

MOORE

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## **Two Carts are Smart**

### **Authors of the White Paper**

Moore & Associates, a recycling consulting company, presents the subject evaluation in this White Paper. Founded in 1995, Moore & Associates has provided strategic services and market research for clients in recycling, solid waste, paper, packaging, and related sectors on a global basis for over 30 years. The company has served more than 500 clients in over 750 engagements, growing to become the largest provider of strategic analysis for the paper recycling sector. The two primary authors' biographies appear at the end of this paper.

### **Statement of Support**

The purpose of this paper is to highlight the benefits of retaining a two-cart collection system and supporting the shared vision of Southeastern Public Service Authority (SPSA) and AMP Robotics Corporation and its affiliate, Commonwealth Sortation, LLC. Working together will maximize landfill diversion through a combination of single-stream recycling collection and mixed waste processing (MWP).

### **Background on SPSA**

#### **Description and History**

SPSA is a regional organization made up of eight communities from Southeastern Virginia established in 1976. The purpose of SPSA was to improve efficiency by moving solid waste disposal and resource recovery from individual communities to a regional authority. Private sector commercial waste is also delivered to SPSA.

**Member Communities:** Cities of Norfolk, Virginia Beach, Chesapeake, Suffolk, Franklin, Portsmouth, and Isle of Wight & Southampton Counties.

#### **Status of the Current Two-Cart System for Recycling in the SPSA Communities**

Three SPSA communities currently have a two-cart system operating under individual contracts by TFC Recycling. The cities of Norfolk, Virginia Beach, and Suffolk continue to separate recyclables from municipal solid waste (MSW) through the two-cart system. Resident surveys from these cities continue to reinforce the value of recycling.

The City of Chesapeake discontinued a popular two-cart recycling service in 2023, and attempted several

unsuccessful alternative programs, before moving to the new AMP mixed waste processing one-cart program.

Portsmouth still uses a two-cart system, but one truck collects both carts together, resulting in mixed MSW. Their material is reportedly being shipped to the AMP pilot plant facility in Portsmouth.

The three remaining SPSA member communities are Franklin, Southampton County, and Isle of Wight County. All three are small rural areas without a two-cart collection system.

**SPSA’s Plan for Managing MSW and Recycling Going Forward**

SPSA’s twenty-year contract with AMP specifies that AMP receives, sorts, and processes acceptable material at their sortation facilities. As a result of sorting and processing, AMP plans to recover, market, sell, transport and/or dispose of recovered recyclables and organic material. All remaining separated biochar-eligible material will be transported to a biochar facility

AMP would receive residential MSW mixed with recyclable materials in one cart. The material would be delivered to one of their two locations where various technological processes would attempt to separate recyclables and organics from MSW. The SPSA/AMP contract guarantees a diversion rate of 50%. This is broken down into a minimum of 20% recyclables and 30% organics.

<u>Planned Processing Locations</u>	<u>Initial Capacity</u>	<u>Target Capacity in Tons</u>	<u>Full Capacity</u>
Frederick Sortation Facility-Pilot Project Portsmouth	30,000 tons/year	Ramp up to 108,000	7-01-26
Victory Sortation Facility, Portsmouth	100,000 tons/year	Ramp up to 432,000	Early 2029
Victory Biochar Sortation Facility	Opening in 3 years	Maximum 300,000	Early 2029

**Landfilling to Increase in the Meantime?**

The volume of Chesapeake and Portsmouth MSW exceeds current AMP capacity. The Frederick Sortation Facility is contracted to process 30,000 tons/year until July 1, 2026. The Victory Sortation Facility will be built in four 108,000-ton MWP capacity phases over three years. Continuing the two-cart recycling system will reduce landfill volume during this timeframe and beyond. The most probable solution to overcapacity is landfill.

**Status of Contract with AMP**

“The Waste Supply and Services Agreement” between SPSA and AMP was signed November 20, 2025 by Commonwealth Sortation LLC’s CEO, Tim Stuart, and SPSA’s Executive Director, Dennis Bagley.

**Future Benchmarks for Contract with AMP**

**Permits:** “Contractor shall apply for, obtain and maintain all permits (excluding SPSA permits) necessary for start-up and operation. Permit complete applications shall be submitted to the relevant government authorities within six (6) months (May 20, 2026) following the contract date.”

**Offtake Agreement(s) for Biochar:** “Contractor shall deliver to SPSA the fully executed offtake agreement(s) no later than eight months (8) following the contract date (July 20, 2026).”

**Financing:** “Contractor shall finance each project in accordance with the requirements of contract sections. All proposed financing shall be approved by SPSA no later than 15 days prior to the proposed date of action.”

### **The Two-Cart System is Compatible with AMP’s MWP System**

Recycling is the best way to manage solid waste. A separate cart for clean and dry recyclables is the most effective way to recycle and serve a community. In a national webinar held on April 13 by AMP and SPSA (“A New Approach to MSW Diversion: Inside U.S. Largest Recycling Project”), when asked about the acceptance of the Two-cart system with the planned MWP system:

- “Does SPSA intend to continue to expand traditional curbside recycling or organic programs in addition to the MSW?”
- Dennis Bagley’s answer: “We based our contracts on the amount of waste and types of waste that was coming to our transfer stations after curbside recycling programs. If a locality wants to continue curbside recycling at the prices they are paying now, they certainly can and it doesn’t impact this project at all.”

### **Curbside Recycling has a Successful Track Record Throughout the U.S. & the SPSA Communities**

The two-cart curbside recycling method has proven itself throughout the United States. Curbside recycling started in Hampton Roads in the 1980s and has progressed from small bins to large recycling carts collected with automation. Today, two-cart curbside recycling has expanded across America, and it is the most efficient and effective way to collect recyclables.

A survey done in 2023 and 2024 by the cities of Norfolk and Virginia Beach, respectively, residents showed strong support for curbside recycling. Virginia Beach is the largest city in SPSA, accounting for almost 40% of its residents. When asked the following two questions on curbside recycling the Virginia Beach survey results were:

- Question: “How important do you think it is to have curbside recycling services as part of Virginia Beach waste management services?”
- Answer: 91% of the almost 10,000 respondents rated it as either “essential” or “important.”
- Question: “If you selected an option of increased fees for curbside recycling collection, what total amount would you be able to pay for the convenience of curbside recycling collection?”
- Answer: 75% of the respondents were willing to pay between \$1 and \$10 a month to have curbside recycling.

Residents in areas that have curbside recycling feel that it is a ‘hands on’ approach to environmental improvement that they participate in themselves.

### **Improving the Current Two-Cart Recycling System**

There are three keys to the most successful curbside recycling program:

- Make it simple
- Provide a good level of community education
- Incentivize residents to recycle

A simple program uses two-carts and has a well-defined, reasonable set of recyclables.

Good community education seems straightforward, but an adequate level of contact with residents is often lacking. The biggest problem in many recycling programs is “Wish-cycling,” the well-intentioned, but unfounded belief that non-recyclables are recyclable. Good public education can reduce this. The Hampton Roads Planning District Commission (HRPDC) initiated a campaign providing information on how to “Start Smart and Recycle Right,” a pivotal part of TFC’s broader call-to-action campaign urging residents to properly separate their recyclables from all other materials. This valuable effort improved recycling efforts and resulted in cleaner recycling streams.

Disposal costs increase when people put more waste into trash carts, but curbside recycling costs do not increase when people recycle more.

### **Two-Cart Curbside Recycling Alongside AMP’s MWP System Will Produce the Maximum Amount of Landfill Diversion Possible**

With two-cart curbside recycling and AMP’s MWP system, the overall recycling rate would be **45%**. Recycling, plus the organics diversion to biochar in the MWP system, could potentially divert 70% of the waste stream.

### **Recycling Rate Potential of the Two-Cart System**

The state of Virginia has two recycling mandates: 15% for regions with less than 100 people per square mile and 25% for all other solid waste planning units.

The communities within SPSA have been under-performing in curbside recycling collection due to a combination of partial community curbside collection participation, lack of consistent community recycling promotion and education, and lack of incentives. For SPSA communities that offer two-carts, there is the potential to collect 30% from the residential waste stream with a fresh approach.

Note: The U.S. EPA MSW Composition Report dated 2018 states the following national average for recycling percentages of MSW: Paper 23%, plastics 12%, metal 8.76%, & glass 4%.

Note: The Recycling Partnership 2024 report states that Virginia’s average residential recycling rate statewide is 15%. See: [www.recyclingpartnership.org/residential-recycling-report/](http://www.recyclingpartnership.org/residential-recycling-report/).

The 2023 SPSA “Waste Characterization Study” by SCS Engineers lists significant quantities of paper,

plastics, glass, and metal found in their “residential” sampling studies in the Landstown Transfer Station and the Chesapeake Transfer Station. This study shows there is significantly more material which could be recycled at the curbside.

<b>Transfer Station</b>	<b>Paper Fiber</b>	<b>Plastics</b>	<b>Metal/Glass</b>	<b>Total</b>
Landstown (Virginia Beach)	15.6%	5.7%	6.5%	27.8%
Chesapeake	18.5%	5.6%	7.9%	32.0%

A number of cities across the U.S. are good models for reaching recycling goals and even reducing landfill solid waste.

Seattle: Seattle Public Utilities

<https://atyourservice.seattle.gov/2025/11/06/seattles-new-waste-metrics-measuring-what-matters-most/>

Recycling Envy: Ten American Cities with Excellent Practices, by Becca Brewer 4-21-25

[www.bustedcubicle.com/outside/top-american-cities-recycling](http://www.bustedcubicle.com/outside/top-american-cities-recycling)

Combining two-cart recycling collection with the AMP MWP system would produce the highest possible recycling rate and greatest landfill diversion.

### **The Two-Cart System Produces More Marketable Commodities**

Even if they can be separated from the mixed MSW, by AMP’s own admission in their YouTube video of the Portsmouth operations, the paper and cardboard recovered will be soiled (<https://www.youtube.com/watch?v=UM-jjEVRPsc> at 1:20). No paper processing plant will accept soiled recovered paper. The recovered paper grades captured and recycled in the curbside recycling two-cart system will be made into biochar in AMP’s MWP system. Currently, the two-cart system produces about 45,000 tons per year of saleable recovered paper. If each SPSA community ran a state-of-the-art, two-cart curbside recycling program, they would have the potential to collect over 100,000 tons per year of marketable recovered paper.

\*Based on EPA MSW Average Residential Composition data- Paper 23% (of 540,000 tons)

Mixed paper, which is recovered as a paper grade in the two-cart system, will largely be made into biochar in the MWP system. The two-cart system recycles glass, which would not be recovered in the MWP process and as a result, disposed of as residue OCC recovered in the AMP system is estimated to be the cleanest 20% of the volume processed (as listed in the contract- Schedule 8, Recovered Recyclables). The two-cart system recycles OCC at nearly 100%.

It is possible that recovered plastics from an MWP system will also be contaminated and will not be saleable at the best price. Most MWP systems can successfully recover steel cans, and sometimes, aluminum beverage cans, but their usability and value may be reduced because of contamination.

### **Retaining the Two-Cart System Will Allow Communities to Meet Its Recycling Goals if the MWP System Does Not**

If the MWP system does not meet its recycling goals, retaining and expanding the two-cart system will allow SPSA communities to continue meeting their goals. Each additional ton of material recycled in the two-cart

system contributes to landfill diversion.

### **Retaining the Two-Cart System Will Preserve the Paper Export Business to the Port of Norfolk**

Recovered paper exports from Norfolk are an important business to the container port. Port shipment volumes are measured in twenty-foot equivalent units (TEUs). Approximately 95% of paper recovered from the current two-cart curbside program is exported. A strong curbside recycling program covering all of the SPSA communities could produce more than 3,700 TEUs of business for the port.

The MWP processing system will produce less marketable OCC and RMP that are currently exported.

### **Conclusions**

Moore & Associates believes retaining and expanding the two-cart curbside recycling system is a good idea for SPSA and should be retained by SPSA communities even after moving to the AMP system for the following reasons:

- The two-cart system is compatible with the one-cart MWP system and increases landfill diversion
- Three SPSA member communities have the recycling equipment and processes in place. More can be easily added
- Curbside recycling is sustainable and has a proven success track record throughout the U.S.
- Citizens have a very positive reaction to participating in curbside recycling
- The one cart system alone will lose valuable recyclables
- Landfill volume increases until the AMP-CS processing plants reach full capacity
- Retaining the two-cart system will allow SPSA communities to meet their recycling goals if the MWP system does not meet its recycling goals
- The port of Norfolk will retain shipping significant amounts of recovered paper to export markets
- Recyclables are commodities that must meet rigid quality specifications, which curbside recycling can achieve
- Communities should continue the system until AMP's full capacity is reached and proof of concept is confirmed long term

**Two Carts are Smart... a proven, trusted, and safe recycling solution.**

**Biographies of Moore & Associates Authors of this White Paper**

**William Moore**

William Moore is president of Moore & Associates, an international consulting firm that provides a range of strategic services and research to global recycling organizations. The description of the full range of services and background for Moore & Associates can be found on the company's web site at [www.MARecycle.com](http://www.MARecycle.com).

He has had a fifty-year career as an environmental business professional. Prior to establishing his own consulting firm, he held a series of positions in the chemical, solid waste, paper, and recycling industries. This included Director of Recycling for Waste Management, Inc., where he was responsible for the startup of the "Recycle America" program, the largest introduction of recycling services in the United States. Earlier in his career, he was a hazardous and groundwater waste expert and was at the forefront of the US manufacturing industry's move for waste reduction through process optimization. His unique knowledge base includes all aspects of the global supply and demand of recovered paper, where he is currently considered the leading expert. Details on his consulting project experience can be found at [www.MARecycle.com/past-projects/](http://www.MARecycle.com/past-projects/).

He is sought after as a speaker throughout the world on subjects related to global recycling and the business side of environmental issues. He is highly published in the recycling field, having authored more than fifty articles over the last thirty-five years. A list of his publications can be found at [www.MARecycle.com/articles/](http://www.MARecycle.com/articles/)

**Dan Gee**

Dan Gee is president of Recovered Paper Consulting, LLC and has been working in the paper recycling industry for thirty-one years. His experience includes working for the Weyerhaeuser Company (20 years), International Paper (8 years), and as a self-employed recovered paper consultant since the beginning of 2017.

During the past nine years as Moore & Associate's senior associate he has completed over 90 projects working with Bill Moore. Dan Gee has a diverse geographic knowledge of the U.S. paper and recycling industry having worked based in Charlotte, NC, Seattle, WA, and currently in the San Francisco, CA bay area. Throughout his career he has toured over 100 paper mills throughout the U.S., China, Canada, and Mexico. Moore & Associates continually works with many key leaders in the recovered paper business, including the mills that are market buyers, integrated mills with recycling divisions, independent producers/brokers, and solid waste management company recycling operations.

In the past two years, Dan has led two EPR projects for Moore & Associate's client, Circular Action Alliance, evaluating responsible end markets (REM) pertaining to Oregon, California, and Colorado legislation.