


Memo

To: City Council
From: Amy E. Gilson, P.E., Director of Public Works
Date: December 11, 2015
Re: Grit Technology



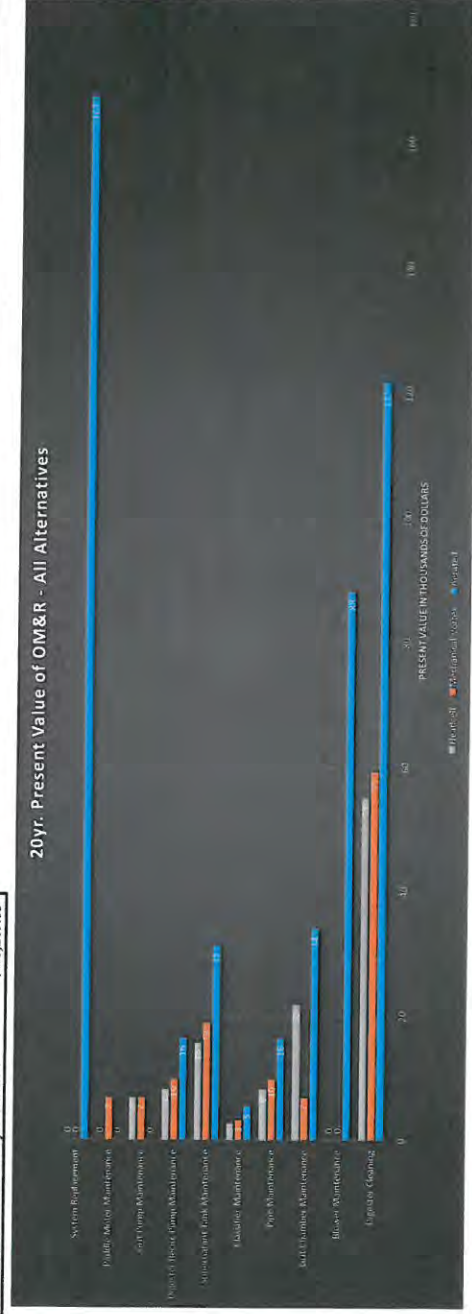
In your packet you will find a resolution for the approval of the use of a particular technology for the grit removal project at the wastewater plant. This project is at a standstill until we authorize the engineer to move forward with the design based on a particular technology. Attached is a copy of the Present Value Analysis prepared by the consultant for your use. We used this analysis to help determine which of the alternatives would be the most economical.

Please let me know prior to the council meeting if you have any questions.

Present Value Analysis of Alternatives

Alternative	NPV	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20
Aerated Basin																					
Digester Cleaning	\$121,661.62	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Blower Maintenance	88,136.07	4,300.00	4,300.00	4,300.00	4,300.00	4,300.00	4,300.00	4,300.00	4,300.00	4,300.00	4,300.00	4,300.00	4,300.00	4,300.00	4,300.00	4,300.00	4,300.00	4,300.00	4,300.00	4,300.00	4,300.00
Grit Chamber (clean/drop.)	33,975.82	2,500.00	2,500.00	2,500.00	2,500.00	2,500.00	2,500.00	2,500.00	2,500.00	2,500.00	2,500.00	2,500.00	2,500.00	2,500.00	2,500.00	2,500.00	2,500.00	2,500.00	2,500.00	2,500.00	2,500.00
Pipe Maintenance (miscellaneous/ft)	16,908.39	1,200.00	1,200.00	1,200.00	1,200.00	1,200.00	1,200.00	1,200.00	1,200.00	1,200.00	1,200.00	1,200.00	1,200.00	1,200.00	1,200.00	1,200.00	1,200.00	1,200.00	1,200.00	1,200.00	1,200.00
Classifier Maintenance	5,556.13	400.00	400.00	400.00	400.00	400.00	400.00	400.00	400.00	400.00	400.00	400.00	400.00	400.00	400.00	400.00	400.00	400.00	400.00	400.00	400.00
Supernatant Tank Maintenance	31,257.75	2,300.00	2,300.00	2,300.00	2,300.00	2,300.00	2,300.00	2,300.00	2,300.00	2,300.00	2,300.00	2,300.00	2,300.00	2,300.00	2,300.00	2,300.00	2,300.00	2,300.00	2,300.00	2,300.00	2,300.00
Digester Recirc Pump Maintenance	16,908.39	1,200.00	1,200.00	1,200.00	1,200.00	1,200.00	1,200.00	1,200.00	1,200.00	1,200.00	1,200.00	1,200.00	1,200.00	1,200.00	1,200.00	1,200.00	1,200.00	1,200.00	1,200.00	1,200.00	1,200.00
System Replacement	167,472.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	247,900.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Present Value of 20yr OM&R:	\$480,556.53																				
Mechanical Vortex																					
Digester Cleaning	\$59,214.11	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Blower Maintenance	6,795.16	500.00	500.00	500.00	500.00	500.00	500.00	500.00	500.00	500.00	500.00	500.00	500.00	500.00	500.00	500.00	500.00	500.00	500.00	500.00	500.00
Grit Chamber (clean)	9,785.03	720.00	720.00	720.00	720.00	720.00	720.00	720.00	720.00	720.00	720.00	720.00	720.00	720.00	720.00	720.00	720.00	720.00	720.00	720.00	720.00
Pipe Maintenance	3,261.68	240.00	240.00	240.00	240.00	240.00	240.00	240.00	240.00	240.00	240.00	240.00	240.00	240.00	240.00	240.00	240.00	240.00	240.00	240.00	240.00
Classifier Maintenance	18,754.65	1,380.00	1,380.00	1,380.00	1,380.00	1,380.00	1,380.00	1,380.00	1,380.00	1,380.00	1,380.00	1,380.00	1,380.00	1,380.00	1,380.00	1,380.00	1,380.00	1,380.00	1,380.00	1,380.00	1,380.00
Supernatant Tank Maintenance	9,785.03	720.00	720.00	720.00	720.00	720.00	720.00	720.00	720.00	720.00	720.00	720.00	720.00	720.00	720.00	720.00	720.00	720.00	720.00	720.00	720.00
Digester Recirc Pump Maintenance	6,795.16	500.00	500.00	500.00	500.00	500.00	500.00	500.00	500.00	500.00	500.00	500.00	500.00	500.00	500.00	500.00	500.00	500.00	500.00	500.00	500.00
Paddle Motor Maintenance	6,795.16	500.00	500.00	500.00	500.00	500.00	500.00	500.00	500.00	500.00	500.00	500.00	500.00	500.00	500.00	500.00	500.00	500.00	500.00	500.00	500.00
System Replacement	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Present Value of 20yr OM&R:	\$121,186.00																				
Headcell																					
Digester Cleaning	\$55,054.03	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Blower Maintenance	21,744.52	1,600.00	1,600.00	1,600.00	1,600.00	1,600.00	1,600.00	1,600.00	1,600.00	1,600.00	1,600.00	1,600.00	1,600.00	1,600.00	1,600.00	1,600.00	1,600.00	1,600.00	1,600.00	1,600.00	1,600.00
Grit Chamber (clean)	8,154.20	600.00	600.00	600.00	600.00	600.00	600.00	600.00	600.00	600.00	600.00	600.00	600.00	600.00	600.00	600.00	600.00	600.00	600.00	600.00	600.00
Pipe Maintenance	2,718.07	200.00	200.00	200.00	200.00	200.00	200.00	200.00	200.00	200.00	200.00	200.00	200.00	200.00	200.00	200.00	200.00	200.00	200.00	200.00	200.00
Supernatant Tank Maintenance	15,628.48	1,150.00	1,150.00	1,150.00	1,150.00	1,150.00	1,150.00	1,150.00	1,150.00	1,150.00	1,150.00	1,150.00	1,150.00	1,150.00	1,150.00	1,150.00	1,150.00	1,150.00	1,150.00	1,150.00	1,150.00
Digester Recirc Pump Maintenance	8,154.20	600.00	600.00	600.00	600.00	600.00	600.00	600.00	600.00	600.00	600.00	600.00	600.00	600.00	600.00	600.00	600.00	600.00	600.00	600.00	600.00
Paddle Motor Maintenance	6,795.16	500.00	500.00	500.00	500.00	500.00	500.00	500.00	500.00	500.00	500.00	500.00	500.00	500.00	500.00	500.00	500.00	500.00	500.00	500.00	500.00
System Replacement	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Present Value of 20yr OM&R:	\$118,249.05																				

20yr. Present Value of OM&R - All Alternatives



The Net Present Value (NPV) analysis is intended to show a current dollar value for future costs. The lower the NPV COST (meaning no profits are taken from the system) the more current benefit.

Alternative	Estimated Capital Cost*	OM&R NPV**	20 Year Present Cost
Mechanical Vortex	\$475,900.00	\$121,186.00	\$2,122,817.70
Headcell	\$630,900.00	\$118,249.05	\$2,237,904.55
Aerated Basin	\$247,900.00	\$480,556.53	\$6,778,663.24

* From Project Estimates Attached
** From OM&R Calculations Table