

Region 2000 Solid Waste Management Study Summary Report

This paper summarizes the work of the Region 2000 Solid Waste Management Working Group in its efforts to evaluate the potential for alternative approaches to current solid waste management practices within the region.

A regional base data profiling Central Virginia's solid waste environment is presented as well as discussion of three primary options to current solid waste management practices: regional transfer station, regional waste to energy, and regional cooperative operation of facilities. Finally, a concluding statement and scope of work, with budget estimate, are also provided.

Background

The Region 2000 Regional Commission through its Strategic Planning initiative of April 2002 identified regional solid waste management as a concept that should be studied as part of its activities to promote regional cooperation and promote more effective provision of public services within the Region 2000 community. The Commission's Executive Committee undertook a series of discussions during the first quarter of this year that ultimately led to the formation of a Working Group charged with further examining this issue.

Specifically, this Working Group was charged with undertaking an initial brief evaluation of the primary options available to the region in order to determine the general feasibility of alternate approaches to current solid waste management practices within the region. The Executive Committee also requested the Working Group to develop a scope of work with budget estimate to further examine in detail options available to Region 2000. The Executive Committee requested the results of this effort be presented to it this September.

Participating on the Working Group are the following: Teresa Nuckols, Solid Waste Director, Amherst County; Sheldon Cash, Solid Waste Manager, Bedford County; Clif Tweedy, Deputy Administrator, Campbell County; Susan McSwain, Solid Waste Manager, Nelson County; Clarke Gibson, Public Works Director, Bedford City; David Owen, Solid Waste Director, City of Lynchburg; Bob White, Deputy Director, Region 2000 Regional Commission.

(Note: Appomattox County chose not to participate in the study at this time. Nelson County joined in this effort even though it is not part of Region 2000.)

Regional Base Data Summary

The first task of the Working Group was to develop a data profile of the region's solid waste management activities. This will be needed as part of any detailed evaluation of potential regional alternatives to the current practices. A detailed breakdown of pertinent data is provided in Attachment A: Region 2000 Solid Waste Management Study, Regional Base Data.

It is interesting to note that as of 2003, our study area held 229,472 persons. This population along with the Lynchburg area industries are generating 989 tons of waste per operating day. This results in operating, equipment, and capital costs exceeding \$7 million per year. And, this figure does not include the ongoing financial and environmental liability of closing landfills and post closure costs for current and closed landfill cells. As the environmental regulatory environment continues to become more demanding these costs are expected to increase.

Regional Transfer Station Alternative

Transferring the region's solid waste to a large regional landfill was identified as one of three primary regional options to current practices. A subcommittee composed of Clarke Gibson and Susan McSwain undertook an initial review of this alternative. Attachment B: Regional Transfer Station Alternative provides a summary of this review.

The subcommittee was able to identify a scenario that potentially can work within our area. Involving the strategic placement of three transfer stations within the region the solid waste would be transported out of the area to one of the large regional facilities within Virginia. Advantages to this approach include no additional post closure costs, minimal pollution potential, reduced monitoring costs, and lower capital investment. Disadvantages include hauling and disposal costs only controllable through contracts, limited control over future price hikes, difficulty with recovering past debt costs, and loss of operational control.

This method of handling solid waste is one many jurisdictions are utilizing. With the lack of large tracts of land in urban areas locating fewer larger landfills in rural areas is more attractive. These large operations are less expensive to operate due to economies of scale. Although technology has caused changes to handling of solid waste in the past 20 years, land filling is still the least expensive method of waste disposal in most cases.

Operating a system of transfer stations in central Virginia would have advantages. It could be a good next step to consolidate operations and begin planning for future improvements in handling solid waste.

Waste-to-Energy Alternative

A regional waste-to-energy facility was identified as the second option to current solid waste management practices. A subcommittee composed of Sheldon Cash, Teresa Nuckols, and Dave Owen investigated this alternative. Appendix C: Regional Solid Waste Management Study, Regional Waste-to-Energy Alternative provides a summary of this review.

Advantages identified with this technology includes less space requirements than a landfill, does not require site closure and post closure costs, extends the life of current landfills, and steam and/or electricity is produced and available for industry use. Disadvantages identified with this technology involve the large initial capital construction costs, a dedicated waste stream, complexity of operation, end user for energy produced, and maintaining competitive costing relative to landfill operations.

Waste-to-energy technology may have a role to play in the region's solid waste management strategy. Much planning will be required to ensure funding is in place as well as the end energy user, dedicated waste stream, and work force. An in-depth cost/benefit analysis will be needed to truly understand the potential for this technology within our region.

Joint Operation of Landfills

The third regional alternative considered as part of this investigation is the potential for joint operation of landfills. Clif Tweedy and Bob White investigated this option for the Working

Group. Appendix D: Regional Solid Waste Management Study, Joint Operations of Landfills provides a summary of this effort.

Results of this review showed many similarities between solid waste operations within the region. However, differences in operational practices and citizen expectations are significant. Joint operation of facilities can be more efficient than current practices, with savings opportunities coming with reduction of manpower and equipment costs by reducing redundancy and overall operating hours. As with the other options discussed further evaluation of this alternative by a consultant is required to objectively determine opportunities for joint use of facilities.

Authority

Through the course of the Working Group's discussion a common theme began to take shape. Any substantive movement away from current practices will/must entail promoting and developing a regional authority with requisite financing, planning, and management powers to make best use of the resources and opportunities available to manage the regional solid waste stream.

The complexity of this issue can only be objectively addressed through this mechanism. An evolving solid waste management strategy could very well involve joint use of facilities until opened cells are full, transitioning to a transfer operation, supplemented by a cost effective waste-to-energy facility, minimizing the region's environmental exposure over time while ensuring the most efficient management practices.

As a group we focused on the disposal piece of solid waste management. However, there are numerous other areas that could be addressed by an authority. These include recycling, collection of household hazardous waste, construction/demolition debris, door-to-door collection, maintenance of closed landfills, public education, and environmental monitoring and compliance. Potentially, localities could choose to participate in any of these as it fits into their overall goals.

Evolving Consideration

An additional point of consideration also stayed with the Working Group as we conducted our discussions. The solid waste field is a competitive environment now and will only increase in the future. Private sector solid waste management concerns are expected to continually compete for the region's waste stream. This competition can redirect the stream from public facilities and pose difficult financial challenges to public landfills. Looking to the future, and because of this competition, one can reasonably expect the region's solid waste will be managed on a regional basis. The question is whether it will be directed by the private or public sector.

Conclusion

The three regional alternatives to current solid waste management practices within the Region 2000 community briefly examined by the Working Group, along with the opportunity an authority structure offers, indicate the potential for improving the region's solid waste management practices.

The Working Group recommends that the Commission move forward with a more in depth investigation of the regional solid waste management concept. Appendix E: Preliminary Scope of Work provides an approach to this investigation as well as a budget estimate.

	A	B	C	D	E	F	G	H
1	Appendix A: Region 2000 Solid Waste Management Study							
2	Regional Base Data							
3	Apr-04							
4								
5								
6								
7								
8		Amherst County	Bedford County	Campbell County	Nelson County	Bedford City	Lynchburg City	
9	Population	31,894	60,371	51,078	14,561	6,299	65,269	
10			283 days per year	307 days per year		276 days per year		
11	Total Average Daily Tonnage Past Five Years	based on 309 days		10 yr avg=145 tons			309 days per year	
12	1999	83	133	163	28.66	62.8	530	
13	2000	84	143	173	30.13	42.5	534	
14	2001	87	149	156	31.92	35.3	487	
15	2002	88	147	153	34.99	31.5	512	
16	2003	95	150	126	38.81	37.4	542	
17	Operating Costs Past Five Years		note 1					
18	1999	739,684	737,000	485,000	815,700	391,992	\$1,900,960	
19	2000	634,313	759,000	500,000	851,280	346,750	\$1,850,460	
20	2001	671,139	828,000	515,000	939,616	327,800	\$2,091,603	
21	2002	691,813	898,000	517,000	852,306	369,550	\$1,901,500	
22	2003	682,322	836,000	479,000	1,079,080	379,350	\$1,808,855	
23	Capital Costs Past Five Years		note 2	10 yr avg=\$900,000				
24	1999	0	761,000	0	0	28,500	0	
25	2000	296,816	319,000	1,243,600	0	285,000(note 1)	0	
26	2001	1,680,309	147,000	334,000	0	165,000(note 1)	0	
27	2002	0	92,000	103,500	0	11,250	\$1,950,000	
28	2003	194,778	117,000	565,000	0	0	0	
29	Equipment Costs Past Five Years	lease/purchase	note 3	10 yr avg=\$250,000		note 2	10 yr avg = \$375,000 / yr. (1)	
30	1999	57,594	248,000	192,000	100,000	148,653	\$96,022	
31	2000	57,594	149,000	276,000	0	148,733	\$337,397	
32	2001	57,594	159,000	399,000	0	150,996	\$587,275	
33	2002	57,594	166,000	303,000	0	153,293	\$443,707	
34	2003	57,594	155,000	24,000	30,000	155,625	\$476,295	
35	Hours of Operation	M-F 8-4, Sat 8-12	7:30 - 3:30 Mon-Sat, Wed 7:30 - 1:00	7-4 Mon-Sat	8-3:30 Mon-Sat	55 hrs per week	7:00 AM - 4:00 PM Mon-Sat	
36	Employees							
37	Full Time	4	13	10	2	3	21	
38	Part Time	1	0	2	0	1	0 (2)	
39	Permitted Space	1,265,990 cy	3,854,300+ tons remaining	1,990,000 tons remaining	NA	2,407,000 cyds remaining		
40	Years Left in Landfill	23	73 years + (Assumes 3% Ann. Growth)	42 yrs @ 155 tons per day	NA	4	11 years @ 542 tons a day	
41	Estimated Post Closure Cost (closed out phase)	92,552	2,771,527	\$2,538,000	\$658,980		\$79,817 (3)	
42	Estimated Closure Cost (active phase)	2,380,000	1,228,464	\$2,833,000	NA	928,601	\$1,778,985 (4)	
43	Estimated Post Closure Cost (active phase)	1,800,000	3,088,650	\$1,259,000	NA	1,097,605	\$2,888,876	
44	Debt Service (1)	2,429,500	none	none	0	427,000	\$8,806,670 (5)	
45	Other Services Provided (2)		note 4	*	NA	note 3	See below (6)	
46	Tipping Fees	See notes	\$38 (note 5)	\$35**	\$45/ton	\$60 per ton	\$48/ton(7)	
47	General Notes: (1) Active and inactive cells.							
48	(2) List as a note, if needed							
49	Last updated August 11, 2004							
50	Amherst County Notes:							
51	(2) recycling drop-off centers, rural trash collection, manned convenience centers							
52		Tip Fee						
53		\$53/T - Shingles and residential rate after free ton						
54		\$44/T - Commercial Garbage						
55		\$34/T - Clean Wood						
56		\$75/T - Tires						
57	Bedford County Notes:							
58	Note 1: Budget appropriations open and closed landfill.							
59	Note 2: Budget appropriations open and closed landfill.							
60	Note 3: Budget appropriations heavy equipment lease payments and equipment reserve fund.							
61	Note 4: 26 drop off collection centers, scrap metal recycling, mulch, oil, battery collection, permanent HHW Program, transfer station operations, posi-shell daily cover.							
62	Note 5: Landfill operations are funded through an enterprise fund. Total tip fee is \$61 per ton for all incoming tonnage. Residents receive 1000 pounds free per month per household, then \$61 per ton.							
63	Campbell County Notes:							
64	* green box operations, tire shipping/recycling, white good recycling, free mulch and manure, oil and battery collection							
65	** special dense wastes are taken at \$25 per ton, resident are allowed to bring 2 tons per year into the Landfill at no charge.							
66	Lynchburg City Notes:							
67	(1) Set aside for equipment replacement							
68	(2) Hire wage as needed to assist with grass cutting and litter collection.							
69	(3) Financial assistance plus on-going groundwater monitoring.							
70	(4) For current cubic yards filled.							
71	(5) Outstanding debt balance July 1, 2003.							
72	(6) Other services include HHW, tire storage and recycling, litter collection, illegal dumping cleanup, freon recovery and white goods recycling, wood waste storage and grinding, snow and ice removal by landfill operators, building and grounds maintenance.							
73	(7) \$48/ton (stated gate rate); \$35/ton offered to any private company bringing in 150 tons of waste/year; contracts in place with two industrial companies (Rock-Tenn and Griffin Pipe.)							
74	(8) Debt costs for the past five years:							
76		\$1,474,000						
77		\$1,359,375						
78		\$1,310,184						
79		\$1,240,152						
80		\$1,329,283						
81	Bedford City Notes:							
82	(1) Cell construction							
83	(2) City of Bedford contracts landfill equipment with an operator. This figure is included in operating cost.							
84	(3) Wood waste grinding, leaf mulching, tire disposal, recycling program.							
85	Note: These figures represent cost of active landfill operation only. Cost of closed landfill are not included.							

Appendix B: Regional Solid Waste Management Study, Regional Transfer Station Alternative

One of the options identified for consideration by the Working Group is transferring the region's solid waste to a large regional landfill. This facility would most likely be one of the privately owned landfills in Virginia.

A subcommittee made up of Clarke Gibson and Susan McSweeney worked to review this topic with input from the entire committee. Several assumptions were made on how a system of this type could work. The assumptions are as follows:

1. There would be three transfer stations constructed in the region. Two small ones located in the vicinity of the City of Bedford and in the Amherst/Nelson area. A larger one would be located in the Lynchburg area.
2. The Bedford facility would be expected to take the 40 tons per day that the City generates plus 1/3 of the Bedford County's 150 tons per day for an average of 100 tons per day.
3. The Amherst/Nelson facility would take the 40 tons that Nelson County generates per day plus 1/2 the 100 tons per day Amherst County generates for an average tonnage of 100 tons per day.
4. The Lynchburg area facility would take the remainder on the region's waste for an average of 750 tons per day.
5. The sites would be located appropriately as part of future study done by consultants.
6. All the waste would be hauled by commercial haulers to a private landfill through long term contracts.
7. It is estimated to cost \$1,000,000 to design and construct the two smaller transfer stations and \$3,000,000 to design and construct the larger facility. (This includes land and equipment.)
8. Transfer stations would be run by local government.

Evaluation

Based on the assumptions from above various information has been gathered to use in evaluating this option. We have contacted different sources to obtain pricing information. Based on preliminary information cost figures are estimated as follows:

1.	Tipping fee at a large landfill	\$28 per ton
2.	Hauling costs to truck the waste	\$12 per ton
3.	Transfer station operations	\$ 4 per ton
4.	Debt service on construction	\$ 2 per ton
	Total	\$46 per ton

These figures are subject to adjustment upward due to inflation and rising costs depending on how long it takes to implement. However, due to the anticipated large volume of waste, competition for the hauling and tipping contracts should control the price and potentially bring the rates down. This would be further refined in a future study. If the decision is made to

seriously pursue the construction of these transfer stations the numbers could be narrowed pending final bidding of the contracts.

Below are a list of the advantages and disadvantages for construction and operation of the transfer station option. There may be others not mentioned but this list is representative.

Advantages

1. No additional post closure costs as with constructing another landfill.
2. Operational consistency between the localities.
3. Simplified operations.
4. Less equipment and personnel.
5. Better opportunities for recycling of material.
6. Land retained for more useful purposes.
7. Minimal pollution potential.
8. Reduced monitoring costs.
9. Smaller area required for facility.
10. Lower capital investment.

Disadvantages

1. Hauling and disposal costs are only controllable through contracts
2. Hauling subject to disruptions from outside forces.
3. Limited control over future price hikes.
4. Workforce retraining required.
5. Localities would have to modify how they do business to conform.
6. Difficult to recover costs for past debt.
7. Waving tipping fees for some groups would be difficult.
8. Lost of control of the operations.
9. Disposal of construction debris and bulk items more costly.
10. Concentration of traffic for main facility.

Conclusion

This method of handling solid waste is one that many larger jurisdictions are utilizing. With the unavailability of large tracts of land in urban areas, locating fewer larger landfills in rural areas is more attractive. These large operations are less expensive to operate due to economies of scale. Although technology has caused changes in the handling of solid waste in the past 20 years landfilling is still the least expensive method of waste disposal in most cases.

Operating a system of transfer stations in central Virginia would have some advantages as listed above. It could be a good next step to consolidate operations and begin planning for future improvements in handling solid waste.

Appendix C: REGIONAL SOLID WASTE MANAGEMENT STUDY

REGIONAL WASTE-TO-ENERGY ALTERNATIVE

One of the ideas discussed by the Regional Solid Waste Working Group is the concept of waste-to-energy for the region. There are six landfills currently operating within Region 2000 plus a transfer site operated by Nelson County as noted in the Joint Operations of Landfill's Study. The use of waste-to-energy technology has both its supporters and detractors.

Background:

There has been interest in the possibility of waste-to-energy facility in the region for several years. Approximately two years ago, representatives from Barlow Projects, Inc. approached the City and Region 2000 Commission regarding the possibility of such a project. Barlow was interested in determining the feasibility of building a waste-to-energy facility in the City or in the Region 2000 area. The company had just begun a major retro-fitting of the waste-to-energy facility in Harrisonburg. Several members of Region 2000 Commission toured the facility during renovation and were quite impressed.

A sub-committee comprised of Sheldon Cash, Teresa Nuckols and Dave Owen was formed to research this concept and prepare a preliminary report regarding the waste-to-energy technology. The research included reviewing periodicals, resource materials, case histories as well as meeting with facility operators to learn more about this technology.

Conclusions:

- I. There are many advantages and disadvantages to the use of this technology.
 - Advantages:
 1. Energy of waste is captured and re-used as a fuel
 2. Steam or electricity is produced and available for other industry use (typically less than other commercial fuels)
 3. Requires considerable less space for operations than a landfill
 4. Typically employs more staff than landfills
 5. Does not require site closure and post closure care costs

6. Extends life of current landfills and reduces need to build additional landfills
 7. Generates more revenue from energy sales than landfills with gas recovery systems
- Disadvantages:
 1. Large initial capital construction costs
 2. Requires long term dedicated waste stream
 3. Cost per ton of waste for use must be competitive with landfill operations
 4. Must be located in close proximity to an industry that can use utilize the steam or electricity
 5. Requires large numbers of trained and capable staff to operate
 6. Must overcome environmental perception and concerns regarding pollution
 7. Still requires a landfill in close proximity for disposal of materials not suitable for burning

II. There are two main types of waste-to-energy / incineration processes. Listed after each process are statements from various industry articles comparing the two technologies

- Thermal Oxidation Technology (injects pure oxygen)
 1. Produces lower air emissions
 2. Produces more fuel (steam or electricity) as it burns the trash at higher temperatures
 3. Smaller amounts of ash are created as a waste product
 4. Requires a smaller physical plant size thereby lower capital costs
 5. Time to permit and open facility is considerably less than incineration
 6. Need less tonnage to operate
- Incineration Technology (such as Barlow in Harrisonburg)
 1. Considered mass burn operations
 2. Has no moving parts other than conveyors moving trash into combustion chamber
 3. Injects nitrogen as primary fuel instead of oxygen
 4. Difficult to gain support of citizenry as a whole (perception of harmful pollution and possible cancer causing materials)

The sub-committee (Sheldon, Teresa and Dave) plus Bob White had the opportunity to tour the retro-fitted waste-to-energy facility in Harrisonburg on June 28, 2004. The facility had been in operations approximately six months after the renovations. Plant staff and engineers from Barlow discussed the operations of the facility and provided tours of the facility. Part of the discussion included the cost to construct and operate such a facility. The Harrisonburg facility's renovation costs approximately \$20 million and the facility is permitted to receive up to 200 tons of solid waste per day. Therefore, the cost of construction for the renovation was approximately \$100,000 per ton. They have an operating staff for the facility of approximately 30.

III. Even if waste-to-energy facilities are deemed a viable option, landfill(s) will be required for the disposal of materials unacceptable at the waste-to-energy facility as well as for the disposal of the ash waste generated at the facility.

IV. An in-depth and thorough cost / benefit analysis of the waste-to-energy option is recommended prior to any long term decisions. It is recommended that a consultant be used that is familiar with all solid waste options to perform this financial analysis.

V. From the sub-committee's point of view, the technology for waste-to-energy facilities may be in place; however, the perfect situation and circumstances must present themselves to make it practical for Region 2000 area. This includes the required funding and capital investment for construction, a large user of steam or electricity, a dedicated waste flow and a trained and skilled workforce.

Appendix: REGIONAL SOLID WASTE STUDY

Joint Operation of Landfills

One of the ideas considered by the Regional Solid Waste Working Group is the concept of the joint operation of our landfills. There are six landfills currently operating within Region 2000 plus a transfer site operated by Nelson County. These range in size from less than 50 tons per day to over 550 tons per day. The average is in the range of 150 tons per day. Generally, landfills are more cost effective to operate when they handle a larger volume.

Our discussions led to a consensus on several points:

Although there are many similarities between solid waste operations, there are subtle variations between how each locality operates their landfills. These differences in operational methods have developed as operations have become more complicated and regulations more strict over the past 15 years. Because of these differences the citizens within each locality have become accustomed to the local method of doing business. This leads to the second point.

Savings Opportunities

There are some opportunities for savings but would require changes in operation methods or schedules. If hours of operation could be coordinated to allow some facilities to close while others are open, man-hours could be reduced. Along with this equipment costs could be reduced by less run time and elimination of spare equipment.

It will take a separate study by an independent consultant to identify and justify workable methods of joint operation. A consultant could evaluate each operation against industry standards. The methods that provide higher levels of efficiency would be identified and utilized in a cooperative system. A consultant could make these recommendations without local bias.

Operating Methods

There were two methods discussed to accomplish joint operations. The first method considered some type of written agreement. The Working Group felt this had limited ability to accomplish the goals of moving to a better way of doing business. The other method would be through an authority. This is the choice of the group because it provides for a stronger and more flexible way to adjust to the changes anticipated in the future for managing solid waste.

Authority

Establishing an authority to operate the landfills as one would provide for a mechanism to transition to another method of handling solid waste. This group could focus on making

the current operations more cost effective. A long term plan could be developed and implemented to transition first to joint operations and then to other methods of operation such as transfer operations or incineration as costs of current methods rise and other methods become less costly. Technology will continue to improve making incineration or other methods more desirable.

Joint operation would be more efficient if operational differences could be modified. This would reduce manpower and equipment costs by reducing operating hours and redundancy.

An authority with borrowing power could purchase existing space and other assets for the localities. Some localities could see revenue from the sale of their existing facilities and others would realize cost savings from reduced operating costs. The service could become a fee instead of a budgeted expense.

Appendix E: Region 2000 Regional Commission Regional Solid Waste Management Study Preliminary Scope of Work

The Region 2000 Regional Commission is interested in examining the potential for regional alternatives to current practices of managing solid waste.

The Region 2000 Regional Commission represents ten communities within the Central Virginia area. Six of these communities host solid waste management facilities, including Amherst County, Bedford County, Campbell County, Appomattox County, and the Cities of Lynchburg and Bedford. Nelson County, our neighbor to the north, is also interested in participating in this effort. At this time Appomattox County has not indicated an interest in the effort.

The scope of work is as follows:

Initial Investigation

Subtask A

1. Verify the base data collected to ensure a consistent comparison. A working group of area solid waste managers and Region 2000 staff has prepared regional base data profiling the regional solid waste system. Cost analysis will be conducted at a planning level in order to determine the potential viability of a regional system.
2. Determine and gather additional information as needed to accomplish a regional solid waste analysis in order to identify and analyze regional alternatives to current practices of solid waste management in Central Virginia. This analysis will be completed at a planning level to provide a basis for comparison of regional options to existing disposal costs for the participating entities and industry standards.
3. Identify and determine the viability of regional options to current solid waste management practices in Central Virginia. This analysis would focus on whether the regional options would provide a more cost effective alternative for each city/county relative to their current operations.

Deliverable: Letter report that evaluates whether any of the regional options would be economically viable.

Subtask A Budget Estimate:

- Would include planning level financial analysis for six separate existing disposal systems (Amherst County, Bedford County, Campbell County, Nelson County, and the Cities of Lynchburg and Bedford). The number of communities could vary depending on final participation of localities.
- Evaluation of regional alternatives would include planning level cost analyses of the following options: (1) transfer, (2) waste incineration, and (3) regional cooperation (joint use of facilities). This planning level cost analysis would focus on costs that are typically incurred for disposal/transfer operations based on the disposal quantities that would be generated by the participating cities/counties. The regional cooperation analysis would include a description of the process to establish a regional authority under Virginia law...

- Budget includes two trips to the region. The first trip would include a kick-off meeting and individual ½ day meetings with each of the six local governments. The second trip would be to present the findings and recommendations. Additional trips can be provided, if needed, as an optional budget item.
- Budget Estimate: \$42,000

Subtask B

4. Conduct more detailed and specific analysis of regional options to undertake and present an initial ranking of alternatives with appropriate rationale.
5. Determine best option to pursue.

Deliverable: Letter report that includes specific recommendations concerning which regional option(s) would be the most viable.

Subtask B Budget Estimate:

- Depending on the results from Subtask A, the purpose of Subtask B would be to develop a more detailed and specific cost analyses to evaluate which option would be most viable.
- Budget Estimate: \$38,000

Design Phase

1. Determine the detailed design and tasks needed to implement the selected option.
2. Identify the management structure for the selected option.
3. Provide a detailed implementation program with schedule and costs.

Budget Estimate:

- Focus would be on the development of an implementation plan, based on the recommendations from the “Initial Investigation.” Specific tasks would be identified after completion of the “Initial Investigation.” Tasks could include, but not be limited to, (1) operational plan for best use of existing facilities, personnel and equipment and (2) preliminary analysis of options for a regional structure (e.g. authority).
- This would include a preliminary analysis to determine the value of the assets that each participating county/city would bring (e.g. landfill equipment, remaining, airspace capacity, etc.). This would also include the development of a regional pricing structure to reflect the value of these assets.
- Budget Estimate: \$20,000 - \$30,000

Implementation Phase

- Compile and issue an RFP to implement the selected option structure.

Budget Estimate:

- At this time it is not possible to provide a budget estimate since implementation tasks have not been identified. Once we have a better understanding of these tasks, we will be able to develop a specific budget estimate.