

Gude Landfill ACM Alternative 5 Anticipated Implementation Schedule¹

Project Phase	Year 1				Year 2				Year 3				Year 4				Year 5				Year 6				Year 7				Year 8				Year 9				Year 10				Year 11				Year 12			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4				
Procurement/Contracting Activities for Phase I	[Gantt bar: Q1-Q4 Year 1]																																															
Phase I: Enhanced Bioremediation Small Scale Approach	[Gantt bar: Q1-Q4 Year 2]																																															
Step 1 - Field Investigations in NW Portion	[Gantt bar: Q1-Q2 Year 2]																																															
Step 2 - Bioremediation Design and Installation in NW Portion	[Gantt bar: Q1-Q2 Year 2]																																															
Step 3 - Operation, Maintenance, and Monitoring in NW Portion	[Gantt bar: Q1-Q4 Year 2]																																															
Cover System Improvements and Landfill Gas Collection	[Gantt bar: Q1-Q4 Year 2]																																															
Procurement/Contracting Activities for Phase II	[Gantt bar: Q1-Q4 Year 5]																																															
Phase II: Enhanced Bioremediation Full Scale Approach	[Gantt bar: Q1-Q4 Year 6]																																															
Enhanced Bioremediation South Portion	[Gantt bar: Q1-Q4 Year 7]																																															
Enhanced Bioremediation SW Portion	[Gantt bar: Q1-Q4 Year 7]																																															
Enhanced Bioremediation West Portion	[Gantt bar: Q1-Q4 Year 8]																																															
Enhanced Bioremediation SE Portion	[Gantt bar: Q1-Q4 Year 9]																																															
Enhanced Bioremediation Operation and Maintenance ²	[Gantt bar: Q1-Q4 Year 6 to Q1-Q4 Year 12]																																															

Gude Landfill ACM Alternative 5 Estimated Project Costs³

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12
Enhanced Bioremediation - Phase I (Small Scale)⁴	\$548,000	\$469,000	\$186,000	\$186,000	\$186,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Capital Cost	\$548,000	\$322,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Operation and Maintenance Cost	\$0	\$147,000	\$186,000	\$186,000	\$186,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Enhanced Bioremediation - Phase II (Full Scale)⁵	\$0	\$0	\$0	\$0	\$298,000	\$941,000	\$1,350,000	\$2,009,000	\$2,596,000	\$2,600,000	\$2,450,000	\$2,378,000
Capital Cost	\$0	\$0	\$0	\$0	\$298,000	\$755,000	\$1,038,000	\$1,329,000	\$1,585,000	\$991,000	\$243,000	\$0
Operation and Maintenance Cost	\$0	\$0	\$0	\$0	\$0	\$186,000	\$312,000	\$680,000	\$1,011,000	\$1,609,000	\$2,207,000	\$2,378,000
Cover System Improvements	\$198,000	\$175,000	\$690,000	\$394,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Capital Cost	\$198,000	\$175,000	\$690,000	\$394,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Operation and Maintenance Cost ⁶	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Landfill Gas Collection	\$0	\$112,000	\$214,000	\$152,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Capital Cost	\$0	\$112,000	\$214,000	\$152,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Operation and Maintenance Cost ⁶	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total Capital Cost	\$746,000	\$609,000	\$904,000	\$546,000	\$298,000	\$755,000	\$1,038,000	\$1,329,000	\$1,585,000	\$991,000	\$243,000	\$0
Total Operation and Maintenance Cost	\$0	\$147,000	\$186,000	\$186,000	\$186,000	\$186,000	\$312,000	\$680,000	\$1,011,000	\$1,609,000	\$2,207,000	\$2,378,000
Total Annual Cost	\$746,000	\$756,000	\$1,090,000	\$732,000	\$484,000	\$941,000	\$1,350,000	\$2,009,000	\$2,596,000	\$2,600,000	\$2,450,000	\$2,378,000

¹Based on expected project schedule at this time, Year 1 is likely to be the County's Fiscal Year 2016.

²Operation and maintenance (O&M) for enhanced bioremediation will last until the RAO for groundwater is met (likely beyond Year 12).

³All costs are shown in 2013 dollars.

⁴Costs to design and implement enhanced bioremediation on a small scale (pilot study) on the NW portion of the Landfill

⁵Costs to design and implement enhanced bioremediation on a full scale on the NW, South, SW, West and SE portions of the Landfill

⁶O&M costs for Landfill Gas Collection and Cover System Improvements beyond current O&M activities at the Landfill are expected to be minimal and are therefore not include in this cost estimate.