SCS ENGINEERS

Final Interim Report
(Executive Summary Only)

Solid Waste Management for Southside Hampton Roads Planning Horizon 2018-2047

Presented to:

HAMPTON ROADS PLANNING DISTRICT COMMISSION

The Regional Building
723 Woodlake Drive
Chesapeake, Virginia 23302
(757) 420-8300

Presented by:

SCS ENGINEERS
6330 North Center Drive
Building 13, Suite 100
Norfolk, VA
(757) 466-3361

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Offices Nationwide
www.scsengineers.com

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EXECUTIVE SUMMARY

PURPOSE AND SCOPE OF STUDY

SCS Engineers (SCS) was retained by the Hampton Roads Planning District Commission (HRPDC) to evaluate technical and institutional alternatives and recommend an approach for managing solid waste in the South Hampton Roads Region (Region) after the intergovernmental agreements (Agreements) between the Southeastern Public Service Authority (SPSA) and their member communities expire in January 2018. The governmental entities involved in the HRPDC study include the cities of Chesapeake, Franklin, Norfolk, Portsmouth, Suffolk, and Virginia Beach, and the counties of Isle of Wight and Southampton. These communities are collectively referred to as "the Region" throughout this report.

This study is intended to provide information and analysis to the current SPSA member communities to aid in their decision as to whether they should continue to cooperate together to manage the Region's solid waste or pursue an alternative course of action. The study is primarily forward looking, considering solid waste management approaches for the Region post-2018 that best fit the current and anticipated regulatory, institutional, facility, financial, market, and legal drivers and constraints, which differ significantly from when Agreements with SPSA were originally established in 1983 and 1984.

While conducting this study, SCS evaluated existing solid waste management programs, facilities, and operations in the Region. In addition, future solid waste technology and facility needs for a 30-year planning horizon (2018-2047) were assessed; various institutional and cooperative models for managing solid waste were considered; economic analyses were performed, and meetings with the Chief Administrative Officers (CAOs) from the member communities and private solid waste companies and interests were held to discuss the results, conclusions, and recommendations of the study.

ASSUMED 2018 CONDITIONS

The following conditions are projected or assumed for 2018.

- **In-Region Disposal Capacity**. Additional landfill disposal capacity will need to be developed prior to 2018 (See Sections 2.0 and 3.0) either through siting, permitting, and constructing a new Regional Landfill or through contracted disposal services at an out-of-region landfill. SPSA's existing Regional Landfill in Suffolk is expected to have reached its permitted capacity, and the facility has limited expansion potential. The City of Virginia Beach's Landfill No. 2 will have approximately five years of remaining capacity within its current permitted area assuming all of the City's solid waste is disposed in the landfill beginning in 2018. Future expansion is possible at this site, although the encroachment of surrounding developments may constrain future expansion.

- **Out-of-Region Disposal Capacity**. Several privately owned and operated municipal solid waste and construction and demolition debris landfills are located in Eastern

Virginia that could provide disposal capacity for the Region. These facilities currently service in-state and out-of-state cities and counties, and numerous independent commercial clients. Waste is transported to these facilities via long-haul transfer trailers, barge, rail, and other collection vehicles (e.g., packer trucks, roll-offs, self-haul).

SCS evaluated the location and short-term and long-term disposal capacities of eleven of these facilities which are permitted to accept of municipal solid waste (See Section 6.0). Assuming existing disposal rates continue at these facilities, and the Region's solid waste is added beginning in 2018; the existing permitted and projected capacities of these facilities could be consumed by the years 2024 and 2040, respectively (See Section 6, Table 59). This conceptual analysis does not consider the timing of when the additional unpermitted disposal capacity would be available, but reinforces the need for the Region to site and develop its own long-term disposal capacity, although these private facilities could provide disposal capacity if needed during the planning period.

- **Transfer Station Network**. The transfer station network is adequate to meet the Region's needs assuming any necessary upgrades and maintenance are performed on a routine basis (See Sections 2.0 and 3.0).

- **Waste-to-Energy**. The existing Refuse Derived Fuel Waste-to-Energy Facility (RDF WTE Facility) can be maintained and upgraded to serve the Region for the 30-year planning period, and either be owned and operated by the existing or a newly formed Regional Authority, or by a private company. The private ownership and operation scenario was not evaluated in this study because confidential negotiations are ongoing for the potential sale of SPSA's RDF WTE Facility (See Section 5.0). Resource recovery through use of the existing RDF WTE Facility can be an important long-term component of the Region's solid waste system since it will enable the Region to minimize construction and operational costs for the Regional Landfill and allows this landfill asset to last longer. Although inclusion of this facility in the system slightly increases the overall costs of the system, it provides a hedge against the potential significant impacts of escalating fuel prices.

- **Construction and Demolition Debris**. Sufficient privately-owned and operated disposal capacity for construction and demolition debris will exist in the Region and not require additional Regionally-owned and operated facilities. (See Section 2.0).

- **Solid Waste Quantities.** Assuming certain demographic projections, in 2018, the Region is projected to generate approximately 1,6000,000 tons per year of solid waste from municipal and commercial sources (inclusive of yard waste), the Navy, and construction and demolition debris. This waste will likely be processed or disposed at a combination of publicly and privately owned solid waste management facilities. Disposal capacity of between 17 to 43 million tons of solid waste will be required during the 30-year planning period depending on the solid waste strategies employed (not including yard waste, construction and demolition debris, and certain portions of

the waste stream that are diverted to other disposal facilities in the Region) (See Section 3.0).

- **Feasible Technologies.** No new viable technologies for the near term were identified that could be cost-effectively employed to substantially change the way solid waste is managed in the Region in 2018, although various biological, chemical, biochemical conversion technologies were considered. The primary feasible solid waste management strategies to implement during the planning period include recycling, waste-to-energy, and landfilling, in that order (See Section 3.0)

- **Recycling.** Residential recycling services will need to be provided for the Region members, with the exception of the City of Virginia Beach, which operates its own system. Programs and facilities for managing yard waste, household hazardous waste, white goods, tires, and other special wastes will need to be developed.

FUNDAMENTAL VALUES EXPRESSED BY MEMBER COMMUNITIES

A critical element of this study was coordination with the Chief Administrative Officers from the local governments. SCS initially meet individually with each of the CAO's and their technical and/or administrative staff to discuss their expectations regarding this study and their perspectives regarding solid waste management in the Region now and in the future. These meetings were held to identify the perceived current strengths and weaknesses of the current solid waste management system, its governance, scope of services provided, financial structure, and operations. In addition, a series of five facilitation meetings were scheduled and held with the CAO's or their staff to discuss the project, interim and preliminary findings, conclusions, and recommendations (See Section 1.0).

SCS was especially interested in identifying key factors, values, and criteria (e.g., cost versus services, cost versus environmental protection and conservation) that each community would apply when deciding on how to manage its solid waste in the future, and where changes were needed to establish a better solid waste management system in the future. The results of these discussions with the CAOs and their respective staffs are summarized below:

- **Future Decision Drivers.** Half the community members interviewed indicated that they believe that cost will be the primary factor governing their community's decisions regarding future solid waste management plans, while the other half indicated that they would prefer a broad range of services at a "fair" or "reasonable" cost, and that costs be reported in a transparent manner.

- **Importance of Environmental Factors.** Everyone indicated that environmental factors are important, but most said that cost considerations likely will govern decisions.

- **Support for Recycling.** Conceptually all support recycling; however, practical cost considerations have limited certain programs.

- **Energy and Climate Change Issues.** Energy and climate change issues are not considered major factors in decision process, although they are a consideration.

- **Importance of a Comprehensive Solid Waste Management System**

  Most indicated support for a comprehensive solid waste management system. Some questioned whether waste-to-energy should be pursued in the future.

- **Acceptance of Out-of-Region Waste.** All indicated some reluctance toward accepting out-of-state waste, especially if landfill capacity is significantly reduced for disposal of Region's waste. Two communities were somewhat supportive if out-of-state waste goes to WTE to meet capacity needs.

- **Support for Flow Control**

  Six communities have voted support for flow control. Two communities have not taken action on the issue, but the issue is under consideration.

- **Support for a New Regional Landfill.** Most were uncertain about siting a new landfill in the Region, although all recognize that disposal capacity is important. Southampton was frequently identified as the most logical location for a new regional facility given land availability. Suffolk is not necessarily opposed to continuing to host regional landfill in the future.

- **Regional Cooperation.** All think regional cooperation makes sense, but with qualifications (e.g., “reasonable” costs, comprehensive services, acceptable governance and management structure). One comment was made that it does not make sense to cooperate for cooperation sake; there needs to be compelling financial, operational, and environmental reasons why cooperation is beneficial to all parties.

- **Suggestions for Future Cooperation**

  - Seven of the eight communities felt that the political structure of the SPSA board has its limitations given complex technical, environmental and financial issues facing SPSA. The general sense from the interviews was that political decisions have been made in the past that were not in the best interest of the Region. One example given was the almost yearly decision in the past to not significantly raise disposal rates to fully cover operational expenses because of the political pressures to keep rates down. The result was that additional debt was encumbered to meet operational expenses, which is one of the factors that have led to the current tip fee of $104 per ton.

  - One felt the current SPSA voting structure was reasonable and served Region well over the years.

  - Several felt more strategic planning was needed as well as better presentations of alternatives.

- Several felt that a different management structure was needed.
- All felt that debt must be managed differently in the future. The approach of deferring payment of principal for political expediency or borrowing to cover normal operating expenses is viewed as a poor management practice and should be disallowed under any new regional organization.
- A desire was expressed by several for more transparency in SPSA's decision making process.
- Several felt that SPSA needed to be more proactive and less reactive.
- Some felt that any new cooperative organization needed to have proportional representation on the governing board either as a function of population or waste delivered to the system. Others felt that the current Board representation of one vote per member did not need to be changed.
- Potential cooperative arrangement between smaller communities might make some sense, if an overall regional solution is not achieved.
- One suggested that a fixed value of the host fee for community "hosting" the new regional landfill be calculated upfront so that all parties understand the value of the "deal" and it is not continually renegotiated, as some feel it is now.
- Several expressed the desire that no special deals be cut, although there was a general realization that some give and take will likely be needed to accommodate and compensate a community hosting a new regional landfill, if such is sited and developed.

MISSION

SPSA's stated mission is to dispose of waste, and to accomplish this by disposing of waste in an environmentally-sensitive manner, minimizing damage for current and future generations and reusing waste whenever possible, turning it into a useful product. Its vision is to be the regional choice for full-service solid waste management. If the Region wishes to implement a comprehensive, integrated solid waste management system through SPSA or a new regional organization, the mission, vision, and funding approach of the organization should be integrated so they do not work at cross purposes, and the members should work together, versus independently, to accomplish the mission and vision through the organization. In addition, the fundamental services that the member communities wish to have a regional authority provide, versus what they wish to self provide will need to be decided. The advantages and disadvantages of various funding approaches and public, private, and quasi public/private ownership and contracting arrangements for providing various solid waste services are discussed in Sections 4.0 and 6.0 of the report.

If all members of the Region decide to cooperate beyond 2018, consideration should be given to bringing the ownership and control for all disposal assets currently owned and operated by the member communities (i.e., City of Virginia Beach Landfill No. 2 and City of Portsmouth LCID

Landfill) under the regional solid waste authority. Although the cost of transferring ownership of these assets is not specifically addressed in this report, this approach would allow for the maximum utilization of these resources by the Region and likely would reduce overall system costs (e.g., transportation costs). If such an approach were adopted, any future inter-local agreements would need to include conditional use approval for the various elements of the solid waste systems that may be implemented at the sites so that the host community would not be able to use the conditional use or site development approval process as a future negotiating tactic to delay or obstruct the intended use of the site for whatever reason.

ALTERNATIVES ANALYSIS

Section 5.0 presents the cooperative scenarios developed and evaluated for this study. The following cooperative scenarios were evaluated:

- **Scenario A.** This scenario assumes that all eight communities continue to cooperate on a consolidated basis to provide municipal recycling services and municipally and commercially collected solid waste disposal services for the Region. This scenario models a system similar to the current SPSA system, and assumes that all commercial waste would be delivered to the system. The major difference in the cost structure is that by 2018, the outstanding debt on the RDF WTE Facility will have been retired. The scenario considers the options of siting and developing a new Regional Landfill, operating the system with or without a WTE facility, contracting for disposal in an out-of-region landfill, expanding the WTE capacity, and totally replacing the existing RDF WTE with a 3,000 ton per day mass burn WTE Facility. This is the only scenario where expanded WTE capacity is evaluated.

- **Scenario B.** This scenario assumes that all eight communities cooperate on a consolidated basis to provide municipal recycling services and municipally collected solid waste disposal services only. In this scenario, commercial solid waste would be collected and disposed by private solid waste companies at private facilities. The CAO's requested that this scenario be evaluated to consider the cost implications if there is a reversal in the most recent flow control decision, which now provides government entities more control on the collection and disposal of solid waste in their region. As with Scenario A, this scenario considers the options of siting and developing a new Regional Landfill, operating the system with or without the RDF WTE Facility, and contracting for disposal in an out-of-region landfill.

- **Scenario C.** This scenario assumes that all eight communities independently provide for recycling and solid waste disposal services. This is basically the "everyone does their own thing" scenario. It assumes that the City of Virginia Beach will use its landfill until it reaches its current permitted capacity, and then would contract out for disposal in an out-of-region landfill. The remaining Cities and Counties in the Region would contract out for disposal in an out-of-region landfill. Under this scenario, the assumption is made that the RDF WTE Facility would be decommissioned. This scenario will need to be reevaluated once the terms of the proposals to sell the RDF WTE are disclosed. This scenario also assumes that

commercial solid waste would be delivered and managed by the respective City/County systems.

- **Scenario D.** This scenario assumes that the City of Franklin, Isle of Wight County, and Southampton County align (note: referred to as Rural Communities in the Pro Forma Model) on a consolidated basis to provide recycling services and commercially and municipally collected solid waste disposal services; and the Cities of Chesapeake, Norfolk, Portsmouth, Suffolk, and Virginia Beach align (note: referred to as Urban Communities in the Pro Forma Model) on a consolidated basis to provide the same services. For the Rural Communities, the assumption is made that disposal services would be contracted out, but the transfer stations would be operated by the aligned parties. For the Urban Communities, this scenario considers the options of siting and developing a new Regional Landfill, operating the system with or without the RDF WTE Facility, and contracting for disposal in an out-of-region landfill. This scenario also assumes that commercial solid waste would be delivered and managed by the respective City/County systems.

- **Scenario E.** This scenario assumes that the City of Virginia Beach independently provides for municipal recycling and municipally and commercially collected solid waste disposal services; and the other communities align on a consolidated basis to provide recycling and municipally and commercially collected solid waste disposal services. This scenario is similar to Scenario D, except that the City of Virginia Beach's waste stream is removed from the system. This scenario also assumes that commercial solid waste would be delivered and managed by the respective City/County systems.

A Pro Forma Model was developed to evaluate and compare the scenarios, taking into account operating expenses including personnel, equipment, capital, debt, transportation, and proposed host fees, and offsetting revenues associated with the operation of the existing RDF WTE Facility or a new Mass Burn WTE Facility. The results of the pro forma analyses are presented on a net present value (NPV) basis for comparison purposes. A "system rate" is also calculated and represents the total operating costs divided by the total waste managed, including recyclables and yard waste. The system rate basis should not be confused or compared to a landfill tip fee, since the system rate includes other cost factors that are not directly related to disposal.

For Scenario C, the costs for each community were estimated to independently manage their own solid waste program, assuming each would have its own solid waste staff, operate its own transfer station(s), contract for disposal (with the exception of the City of Virginia Beach initially), and manage recycling and other special wastes. SPSA maintains separate budgets for each transfer station in the region, and the respective transfer stations costs were allocated to each community accordingly. For the City of Virginia Beach, SCS assumed that the City would operate its own landfill until its currently permitted capacity is consumed.

Exhibit 1 and Exhibit 2 present the results of the pro forma analysis, sorted by Net Present Value (NPV), over the 30-year planning period. Exhibit 1 presents the results as a function of the 2008 and 2018 NPV of the series of costs over the 30-year planning period and as a normalized function of the NPV divided by the total solid waste managed during the planning period.

Exhibit 2 presents a series of summary bar charts for comparison purposes. The following general conclusions were reached as a result of the scenario evaluations:

- Siting a new landfill in the Region appears to be a significant factor in potentially reducing the overall costs to manage the Region's solid waste. The scenarios that assumed that a new landfill would be sited in the Region resulted in lower NPV costs compared to the scenarios that assumed the Region's solid waste would be transferred to and disposed of at an out-of-region landfill.

  - The Regional Landfill-only scenarios, with no WTE facilities, where it is assumed that a new landfill is sited and developed in the Region, resulted in the lowest NPV costs of all the scenarios.

  - For all the scenarios evaluated, transporting and disposing of the Region's waste at an out-of-region landfill resulted in significantly higher NPV costs compared to the scenarios that assumed a new Regional Landfill would be developed.

- If the Region elects to contract out for disposal (i.e., a new Regional Landfill is not sited), operating the system with the WTE RDF would be less expensive because of the substantial volume reduction that is achieved, resulting in fewer tons being transported and disposed.

  - For the scenarios that assumed a new landfill would be sited and developed in the Region, continuing the operation of the RDF WTE Facility resulted in 5 to 8 percent higher NPV costs compared to operating the system without the RDF WTE Facility.

  - For Scenarios A, B, and D, where it was assumed that solid waste would be disposed in an out-of-region landfill, 5 to 8 percent lower NPV costs resulted with the operation of the RDF WTE Facility, primarily due to the reduction in solid waste volumes requiring transport and disposal. For Scenario E, which assumes the City of Virginia Beach decides to manage its own solid waste system and the other members cooperate, thereby removing a significant portion of the waste stream from the regional system, the trend reverses and operating the WTE RDF resulted in 6 percent higher NPV costs.

- SCS evaluated the sensitivity of the pro forma analysis results by varying the assumed transportation rates, consumer price index (inflation) fuel adjustment escalation factors, the location and distance of a proposed new Regional Landfill, and the assumed tip fee for disposal in an out-of-region landfill. The results of this sensitivity analysis are presented in Section 5, Table 57 and indicate the following:

- The further a new regional landfill is located away from SPSA's current landfill, the more cost competitive the WTE and contracting-out disposal scenarios become.

- The contracting-out for disposal scenarios become more cost effective if significant discounts on a contracted tip fee can be negotiated, and a lower cost per ton-mile transfer rate is realized.

- Reducing the escalation factors generally favors the WTE scenarios, but the relative NPV ranking of the scenarios generally remains the same.

INSTITUTIONAL ANALYSIS AND RECOMMENDATIONS

SCS developed, screened, and analyzed alternative institutional models for regional solid waste management, including public, private or combination systems (See Section 4.0). This task included interviewing the CAO's of the Region to receive input on their ideas about potential alternatives for long-term management of the Region's solid waste, review of SPSA's organization and governance, a survey of other comparable solid waste authorities and organizations to document the institutional structure, services provided, unique challenges, and cost structures employed elsewhere. For the purposes of this project, SCS evaluated the following institutional models to identify the required organizational structure, staffing, cooperative agreements needed, and advantages and disadvantages of each:

- A new fully integrated, publicly owned and operated facility managed by a new regional authority.

- A fully integrated, publicly owned and operated facility managed by SPSA or some modified version of SPSA.

- A public/private partnership managed by a regional authority (SPSA or a new authority).

- Each municipality independently manages its own solid waste stream and develops contracts for collection, processing, and disposal services.

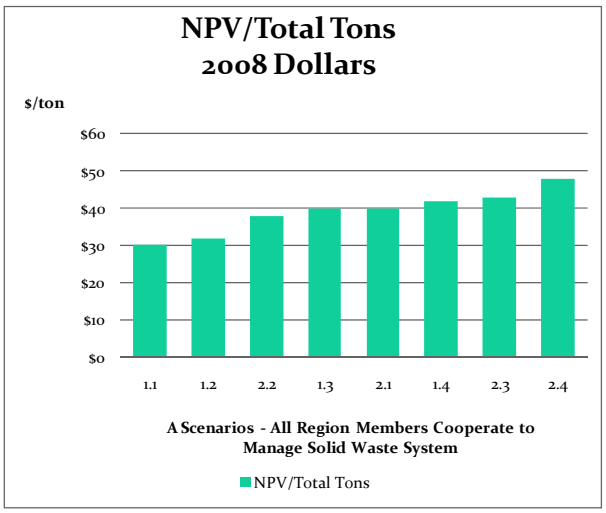
- Select municipalities agree to cooperate together to manage their solid waste and develop contracts for collection, processing, and disposal services.

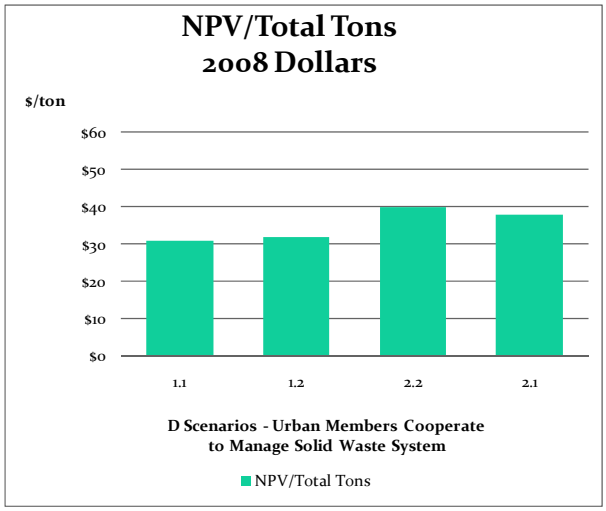
For the South Hampton Roads area, SPSA currently serves as the regional agency responsible for developing and implementing the regional solid waste plan for the eight participating cities and counties, and the Commonwealth has recognized the Region as a unit when evaluating the achievement of the various goals and objectives of its solid waste regulations. The Region's solid waste plan recognizes the division or responsibilities between SPSA, its regional members, and private enterprises for solid waste collection, recycling, transfer, resource recovery, and disposal.

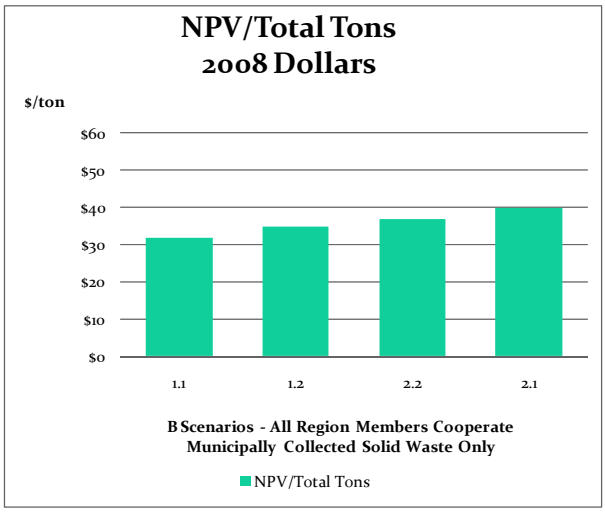
Exhibit 1. Summary Pro Forma Model Analysis
Sorted by NPV (Lowest to Highest)
Hampton Roads Planning District Commission
Solid Waste Study

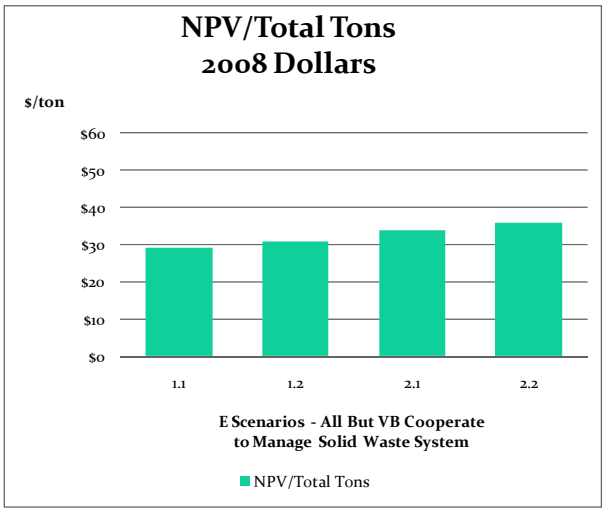
	Scenarios	NPV ($1000)2018 Dollars	NPV ($1000) 2008 Dollars	Total Tons 2018-2047	NPV/Total Tons 2008 Dollars ($/ton)	Estimated NPV Municipal Only 2008 Dollars	Municipal Tonnage 2018-2047	NPV/Muni Tons 2008 Dollars ($/ton)	First Year System Rate 2008 Dollars ($/ton)	First Year System Rate ($/ton) 2018 Dollars
A	**Communities Cooperate - All Waste**									
	1.1 New Regional Landfill, No WTE (All waste landfilled)	2,416,017	$1,483,225	49,370,050	$30	$781,149	21,297,990	$37	$43	$70
	1.2 New Regional Landfill, Maintain RDF WTE	2,564,812	$1,574,572	49,370,050	$32	$829,257	21,297,990	$39	$45	$73
	2.2 Contract Out Disposal, Maintain RDF WTE Facility	3,072,091	$1,885,997	49,370,050	$38	$993,271	21,297,990	$47	$48	$79
	1.3 New Regional Landfill, Maintain RDF WTE, New 2000 tpd WTE Facility	3,248,389	$1,994,229	49,370,050	$40	$1,050,272	21,297,990	$49	$67	$109
	2.1 Contract Out Disposal, No WTE	3,255,465	$1,998,573	49,370,050	$40	$1,052,560	21,297,990	$49	$52	$84
	1.4 New Regional Landfill, New 3000 tpd WTE Facility, Close RDF WTE	3,405,834	$2,090,887	49,370,050	$42	$1,101,178	21,297,990	$52	$75	$122
	2.3 Contract Out Disposal, Maintain RDF WTE Facility, New 2000 tpd WTE Facility	3,498,004	$2,147,471	49,370,050	$43	$1,130,978	21,297,990	$53	$68	$110
	2.4 Contract Out Disposal, New 3000 tpd WTE Facility	3,863,757	$2,372,012	49,370,050	$48	$1,249,234	21,297,990	$59	$79	$128
B	**Communiites Cooperate - Only Muncipal Waste**									
	1.1 New Regional Landfill, No WTE (All waste to Landfill)	1,319,069	$809,794	25,120,990	$32	$426,488	21,297,990	$20	$43	$70
	1.2 New Regional Landfill, Maintain RDF WTE Facility	1,431,201	$878,633	25,120,990	$35	$462,743	21,297,990	$22	$43	$70
	2.2 Contract Out Disposal, Maintain RDF WTE Facility	1,517,246	$931,457	25,120,990	$37	$490,563	21,297,990	$23	$48	$79
	2.1 Contract Out Disposal, No WTE	1,638,249	$1,005,743	25,120,990	$40	$529,687	21,297,990	$25	$52	$84
C	**Communities Go Separate Ways**									
	3.1 Contract Disposal of All Waste, with Exception of Virginia Beach									
	Chesapeake	564,920	$346,812	10,177,530	$34	$156,066	5,548,831	$28	$42	$68
	Franklin	35,772	$21,961	434,598	$51	$9,882	252,006	$39	$64	$105
	Isle of Wight	112,119	$68,832	1,929,978	$36	$30,974	1,115,163	$28	$47	$76
	Norfolk	541,022	$332,141	8,932,306	$37	$149,463	4,432,982	$34	$47	$76
	Portsmouth	237,462	$145,781	4,165,019	$35	$65,601	1,918,641	$34	$43	$70
	Southampton	77,519	$47,590	852,459	$56	$21,416	464,452	$46	$74	$120
	Suffolk	310,684	$190,733	6,562,844	$29	$85,830	4,031,667	$21	$36	$59
	Virginia Beach	1,019,348	$625,791	18,136,561	$35	$281,606	9,178,493	$31	$22	$36
D	**Various Cooperative Arrangements**									
	1.1 Rural Members Contract: Urban Members New Regional Landfill, No WTE									
	Rural, Contract Out Disposal	163,128	$100,146	3,157,584	$32	$45,066	1,831,621	$25	$41	$66
	Urban, New Regional landfill, No WTE	2,305,407	$1,415,320	46,170,166	$31	$636,894	23,306,514	$27	$44	$72
	1.2 Rural Members Contract: Urban Members New Regional Landfill, RDF WTE									
	Rural, Contract Out Disposal	163,128	$100,146	3,157,584	$32	$45,066	1,831,621	$25	$41	$66
	Urban, New Regional landfill, RDF WTE	2,416,794	$1,483,702	46,170,166	$32	$667,666	23,306,514	$29	$48	$79
	2.1 Rural Members Contract: Urban Members Contract									
	Rural, Contract Out Disposal	163,128	$100,146	3,157,584	$32	$45,066	1,831,621	$25	$41	$66
	Urban, No RDF WTE, Contract Out Disposal	3,006,809	$1,845,920	46,170,166	$40	$830,664	23,306,514	$36	$50	$82
	2.2 Rural Members Contract: Urban Members Contract									
	Rural, Contract Out Disposal	163,128	$100,146	3,157,584	$32	$45,066	1,831,621	$25	$41	$66
	Urban, RDF WTE, Contract Out Disposal	2,870,358	$1,762,151	46,170,166	$38	$792,968	23,306,514	$34	$48	$79
E	**Virginia Beach Manages Own Waste, Other Communities Align**									
	1.1 Other Communities New Regional Landfill , No WTE	1,553,623	$953,790	33,037,723	$29	$429,206	17,763,742	$24	$585,544	$953,790
	1.2 Other Communities New Regional Landfill, RDF WTE	1,660,658	$1,019,500	33,037,723	$31	$458,775	17,763,742	$26	$625,885	$1,019,500
	2.1 Other Communities Contract Disposal, No WTE	1,825,933	$1,120,964	33,037,723	$34	$504,434	17,763,742	$28	$688,175	$1,120,964
	2.2 Other Communities Contract Disposal, RDF WTE	1,932,344	$1,186,291	33,037,723	$36	$533,831	17,763,742	$30	$728,280	$1,186,291

Mjunicipal only allocation assumes municipal waste is 49% of total waste stream
Conversion Factor, PV of future value 10 years into future = 0.69391









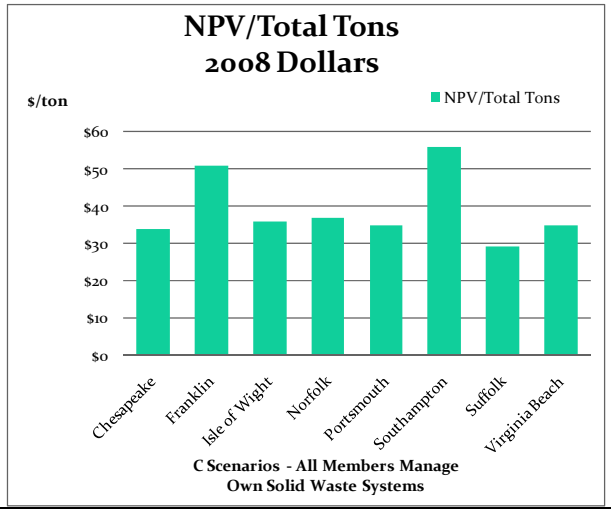
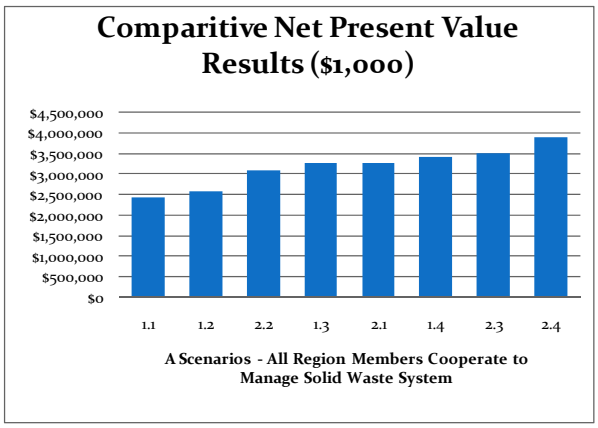
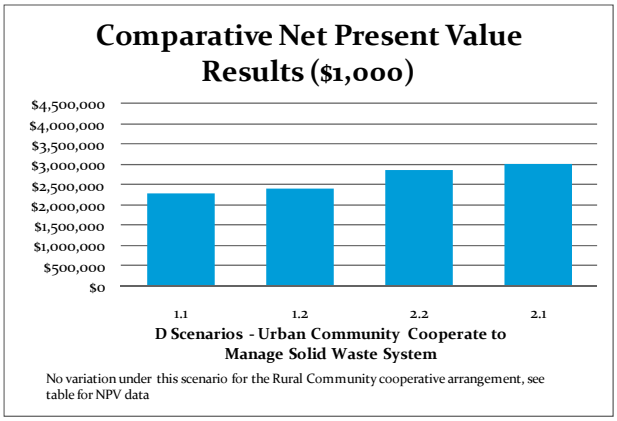
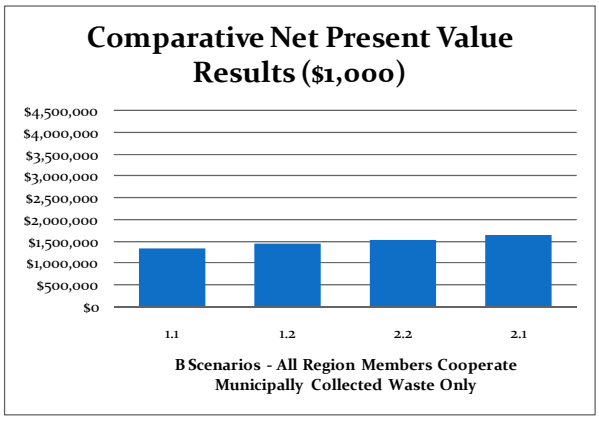
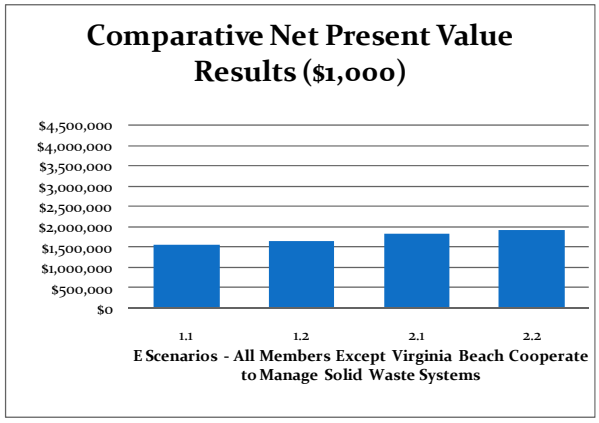


Exhibit 2. Pro Forma Model Results Scenario Comparisons









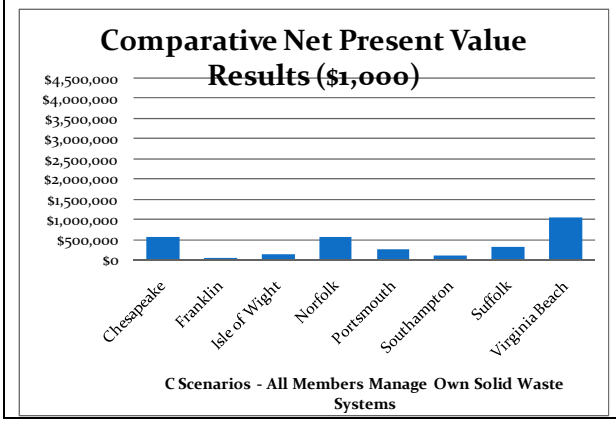


Exhibit 2 (continued)

Significant changes to the current plan and organization and function of SPSA will be required if the RDF WTE or Regional Landfill facilities are sold, if flow control is not implemented in the Region, or if the current members of SPSA do not agree to cooperate together after 2018. Administratively, if the agreements between the member communities and SPSA are not renewed or replaced after 2018, each will be responsible for developing and implementing integrated solid waste plans for their respective communities that meet the Virginia Waste Management Board's requirements.

If the Region elects to continue cooperating to manage its solid waste, SCS recommends that SPSA continue to function, with modifications, for the following reasons:

- SPSA is a well-established authority that manages municipal solid waste for the South Hampton Roads Region. First, participants in this planning process should consider whether the Region is better and more cost-effectively served through continuation of SPSA. A few points for consideration:

  - Future cooperation of SPSA's member communities may allow for more efficient development and operation of the various solid waste facilities needed to recycle, transfer, process, convert, and dispose of the Region's solid waste as a result of economies of scale. This assumption is more fully evaluated in Section 5 of this report.

  - The personnel, facility, and organizational infrastructure exists to support its continued operation into the future with appropriate modifications as recommended.

  - The shortcomings of SPSA's current structure and management that have been expressed by the member communities are resolvable.

- As demonstrated by other solid waste authorities operating around the country, SPSA can be operated and administered in a cost-effective manner to serve the solid waste needs of its member communities either through development of facilities and operations owned and operated by the Authority or through contracted services.

- Concerns regarding SPSA's current debt management and the ability of the Authority to obtain future financing exist with some members. Deciding to maintain SPSA after 2018 may allow the authority to obtain financing in order to construct new facilities or upgrade existing solid waste facilities.

- The SPSA member communities have substantial capital invested in waste-to-energy facilities, recycling facilities, a regional landfill, transfer stations, rolling stock, administration buildings, maintenance facilities, and other support facilities. Many of these facilities will have not reached their useful life by 2018 and could serve the Region well into the future. Many of these support facilities (e.g., transfer stations) will be needed to support the safe and efficient transport of solid waste, regardless of how it is processed and ultimately disposed. The maximum utility of these capital investments should be sought.

- The current members of SPSA will have joint obligations beyond 2018 (e.g., closure and post-closure care of the regional landfill); therefore, some degree of future cooperation will continue.

- For the Region as a whole, including municipal, institutional, and commercial sectors, Regional cooperation could provide significant reduction in costs through the siting of a new Regional Landfill. This significant cost-control advantage would be lost if the Region does not cooperate. Retaining the ability to cost-effectively site a new Regional Landfill would be useful factor in negotiating beneficial terms for short or long-term transportation and disposal contracts for the waste streams that are under the direct control of the regional governments.

- Regional cooperation would make it easier to achieve the integrated solid waste management requirements and goals of the Virginia Waste Management Board. The size, organization, and responsibilities of the Regional Authority would depend on the assets it would be required to manage (e.g., landfill, transfer station, or RDF WTE facilities), and the services requested by its members (e.g., collection, recycling, yard waste, household hazardous wastes).

- Future cooperation of the Region's members will allow for more efficient development and operation of the large-scale solid waste facilities needed to recycle, transfer, process, convert, and dispose of the Region's solid waste as a result of economies of scale, regardless of whether the Regional Authority handles municipally collected waste only or provides services for commercially collected solid waste as well. Maintaining a Regional Authority to provide for transfer, recycling, and disposal services is a logical approach to managing the Region's solid waste either through development of facilities and operations owned and operated by the Authority or through contracted services.

At a minimum, Chesapeake, Franklin, Isle of Wight, Norfolk, Suffolk, Portsmouth, and Southampton County likely will not have their own municipal solid waste landfills; therefore, these communities will need to contract for or otherwise provide for transportation and disposal of municipally collected waste, and assure that a reasonable plan is in place to manage commercially collected solid waste. In the short term and potentially in the long-term, the City of Virginia Beach has capacity to dispose of municipally collected waste in its Landfill No. 2 and has indicated that it would rely on the private sector for residential recycling services and for the collection and disposal of commercially collected waste in out-of-region disposal facilities. Therefore, if the City of Virginia Beach elected to manage its own waste, Chesapeake, Franklin, Isle of Wight, Norfolk, Suffolk, Portsmouth, and Southampton County could still realize the above mentioned advantages of regional cooperation through leveraging their buying power, siting a new landfill, or maintaining the leverage of potentially siting a new Regional Landfill Facility in the event that contracted disposal costs become too high.

Finally, a minor procedural issue embodied in the Virginia Water and Waste Authorities Act also supports continuation of SPSA versus development of a new authority. For a new authority to form, member localities and the new authority will be required to make the determination under

§ 15.2-5121 of the Act (four findings) that formation of the new authority will not result in displacement of private companies. SPSA currently is exempt from this requirement.

The future organizational structure and size of SPSA will dependent on whether it continues to operate the RDF WTE Facility and a Regional Landfill. If the RDF WTE Facility is sold, substantial changes in the organization will result in terms of its responsibilities and the number of administrative, technical, operational, and support personnel employed by SPSA. Likewise, if a new Regional Landfill is not sited and operated by SPSA, similar changes would occur. SPSA would most likely then operate similar to the Virginia Peninsula Public Services Authority (VPPSA), which serves its communities by contracting for various recycling, transfer, and disposal services, and consideration could be given to merging SPSA's operations with VPPSA.

The report presents the recommended changes to SPSA's administrative and governance structures (namely, the number of members on the Board of Directors and their respective qualifications), debt management, and mission assuming it maintains its autonomy. SCS recommends that high-level collaboration and representation by all affected jurisdictions within SPSA regarding management structure occur both before and after the use and support agreements expire or are renewed.

SYSTEM FUNDING

The following funding approaches were considered to support a Regional solid waste system:

- Tip Fee
- Waste Generation Fee
- Pay-As-You-Throw (PAYT)
- General Fund Tax (Ad Valorem)

The advantages and disadvantages of each were evaluated the body of the report.

SCS recommends that the Region consider implementing a residential only or a combined residential/commercial waste generator fee system (commonly referred to as a special assessment) to fund the solid waste system in lieu of the current tip fee-based system. We understand that this approach has been considered in the past by the Region, but that a consensus agreement on its efficacy has never been reached. A waste generator fee system more fairly allocates system costs based on the mission and objectives that have been established by the Region for managing its solid waste. It provides a reliable funding source, which has multiple benefits including positive cash flow, improved bonding capacity and ratings, and lower financing costs. A system funded by a waste generation fee would better support the mission of a comprehensive Regional solid waste management approach, such that the focus would be more on doing the right thing rather than figuring out a way to increase waste flows to support the system costs. This approach has been successfully implemented elsewhere.

SPSA currently establishes the tip fee for the year, based on the quantity of waste delivered, and each member then calculates what their respective charges will be for their residential customers and distributes those estimated charges through their respective ad valorem tax systems. The current approach only covers the residential customers that receive municipal collection services.

Commercial customers pay the tip fee directly to SPSA through their collection contractors. The tip fee funding approach, which has waste disposed as the denominator, can result in actions that can be at cross purposes with resource conservation and recovery (e.g., recycling), because if waste is diverted from the system, revenues are reduced, and so the focus is on securing and increasing waste flow into the system versus resource conservation and recovery.

A system funded by a waste generation fee would better support the mission of a comprehensive Regional solid waste management approach, such that the focus would be more on doing the right thing rather than figuring out a way to increase waste flows to support the system costs. This approach has been successfully implemented elsewhere as discussed in Section 4.0. SCS recommends that further evaluation of this funding approach be studied to assess the feasibility of implementing it in the Region.

NEXT STEPS

The recommendations outlined in this report will require a series of political, administrative, and technical actions by the Region. The following action plan is proposed to facilitate the transition from the existing use and service agreements to a set of new agreements. A schedule outlining the basic elements of the action plan is presented in Section 6, Figure 15.

- **Secure Future Disposal Capacity.** As indicated above, the development of a new Regional Landfill is important to reducing overall costs for disposal in the Region. The implementation schedule demonstrates that meeting a January 2018 deadline for siting, designing, permitting, and constructing a new Regional Landfill will be difficult. However, conservative assumptions were used throughout to provide time for regulatory review and public involvement, which can be more or less depending on specific circumstances. The conclusion is that time is of the essence.

  - SPSA should aggressively evaluate all potential expansion alternatives for the existing Regional Landfill to extend the capacity and life expectancy of the facility beyond 2018.

  - The Region, through SPSA, should immediately conduct a siting study to identify whether a suitable site can be found in the Region to site a new regional landfill. The study should build off the previous siting studies that have been conducted. SCS understands that the SPSA Board has already approved moving forward with this task. SCS recommends that it proceed on an expedited basis. Siting, acquiring, permitting, and constructing a new facility can take up to ten years to complete.

  - At the same time that a siting study is being conducted, the Region should continue to discuss with the private sector whether they can provide long-term disposal capacity for the Region on a cost-effective basis. One option to consider would be issuing a request for proposals for the private sector to site and develop a new regional landfill, with the provision that the successful proposer would be given the life of site operational contract. This approach was successfully used by the City of Jacksonville, Florida in the 1990s. In this case, three private

companies competed to permit a new facility. The City ultimately selected one company which they felt identified the most advantageous site, and the company proceeded with permitting, design, and construction. The successful company was successful was given a life-of-site contract to operate the facility.

- **CAO , City, and County Government Actions**

  - Develop consensus of findings and conclusions of the HRPDC study by the CAOs.

  - Present the findings and conclusions of the study to the respective member City Councils and County Supervisors.

  - Hold public meetings to present findings and recommendations to the community at large. (Note: The presentations to the City Councils and County Commissions may serve this function).

  - If consensus of findings and conclusions from study is to form a new or reconstituted Regional Authority, legal counsel should be sought to develop the necessary legal framework to address the institutional and management recommendations presented in this report. This would include the development of new use and service agreements, and any necessary supplemental agreements to address special circumstances with a respect to location of any new solid waste facilities and respective potential host fees.

  - Hold meetings with the CAOs to reach agreement on the basic framework of a new or reconstituted Regional Authority.

  - Present use and service agreements to the respective County and City governing bodies.

- **Fate of the RDF WTE Facility**. The results of this study should be re-evaluated if SPSA decides to sell the RDF WTE Facility or any other key disposal assets.

- **Existing Facility Condition and Use Beyond 2018.** SCS understands that SPSA is conducting an internal study assessing the condition and use of its existing transfer station network and the landfill. SCS also recommends that a similar study be done for the RDF WTE Facility (assuming SPSA retains ownership and operation) to identify specific action items that should be implemented to upgrade the facilities so that they can continue to serve the Region during the 30-year planning horizon.