

Southern Kent Island Failing Septic System Relief Plan

Financing Model & Construction Cost Estimate

9/9/14

Attached is the current Financial Model and the preliminary construction cost estimate which details how the “per month fees” were derived for existing homes and new buildable vacant lots in the proposed service area. This Financial Model is based on parameters that will be adjusted as the project progresses. The County is committed to keeping the monthly charge at or below the \$100 per month target charge for existing homeowners.

The financial parameters include:

- New Buildable Vacant Lots will be 560 (maximum permitted is 632)
- An Economic Benefit Premium value of \$25,600 per buildable vacant lot
- State Legislation to secure Bay Restoration Fund (BRF) grant monies for projects that relieve failing septic systems outside of Priority Funding Areas (PFA)
- A Bay Restoration Fund Grant Agreement is secured for \$11,826,500.
- Acquisition of a low interest loan from the State for the cost of the project not satisfied by grant funds (1.5% over 20 years)

The total project cost is approximately \$54 million. This includes \$37.5 million for the sewer system construction and \$16.2 million for connection (treatment) fees. The project cost is about \$10 million less than a conventional public sewer system by using the Septic Tank Effluent Pumping System (STEP). The cost estimate for the sewer system was developed in conjunction with a consultant having a great deal of experience with the design, construction and operation of STEP systems. Cost savings as compared to other alternatives were realized in the following areas:

- Prior estimates assumed all sewer mains were constructed via the ‘open trench’ method, this system will utilize the Horizontal Directional Drill method, which greatly reduces the amount of road restoration
- The STEP system technology limits transmission to liquids (no solids) which provides much greater flexibility to the piping system
- The use of “high head” pumps with the STEP system technology eliminates the need for intermediate pump/lift stations to convey wastewater
- All additional STEP system tanks and pumps for any new buildable vacant lots are excluded from the project. The new tanks and pumps will be the responsibility of the buildable vacant lot owner at the time a new building permit is issued

Funding Parameters

Number Served-Existing Homes + 8 Non Residential	1,526
Number Served- Vacant Lots	560
Construction Cost	\$37,531,935
Economic Benefit Premium (to Vacant Lots)	\$25,600
Bay Restoration Fund grant	\$11,826,500
Connection Fee (Treatment Cost)	\$7,750
Operations and Maintenance per year (O & M)	\$360

Construction Cost	\$37,531,935
Connection Fee	<u>\$16,166,500</u>
TOTAL COST	\$53,698,435

Economic Benefit Premium	\$14,336,000
Bay Restoration Fund grant	\$11,826,500

Cost per Household (Base Cost + STEP Cost Less State grant) Existing	\$14,417
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Cost per Household (Base Cost + Economic Benefit Premium) Vacant *	\$27,517
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Monthly Cost-Existing	\$100
Monthly Cost-Vacant*	\$144

* Connection Fees, STEP Cost and Impact Fees are not included and are due in full when a building permit is issued and/or as part of new home construction. In addition, the monthly cost of \$144 will increase to \$164 to include full O&M rates when the new home is connected to the public sewer line.

Item	Unit	Cost/Unit	Units	Subtotal	Total
Force Main from Sub Areas to KNSG WWTP					
Saw Cutting	L.F.	\$ 4	8,865	\$ 35,461	\$ 35,461
Pavement Removal and Disposal	S.Y.	\$ 2	2,463	\$ 4,926	\$ 4,926
6" Trench Excavation	C.Y.	\$ 5	2,955	\$ 14,775	\$ 14,775
8" DR11 HDPE	L.F.	\$ 44	5,490	\$ 241,560	\$ 241,560
12" DR11 HDPE	L.F.	\$ 95	7,500	\$ 712,500	\$ 712,500
16" DR11 HDPE	L.F.	\$ 155	11,536	\$ 4,230,360	\$ 4,230,360
24" DR 11 HDPE Rt 50/501 Casing	L.F.	\$ 1,000	200	\$ 200,000	\$ 200,000
Isolation Valves	Ea.	\$ 2,000	6	\$ 12,000	\$ 12,000
16" Manometer	Ea.	\$ 24,000	1	\$ 24,000	\$ 24,000
Air Relief Valve and Vault	Ea.	\$ 10,000	15	\$ 150,000	\$ 150,000
Metallic Tape	L.F.	\$ 0.25	44,326	\$ 11,082	\$ 11,082
Dewatering	Day	\$ 750	22	\$ 16,622	\$ 16,622
Backfill and Compaction	C.Y.	\$ 10	296	\$ 2,955	\$ 2,955
Pavement Replacement 4" Deep	S.Y.	\$ 15	2,463	\$ 36,938	\$ 36,938
Base Course 6" Deep	S.Y.	\$ 14	2,463	\$ 34,476	\$ 34,476
Trench Box	Day	\$ 150	222	\$ 33,245	\$ 33,245
Maintenance of Traffic	Day	\$ 500	89	\$ 44,326	\$ 44,326
Odor Control at WWTP	Ea.	\$ 125,000	1	\$ 125,000	\$ 125,000
Sub-Total					\$ 5,977,516
					\$ 418,426
Construction Sub-Total					\$ 6,395,942
					\$ 639,594
Engineering/Construction Services (5%)					\$ 319,797
Construction Total - Force Main					\$ 7,355,333
Sub Area #1 (277 Homes & 3 Non-Residential - Kent Island Estates & Romacoke on the Bay)					
Install Pump System and Service Lines	Ea.	\$ 10,000	780	\$ 7,800,000	\$ 7,800,000
Vacant Lot Services	Ea.	\$ 500	399	\$ 199,500	\$ 199,500
Saw Cutting	L.F.	\$ 4	27,995	\$ 111,981	\$ 111,981
Pavement Removal and Disposal	S.Y.	\$ 2	5,690	\$ 8,535	\$ 8,535
6" Trench Excavation	C.Y.	\$ 5	3,414	\$ 17,070	\$ 17,070
Isolation Valves	Ea.	\$ 1,000	122	\$ 122,000	\$ 122,000
2" DR11 HDPE	L.F.	\$ 15	11,505	\$ 172,575	\$ 172,575
3" DR11 HDPE	L.F.	\$ 18	28,878	\$ 519,804	\$ 519,804
4" DR11 HDPE	L.F.	\$ 26	19,215	\$ 500,110	\$ 500,110
6" DR11 HDPE	L.F.	\$ 54	4,010	\$ 216,540	\$ 216,540
8" DR11 HDPE	L.F.	\$ 44	2,560	\$ 103,840	\$ 103,840
10" DR11 HDPE	L.F.	\$ 65	4,000	\$ 260,000	\$ 260,000
Metallic Tape	L.F.	\$ 0.25	25,605	\$ 6,401	\$ 6,401
Dewatering	Day	\$ 500	26	\$ 12,803	\$ 12,803
Backfill and Compaction	C.Y.	\$ 10	683	\$ 6,828	\$ 6,828
Pavement Replacement 4" Deep	S.Y.	\$ 15	5,690	\$ 85,350	\$ 85,350
Base Course 6" Deep	S.Y.	\$ 14	5,690	\$ 79,660	\$ 79,660
Trench Box	Day	\$ 150	138	\$ 20,700	\$ 20,700
Maintenance of Traffic	Day	\$ 500	256	\$ 128,025	\$ 128,025
Sub-Total					\$ 10,288,318
					\$ 720,132
Construction Sub-Total					\$ 11,008,501
					\$ 2,752,125
Engineering/Construction Services (15%)					\$ 1,651,275
Construction Total					\$ 15,411,901
Treatment Costs					
Treatment Cost - Existing Homes	Ea.	\$ 7,750	780	\$ 6,045,000	\$ 6,045,000
Treatment Cost - Vacant Lots	Ea.	\$ 7,750	399	\$ 3,092,250	\$ 3,092,250
Treatment Total					\$ 9,137,250
Total Phase Cost - Sub Area #1					\$ 24,549,151
Sub Area #2 (199 Homes - Tower Gardens)					
Install Pump System and Service Lines	Ea.	\$ 10,000	199	\$ 1,990,000	\$ 1,990,000
Vacant Lot Services	Ea.	\$ 500	25	\$ 12,500	\$ 12,500
Saw Cutting	L.F.	\$ 4	8,176	\$ 32,702	\$ 32,702
Pavement Removal and Disposal	S.Y.	\$ 2	670	\$ 1,005	\$ 1,005
6" Trench Excavation	C.Y.	\$ 5	402	\$ 2,010	\$ 2,010
Isolation Valves	Ea.	\$ 1,000	20	\$ 20,000	\$ 20,000
2" DR11 HDPE	L.F.	\$ 15	9,653	\$ 144,795	\$ 144,795
3" DR11 HDPE	L.F.	\$ 18	7,770	\$ 139,860	\$ 139,860
4" DR11 HDPE	L.F.	\$ 26	3,016	\$ 78,416	\$ 78,416
Metallic Tape	L.F.	\$ 0.25	3,016	\$ 754	\$ 754
Dewatering	Day	\$ 500	3	\$ 1,500	\$ 1,500
Backfill and Compaction	C.Y.	\$ 10	80	\$ 804	\$ 804
Pavement Replacement 4" Deep	S.Y.	\$ 15	670	\$ 10,053	\$ 10,053
Base Course 6" Deep	S.Y.	\$ 14	670	\$ 9,383	\$ 9,383
Trench Box	Day	\$ 150	15	\$ 2,262	\$ 2,262
Maintenance of Traffic	Day	\$ 500	30	\$ 15,000	\$ 15,000
Sub-Total					\$ 2,461,063
					\$ 172,274
Construction Sub-Total					\$ 2,633,337
					\$ 658,334
Engineering/Construction Services (15%)					\$ 395,001
Construction Total					\$ 3,686,672
Treatment Costs					
Treatment Cost - Existing Homes	Ea.	\$ 7,750	199	\$ 1,542,250	\$ 1,542,250
Treatment Cost - Vacant Lots	Ea.	\$ 7,750	25	\$ 193,750	\$ 193,750
Treatment Total					\$ 1,736,000
Total Phase Cost - Sub Area #2					\$ 5,422,672
Sub Area #3 (332 Homes & 4 Non-Residential - Kentmore & Queen Anne's Colony)					
Install Pump System and Service Lines	Ea.	\$ 10,000	332	\$ 3,360,000	\$ 3,360,000
Vacant Lot Services	Ea.	\$ 500	80	\$ 40,000	\$ 40,000
Saw Cutting	L.F.	\$ 4	12,098	\$ 48,392	\$ 48,392
Pavement Removal and Disposal	S.Y.	\$ 2	4,280	\$ 6,420	\$ 6,420
6" Trench Excavation	C.Y.	\$ 5	2,568	\$ 12,840	\$ 12,840
Isolation Valves	Ea.	\$ 1,000	42	\$ 42,000	\$ 42,000
2" DR11 HDPE	L.F.	\$ 15	10,983	\$ 164,745	\$ 164,745
3" DR11 HDPE	L.F.	\$ 18	3,500	\$ 63,000	\$ 63,000
4" DR11 HDPE	L.F.	\$ 26	11,350	\$ 295,100	\$ 295,100
6" DR11 HDPE	L.F.	\$ 34	4,610	\$ 156,740	\$ 156,740
Metallic Tape	L.F.	\$ 0	19,260	\$ 0	\$ 0
Dewatering	Day	\$ 500	96	\$ 48,150	\$ 48,150
Backfill and Compaction	C.Y.	\$ 10	2,568	\$ 25,680	\$ 25,680
Pavement Replacement 4" Deep	S.Y.	\$ 15	4,280	\$ 64,200	\$ 64,200
Base Course 6" Deep	S.Y.	\$ 14	4,280	\$ 59,920	\$ 59,920
Trench Box	Day	\$ 150	96	\$ 14,445	\$ 14,445
Maintenance of Traffic	Day	\$ 500	193	\$ 96,300	\$ 96,300
Sub-Total					\$ 4,497,893
					\$ 314,853
Construction Sub-Total					\$ 4,812,746
					\$ 1,203,186
Engineering/Construction Services (15%)					\$ 721,912
Construction Total					\$ 6,737,844
Treatment Costs					
Treatment Cost - Existing Homes	Ea.	\$ 7,750	336	\$ 2,604,000	\$ 2,604,000
Treatment Cost - Vacant Lots	Ea.	\$ 7,750	80	\$ 620,000	\$ 620,000
Treatment Total					\$ 3,224,000
Total Phase Cost - Sub Area #3					\$ 9,961,844
Sub Area #4 (210 Homes & 1 Non-Residential - Matapeake Estates, Normans, Sunny Isle of Kent & Chesapeake Estates)					
Install Pump System and Service Lines	Ea.	\$ 10,000	211	\$ 2,110,000	\$ 2,110,000
Vacant Lot Services	Ea.	\$ 500	56	\$ 28,000	\$ 28,000
Saw Cutting	L.F.	\$ 4	8,344	\$ 33,376	\$ 33,376
Pavement Removal and Disposal	S.Y.	\$ 2	4,616	\$ 6,953	\$ 6,953
6" Trench Excavation	C.Y.	\$ 5	2,781	\$ 13,905	\$ 13,905
Isolation Valves	Ea.	\$ 1,000	26	\$ 26,000	\$ 26,000
2" DR11 HDPE	L.F.	\$ 15	11,520	\$ 172,800	\$ 172,800
3" DR11 HDPE	L.F.	\$ 18	9,340	\$ 168,120	\$ 168,120
Metallic Tape	L.F.	\$ 0	20,860	\$ 0	\$ 0
Dewatering	Day	\$ 500	104	\$ 52,150	\$ 52,150
Backfill and Compaction	C.Y.	\$ 10	2,781	\$ 27,813	\$ 27,813
Pavement Replacement 4" Deep	S.Y.	\$ 15	4,616	\$ 69,533	\$ 69,533
Base Course 6" Deep	S.Y.	\$ 14	4,616	\$ 64,898	\$ 64,898
Trench Box	Day	\$ 150	104	\$ 15,645	\$ 15,645
Maintenance of Traffic	Day	\$ 500	209	\$ 104,500	\$ 104,500
Sub-Total					\$ 2,897,320
					\$ 202,812
Construction Sub-Total					\$ 3,100,132
					\$ 775,013
Engineering/Construction Services (15%)					\$ 465,020
Construction Total					\$ 4,340,185
Treatment Costs					
Treatment Cost - Existing Homes	Ea.	\$ 7,750	211	\$ 1,635,250	\$ 1,635,250
Treatment Cost - Vacant Lots	Ea.	\$ 7,750	56	\$ 434,000	\$ 434,000
Treatment Total					\$ 2,069,250
Total Phase Cost - Sub Area #4					\$ 6,409,435
TOTAL CONSTRUCTION COST - All Phases (no treatment costs)					
TOTAL TREATMENT COST - All Phases (no construction costs)					
TOTAL PROJECT COST (includes Construction & Treatment)					
		1,526	SAY	\$ 53,698,435	\$ 53,698,435
		560	per connection - even split >>>	\$ 28,839	\$ 28,839
		2,086			

Financing Template

Resulting Homeowner Charges

Base Cost *	=	\$ 1,917
STEP Cost	=	\$12,500
Allocation Fee (Bay Restoration Fund Grant)	=	<u>\$ 0</u>
Total cost if paid up front	=	\$14,417
Monthly Debt Service (20 year payoff)	=	\$70
Operations & Maintenance per month	=	<u>\$30</u>
Total Monthly Payment	=	\$100

* Base cost calculated by Formula in Resolution 14-07

Financing Template

Resulting Vacant Lot Owner Charges
Prior to Building Permit

Base Cost *	=	\$ 1,917
Economic Benefit Premium	=	<u>\$25,600</u>
Total cost if paid up front	=	\$27,517

Monthly Debt Service (20 year payoff)	=	\$ 134
Operation & Maintenance (ready to serve)	=	<u>\$ 10</u>
Total Monthly Payment before building permit issuance	=	\$ 144

OR

Monthly Debt Service (if deferred for 10-years)	=	\$ 42
Operation & Maintenance (ready to serve)	=	<u>\$ 10</u>
Total Monthly Payment before building permit issuance	=	\$ 52

* Base cost calculated by Formula in Resolution 14-07

Financing Template

Resulting Vacant Lot Owner Charges Upon Building Permit Issuance

Monthly Debt Service	=	\$	134
Operation & Maintenance per month	=	\$	<u>30</u>
Monthly Payment	=	\$	164

Additional Fees & Costs \$\$\$

Allocation Fee (payable at time of permit issuance)	=	\$	7,750
STEP System (included in the home's cost)	=	\$	12,500
Impact Fee	=	\$	11,800
Total Addition Fees & Costs for Vacant Lots	=	=\$\$\$	32,050