there is also periodic testing for other
235 toxins in the effluent.

236
237 Lefavour then described the various sludge dewatering options and said the fan press
238 and screw press are the lowest-cost options, and while the centrifuge was competitive,
239 there was a higher cost of electricity for that option. He said the existing belt filter press
240 doesn't use that much power, but it does use a lot of Town water in the process to the

241 tune of \$45,000 a year, and there is a desire to discontinue this from a water efficiency
242 standpoint. Tenny asked if these two options had fewer “moving parts” than our existing
243 process, and Lefavour said these are closed units so it makes the space more operator-
244 friendly.

245
246 Lefavour then went over the solids handling alternatives. Tenny asked if they’d
247 engaged with Efficiency Vermont to see what credits may be available for certain
248 alternatives, and Lefavour said they hadn’t, but had reached out to Green Mountain
249 Power a couple of times but had been unable to engage them to see what they can
250 offer for energy credits. He said there is a \$200,000 energy-production credit with the
251 AD, so the energy production with this option is a no-brainer and we’d be offsetting our
252 own electrical cost. Tenny said they’ve worked with Efficiency Vermont at the College
253 in the design phase of projects and you can get life-cycle cost savings through
254 incentives that can sway the present-worth analysis. Lefavour said they’re at the 60%
255 phase of this project so there’s still time and it’s something they intend to do.

256
257 Richard Hopkins of the Energy Committee said the ~~Energy~~ Committee is interested in
258 getting the Town buildings off of fossil fuel heat, and both occupied buildings at the
259 treatment plant are heated with fuel oil, so their Committee would very much be
260 interested in the possibility that the two buildings could be heated with the products of
261 the AD and that would be another savings. Lefavour said that’s a real possibility and
262 there are multiple ways that could be accomplished, and they would embrace that idea
263 and make it part of the plan.

264
265 Lefavour said they also looked at handling SSOs (source separated organics) or
266 organic food waste with the anaerobic digester. He said ideally it would be industrial
267 waste, but they would want to open the door to other food wastes. He said at this point
268 it’s just a financial model, but it considers doubling the amount of solids in this unit by
269 bringing in outside food waste. He said there’s a huge increase in revenue, and at
270 capacity, the Town could see \$1.8 million dollars in increased revenue. He said it also
271 doubles the energy production to a point we’d have enough to sell some to the grid. He
272 said with these types of credits you’d have tens of millions of dollars in life-cycle savings
273 over 30 years. Energy Committee member Steve Maier said he understood the
274 Goodrich Farm digester is anticipating taking food waste from quite a large area, so is
275 wondering about the supply of food waste and would there be enough to fulfill these
276 numbers. Lefavour said they have that concern as well, and this is a long-range plan,
277 so perhaps the best thing to do is build it without SSO, and if the supply is there you can
278 always upgrade to this model. He said the bottom line is the AD is the clear winner and
279 the wastewater staff prefers this process.

280

281

282 In summary, Lefavour said the preferred alternatives were:

- 283 • A/O with Primary Clarifiers
- 284 • Chlorine Disinfection
- 285 • Fan press or screw press dewatering
- 286 • Mesophilic/Thermophilic Anaerobic Digestion to Class A Biosolids

287

288 Seeley asked what the timeline was for 100% completion of the evaluation and when he
289 thought we'd need to implement some of these recommendations. Lefavour said there
290 are no emergencies at the plant and he thinks the Town is smart to have started this
291 process early so we're ahead of the curve, and so they've had the time to do their
292 analysis thoroughly and diligently. He said he believes Werner's plan is that this
293 construction will not start until 2022, and while Wells has had to replace some valves
294 that have been problematic, it wasn't a major capital upgrade.

295

296 Tenny asked if the preferred option was the least complex in regards to performing the
297 work while the existing plant is in operation. Lefavour said the least complex would be
298 to continue with the exiting SBRs, but because there are 4 tanks this upgrade should be
299 easy to phase construction.

300

301 Maier how much it might cost for them to do an analysis of the greenhouse gas
302 emissions and isn't sure if that's included in the contract. Lefavour said it is not part of
303 the contract, but they could make it part of the study if it was something the Town was
304 interested in. He said he thinks they'll also look at SSO markets more closely along
305 with a few other things. Ramsay asked if they'd need a change order for those
306 additional services, and he said they would.

307

308 **7. Capital Improvements Budget Schedule**

309

310 Seeley said the Committee would receive the Capital Budget at their next meeting on
311 October 8th, and an additional meeting may need to be scheduled in October in order to
312 complete review of the budget. She said it will need to be finalized at the next meeting
313 in November. She suggested Thursday, October 22nd and asked everyone to pencil
314 that in on their calendars.

315

315 **8. Committee Concern**

316

317 Tenny reiterated his earlier remarks about several properties not mowing the green
318 space around town and wondered if there's any recourse the Town can take.

319

320 The next meeting of the Infrastructure Committee is Thursday, October 8, 2020 at 9:00
321 a.m.

322

323 The meeting adjourned at 10:28 a.m. upon motion by Wiger-Grohs, seconded by Baker.

324

325 Respectfully submitted,

326 Beth Dow

327