

Composting Operational Cost Information (In Progress)
VI Composting Committee

1. Verify above estimates, at least on a preliminary planning basis; [Susan P. / Jim D.]

The figures seem like reasonable early estimates for both STX and STT.

2. Identify equipment makes/models, and associated costs; [Susan P. / Jim D.]

Costs below are FOB to ports, and do not include shipping from port to VI [Note: All estimated equipment costs are for new equipment, and are based on telephone or email quotes from manufacturers or their regional sales reps. Competitive bid pricing would almost certainly be lower, but for the purposes of preliminary cost estimates, it's viewed as best to obtain sufficiently conservative cost quotes]:

- ◆ Morbark Model 1100 Tub Grinder (One each STT and STX); **\$475,000.**
- ◆ Volvo (Model L90) Front-End Loaders (3 cubic yard buckets) (Two each for STT and STX): \$178,000 per loader / **\$356,000 per site/operation** (STX and STT).
- ◆ SCARAB Model 16 Windrow Turner (One each STT and STX); **\$435,000**
- ◆ 6' diameter, 12 feet long, 3/8" openings Trommel Screening Machine (McCloskey) (One each STT and STX): **\$140,000**

Total cost estimate for major equipment **each site** (not including shipping) ~ \$1,406,000; With shipping/transport ~ **\$1,450,000.**

3. Estimate costs for labor needs; [Susan P. / Jim D.]

Recommendations for minimal staffing needs, each operation, STX and STT:

- ◆ Overall Composting Manager (either one for all VI operations, or one each for STT/STJ and one for STX): Assume one Manager – both operations: Assume \$80,000 annual salary (\$40,000 per site on an operational cost per site basis);
- ◆ One "working" supervisor for each site (STT and STX): Assume \$60,000 annual salary;
- ◆ Two equipment operators for each site (STT and STX); Assume two @ \$45,000 annual salary per site (\$90,000 annually per site);
- ◆ One sales person to market end products as well as incoming feed stocks; Assume one person for both sites; \$70,000 annually (\$35,000 per site on an operational cost per site basis).

Assume 20% fringe/benefits:

Total estimated labor costs per site = (\$225,000)*1.2 = \$270,000 per year.

4. Estimate on-going operational costs; [Susan P. / Jim D.]

Based on other comparably sized operations employing windrow composting, the total estimated non-labor annual operating expenses for each of the two composting operations would be approximately \$150,000 per year (including equipment maintenance/repairs, operating supplies and materials, fuel, etc.).

Total annual operating costs for each of the STT and STX composting facilities would be approximately **\$420,000 per year**. Note that these estimated annual operating costs do not include annualized costs for equipment. It is not clear at this time whether funding for start-up of the composting operations would be partially or largely from grants, and if so, what the terms of such grant funding might be. Although grant funding *might* be obtained for start-up of the operation, there will likely come a time when such grant funding will not be available. On behalf of long-term planning and sustaining these operations, it's important for the VI to plan for these operations to be financially self-sustaining.

The listed major equipment for each site would all be expected to have *minimum* useful service lives of 10 years, assuming basic accepted (and expected) routine servicing/maintenance. Adding 10% of total equipment costs over a period of 10 years would bring the total annual operating costs for each of the STT and STX operations to approximately **\$565,000 per year**. Those are considered minimal operating costs (including annualized equipment purchase costs), and do not include any indirect/overhead/profit percentages for privatized operations.

5. Based on targeted (and most likely feasible) sites, estimate site preparation/start-up costs.[Will wait on this until site selection is further along.]

The above estimated annual operating costs do not include annualized costs for site improvements, including construction of a concrete pad meeting adequate load bearing capacities, stormwater run-off retention and treatment pond facilities, etc. Those costs will likely be several million dollars per site (not including land costs). Photos on the following page show an Austin, TX 15-acre windrow composting pad that will be constructed at a cost of about \$7 million. Assuming a pad at each of the STT and STX site would be approximately 1/3 that size (about 5 acres each), the cost would likely be approximately \$3-4M each, adjusting for higher concrete costs in the VI. The life expectancy for those pads, if properly designed and constructed, would be around 25 to 30 years.

6. Identify possible funding sources/mechanisms [Jason / Benita / Mark L.]

7. Begin developing preliminary recommendations for tipping fees to composting operations, based on operational costs. [Susan P. / Jim D.]

While site preparation and improvements costs cannot be effectively estimated at this point (no specific sites identified at present for either STX or STT), it appears that total annual operating costs would be somewhere around \$50 per ton of material delivered to the composting operation. As more information is obtained, this cost per ton (or recommended "tipping fee") will be further refined.



Photo of a concrete windrow composting pad, adjacent to a municipal wastewater sludge (biosolids) dewatering operation; These facilities are at a permitted municipal wastewater sludge treatment plant site.



Different view of same concrete composting pad. There should be about a 1% slope on the pad, draining to stormwater catchment/retention and treatment pond.



A Morbark 1100 tub grinder

From St. Thomas, this unit could be taken over to St. John on a particular schedule (say every one to two months) for grinding brush and other bulky organics there (grinding reduces volume by about 3:1, for easier and less costly transport of materials to the composting facility)



Picture of a SCARAB -- windrow turning equipment.



Picture of a McCloskey trommel screen.