Consulting Services for the Preparation of a Regional Solid Waste and Recycling Master Plan

Bid Number: 5942001

March 1, 2024

Solid Waste Disposal and Recyclable Materials Processing Authority of Broward County

RIGHT
Team • Schedule • Solution
SCS ENGINEERS

March 1, 2024

Ms. Harmoni Clealand, Purchasing Agent Senior
Solid Waste Disposal and Recyclable Materials
Processing Authority of Broward County
Governmental Center, Suite 122
115 South Andrews Avenue
Fort Lauderdale, Florida 33301

Subject: Solicitation 5942001
Consulting Services for the Preparation of a Regional Solid Waste and Recycling Master Plan

Dear Ms. Clealand and Members of the Solid Waste Disposal and Recyclable Materials Processing Authority of Broward County, Florida Governing Board,

SCS Engineers (SCS) is pleased to submit our proposal to provide Consulting Services for the Preparation of a Solid Waste and Recycling Master Plan (Master Pan) for the Solid Waste Disposal and Recyclable Materials Processing Authority of Broward County, Florida (Authority). For the past 25+ years the SCS Team [SCS, Arcadis U.S., Inc. (Arcadis), Resource Recycling Systems (RRS), and Mercury] has been assisting Broward County (County) and many of the municipalities that comprise the Authority with sustainable solid waste management solutions, and we are excited for the opportunity to continue to support in your next steps: the development of the Master Plan which will serve as a roadmap for the system you will create as an Authority. Projects have ranged from solid waste to diversion and recovery supply and management chains, operations monitoring, and process improvements as advisors and large contract vendors with local presence. It is important for you to select a team that not only provides sustainable management services for your zero waste-themed Master Plan, but also is a team you can turn to for consultation support because they understand how to plan for a sustainable solid waste and recyclables management system that will meet the needs of the Authority for generations.

We will apply our expertise, which is informed by decades of experience and our past and current engagements with the County, Solid Waste Working Group, and the Authority, to provide the technical basis and recommendations for policy decisions that will result in a sustainable integrated solid waste management system that exceeds Florida's 75% recycling goal. Additionally, we understand that the Master Plan needs to be transparent, innovative, risk-mitigated, environmentally sustainable, and economically efficient in its approach to community engagement, waste reduction, reuse, recycling, and end-of-life management of the wastes generated within the County. The SCS Team offers the following benefits to the Authority:

Right Team. Right Schedule

The SCS Team has more **knowledge of and experience with the County's and Cities' solid waste history and planning goals than all of our competitors combined, which makes us the right team for this project that can "hit the ground running" and meet the schedule identified by the Authority.**

- The SCS Team has worked with the County providing solid waste consulting services for 25+ years. We bring historical and technical knowledge that is unequaled by our competitors. Our knowledge of your history, past issues, and future goals will allow us to streamline our services and eliminate any learning curve.
- Key members from the SCS Team were deeply invested and heavily involved with past County solid waste planning and management efforts. More recently, members of the SCS Team have provided consulting guidance, waste composition, generation, and rate studies, reports, and other planning initiatives that helped shape the County's solid waste path that has resulted in this opportunity to support the creation of a regional solid waste and recycling system. This knowledge provides us insight into what has worked for the County in the past and why certain options were avoided during previous plans, providing a historical foundation as we chart an optimal path forward for the Authority.

Right Solution

The SCS Team has a **proven track record of successful comparable projects that when aligned with the Authority's needs, will inform an approach that reflects a best-value solution. We are the right team.**

- The SCS Team has provided comprehensive consulting services including zero waste-focused solid waste planning for a combined 38 counties in Florida and numerous others nationally. This successful experience for so many different clients gives us unique insights into what works in solid waste planning. It will help us craft a comprehensive and realistic plan tailored to your needs.
- Collectively, the SCS Team brings to the Authority the best in class in solid waste management strategic planning, and problem-solving, with our core leadership located in or near the County on a day-to-day basis. We have a proven history of working side by side on some of the most challenging solid waste projects in the State of Florida, for clients such as the County, Miami-Dade County, Palm Beach County, Collier County, Manatee County, the City of Coconut Creek, the City of Deerfield Beach, the City of Hallandale Beach, the City of Oakland Park, Lauderdale by the Sea, and Southwest Ranches.

Our Commitment

Related to our ability to deliver superior technical services, is how we will engage with you as helping our clients achieve success is one of our core values. This includes proactive project management, controlling costs, and enabling you to realize your business objectives through our advice and services. Below are **key elements the SCS Team embraces as your "trusted advisor" while delivering our professional services**:

- **We understand and embrace your vision.** We are committed to developing an inclusive and transparent Master Plan that engages with the Authority's stakeholders, including continuing to deliver the outcomes you and your citizens expect as our team members have done over the

past 25+ years. We will continue to take the time to confirm our understanding of your goals and what constitutes success to you while working diligently towards achieving those results.

- **We will benchmark your service expectations in advance.** With that baseline, we schedule regular check-ins and affirm how you want to be served. We will solicit regular feedback throughout the life of the contract to ensure we are consistently exceeding your expectations.
- **We will do what we promise.** Trustworthiness is another one of our core values. We carefully assess and plan our work and do not promise what we cannot deliver.
- **We will communicate proactively.** We anticipate potential difficulties and communicate our concerns before issues arise, as well as recommend appropriate mitigation strategies. We will keep you apprised of the status of our work at your preferred frequency, and promptly notify you of significant changes or developments.
- **We will respond and adapt to your changing needs.** We understand your objectives may evolve throughout our engagement. We will embrace your priorities and swiftly adapt to changing conditions collaboratively.

In summary, the SCS Team has a proven record of working together and the most extensive knowledge of the solid waste and recycling programs and facilities within the County and the Authority's vision and goals combined with unrivaled expertise in the industry. We provide local and national expertise specifically tailored to support your needs. This translates to a consistent, uniquely qualified, value-added team that can bring innovative and efficient solid waste planning services to the Authority. The SCS Team offers the **Right Team, the Right Schedule, and the Right Solution.**

Thank you for the opportunity to again provide our support and expertise to the Authority. We look forward to your review of our qualifications. Please do not hesitate to contact us should you have any questions.

Sincerely,

Daniel Dietch, MBA
Vice President/Project Manager
SCS Engineers
ddietch@scsengineers.com
305 298-6568

Leah Richter, PE, TRUE Advisor
Vice President/Assistant Project Manager
Arcadis US, Inc.
Leah.Richter@arcadis.com
954 525-2499

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Section 1

Ability of Professional Personnel

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SCS ENGINEERS

1 | Ability of Professional Personnel

All members of our project team are experienced leaders on similar projects and are available and ready to perform the work you require.

The SCS Team is comprised of four firms uniquely qualified to guide the Solid Waste Disposal and Recyclable Materials Processing Authority of Broward County, Florida (Authority) with the preparation of a Regional Solid Waste and Recycling Master Plan (Master Plan) that is viewed through a zero waste lens to maximize waste reduction, materials reuse, and diversion and minimize waste disposal. The SCS Team includes SCS Engineers (SCS), Arcadis U.S., Inc. (Arcadis), Resource Recycling Systems (RRS) and Mercury. Our Team singularly brings the Authority the most intimate understanding of solid waste management in Broward County (County), a commitment to a transparent process, unparalleled subject matter expertise, and a sincere passion for developing credible and implementable solutions, resulting in value beyond standard planning services.

Zwieg Group *HOT FIRM*

SCS was awarded the "*Hot Firm*" award by Zweig Group which recognizes the 100 fastest-growing AEC firms in the United States and Canada. SCS ranked #11.

Hot Firm

Solid Waste #1

2023 ENR TOP 500 Environment

Client Success Drives Our Success

SCS ENGINEERS

We have assembled a team of experts from various specialties with the single goal of developing real solutions to advance the Authority's waste management system. We are excited to share our experience designing master plans that include practical, achievable, and measurable sustainable material management (SMM) strategies to reduce waste and effectively manage the disposal needs of the community over the long term.

The SCS Team uses a *Systems Thinking Approach* to facilitate a shared vision amongst crucial stakeholders to help communities across the county from Fairfax County, VA to Hennepin County, MN to Yakima, WA as well as communities in Florida, including Broward County, Collier County, Miami-Dade County, Palm Beach County, Manatee County, and Hillsborough County. Components of this approach include the following:

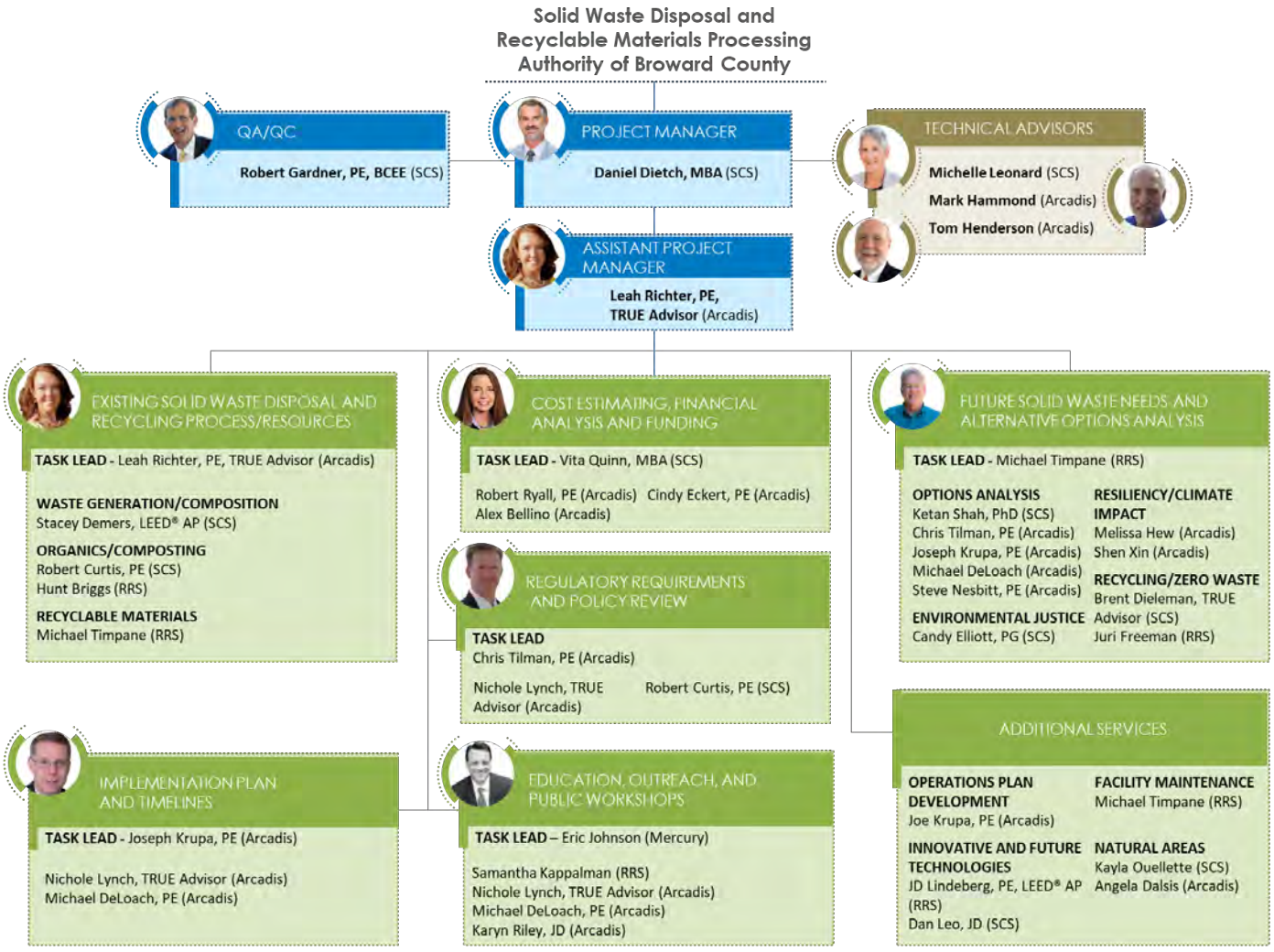
- Identify opportunities to minimize waste generation
- Reduce and recover waste materials generated
- Develop programs and facilities that are equitable and benefit all community members
- Procure high-quality, cost-competitive service providers
- Market compost and recyclables
- Enhance customer relations and community outreach
- Assess and promulgate regulations

"I wanted to commend you and the Arcadis Team for doing such an excellent job on the Authority's Master Planning work effort. I am impressed with the high quality of work in both the written reports and supporting data files. The work products are superb and deadlines are being met for deliverables. The team has excellent communication skills in both written and verbal presentation of information. The level of client services is also outstanding. The expertise in air permitting and developing water budgets is also evident with the high quality of work seen! This work produced by Arcadis is essential for executive staff making long-term planning decisions."

-Mary Beth Morrison
Director of Environmental Programs, Solid Waste Authority of Palm Beach County

The SCS Team will be led by qualified local management (**Figure 1-1**) that are currently working with the County and are experienced with similar types of master plan-related projects. Daniel Dietch, MBA our Project Manager, and Leah Richter, PE, TRUE Advisor worked together for ten years providing professional solid waste and recycling consulting services to the Authority's predecessor, the Resource Recovery Board of Broward County (RRB), **and collectively have more than 25 years of history working with the County's system, from inception to today**. Similarly, our identified Task Leads have direct experience supporting the County, members of the Authority, and municipal clients throughout Florida and the United States and are all recognized solid waste and recycling industry subject matter experts. They will be supported by a team of technical consultants who will bring their experience and best industry practices to the planning and recommendations presented to the Authority. Our past experience working with the RRB means no learning curve, and you will see the immediate benefits of this experience resulting in our ability to meet the aggressive project delivery schedule. Team members were specifically designated based on the relevant expertise they currently provide to other municipal clients, within the critical disciplines needed and their anticipated availability. Their past and current experience with you and/or their relevant experience makes them uniquely qualified to provide the desired services needed to achieve your goals.

Figure 1-1. Team Organization Chart



QUALIFICATIONS AND RELEVANT EXPERIENCE OF THE PROJECT MANAGER AND KEY STAFF

Below are the biographies of our proposed key team. Resumes can be found at the end of this section. **Section 3** highlights our references and representative project experience.

SCS ENGINEERS

Daniel Dietch, MBA | Project Manager

30+	30+	200+	11
Years of SMM Experience	Years of Project Management Experience	Solid Waste Projects	Years Served as Recycle Florida Today Board Member

Daniel has over **30 years of academic and professional SMM experience and leads SCS' SMM Practice for the Southeastern Region**. Daniel's experience includes master planning and procurement management for solid waste and recycling services and facilities, solid waste and recycling facilities operations monitoring, rate structure/alternative financing analyses, benefit/cost analyses, litigation support, contract negotiations, and ordinance development. His passion for Broward County was cultivated through his leadership as a member of the consulting team supporting the County's Resource Recovery Board for ten years and his service continues to support the current SCS work for the County. Daniel is also active in his community, including chairing the Planning and Zoning and Design Review Boards and then serving five terms as the Mayor of Surfside Florida. This experience has provided unique insights into his work with municipal clients and it informs him how to deliver professional services and the associated recommendations for policy direction.

Robert Gardner, PE, BCEE | QA/QC

44+	20+	348+	6
Years of Engineering Experience	Solid Waste Master Plan Projects Last 5 Years	Solid Waste Projects Last 5 Years	Waste Characterization Studies

Bob brings over **44 years of nationwide solid waste management experience**, which includes solid waste planning and studies, financial analysis, landfill services, operation and maintenance, and construction. He works closely with SCS's national and regional clients. Since joining SCS in 1980, he has completed solid waste, hazardous waste, environmental assessment, facility design, compliance audit, and other environmental study projects for municipal and private clients.

Michelle Leonard | Technical Advisor

36+	66+	35	30
Years of Sustainable Consulting Experience	Waste Characterization Studies	Waste Diversion Feasibility Studies	Waste Collection Assessments

Michelle has over **36 years of experience in environmental consulting and project management, emphasizing solid waste management planning and facilities.** She has served as President of SWANA. She assists public and private sector clients in preparing zero-waste plans; designing and implementing waste reduction, recycling, and reuse programs, including community-based marketing strategies, and evaluating existing programs to identify opportunities to reduce, reuse, and recycle solid waste. She prepares feasibility assessments and permits for transfer stations, material recovery facilities (MRFs), and drop-off and buy-back centers. She has a strong working knowledge of solid waste management regulations and practices and has presented numerous successful projects to city, county, and state regulators.

Stacey Demers, LEED® AP | Waste Generation/Composition

30+	56	34	12
Years of Solid Waste Experience	Waste Characterization Studies	Waste Diversion Feasibility Studies	Waste Collection Assessments

Stacey has over **30 years of experience in the environmental field, focusing on waste diversion programs and sustainability**. She provides clients with strong technical and analytical skills to develop, evaluate, and improve programs that reduce waste, increase recycling, and divert organics. As SCS's national expert in waste characterization, she has a substantial working knowledge of the types and quantities of materials in various waste streams and can customize zero-waste strategies by material and generator type. **Stacey is currently leading the waste composition and waste generation work for the former SWWG and the County.**

Bob Curtis, PE | Organics/Composting; Regulatory Requirements and Policy Review

33+	9	150+	250+
Years of Engineering Experience	Composting Projects	Solid Waste Projects Last 5 Years	Acres CM and CQA Services

Bob has over **33 years of experience designing, permitting, managing, and overseeing the construction of civil and environmental projects for both public and private clients including compost/organics facilities.** He specializes in compost facility master planning and process design, detailed designs for landfill development and closure, landfill gas collection and conveyance systems, and stormwater management and erosion control plans. **Bob is the regional leader of SCS' organics material and composting initiative.**

Vita Quinn, MBA | Cost Estimating, Financial Analysis and Funding Task Lead

17+	80+	100+	5
Years of Financial Experience	Solid Waste Projects Last 5 Years	Rate and Financial Studies	Years SWANA Board of Directors

Vita has over **17 years of financial experience supporting government agencies and has developed financial sustainability solutions for various general governments, special revenue funds, and utility enterprise funds**. Her utility experience includes cost apportionment and rate design for solid waste, recycling, stormwater, water, and sewer. She is also skilled in non-ad valorem assessment development and other taxing/fee programs. Other areas of expertise include fiscal impact analysis, bond feasibility analysis, budget development and workflow-based cost distribution and annual financial reports, and action plans. Her financial, business, and analytical skills coupled with her capability in financial modeling, data analysis, public engagement, and presentations to Councils, Boards, and the public serve to provide our clients with the highest level of service in all aspects of consulting. **Vita is currently leading the financial work for the former SWWG and the County supporting the effort that led to the Authority.**

Ketan Shah, PhD | Options Analysis

10+	80+	12+	20+
Years of Environmental Experience	Solid Waste Facilities Permitting, Reporting, Compliance Audits	Engineering/Planning Studies/ Solid Waste Projects	Public Sector Projects

Dr. Shah has over **ten years of environmental and solid waste engineering experience and leads the options/ alternative analysis in support of SCS' SMM projects**, life cycle assessment, landfill gas modeling, landfill design, permitting, construction management, and reporting for landfill projects. His passion for life cycle assessment, environmental systems modeling, optimization, and solid waste management systems is enhanced by his love of

comparative statistical analysis which supports his use of solid waste decision-making tools to arrive at optimal solutions.

Candy Elliott, PG | Environmental Justice

17+	10+	10+	9+
Years of Environmental Experience	Environmental Justice Review Projects	Solid Waste Projects Last 5 Years	Municipalities Last 5 Years

Candy has over **17 years of experience in the environmental industry and is SCS' National Expert in Environmental Justice.** She has prepared Environmental Justice reviews and reports for multiple programs, including solid waste and underground injection control. Candy has presented and held workshops at regional and national conferences and has participated in community outreach efforts. She has managed projects including environmental site assessments, comprehensive site assessments, brownfield assessments, underground storage tank closures, and soil and groundwater remediation projects.

Brent Dieleman, TRUE Advisor | Recycling/Zero Waste

19+	10+	5+	10+
Years of Solid Waste and Recycling Experience	Solid Waste Facilities Permitting, Reporting, Compliance Audits	Public Engagement Projects	Engineering Planning Studies

Brent has over **19 years of solid waste and recycling planning experience.** He has worked with municipal clients throughout the United States and the world to find solutions to overcome barriers and improve solid waste management programs. Brent has extensive experience working with communities on solid waste management plans, many of which strive to achieve zero waste. He is currently the Project Manager working with Arlington County, Virginia to develop and finalize their 20-year zero waste-focused solid waste management plan, which is similar in scope and vision to the plan Broward County requires. Brent is a certified zero waste advisor (i.e., TRUE Advisor) through the Green Business Certification, Inc. In addition to solid waste planning, Brent has specialized expertise in collection program evaluation and improvement, solid waste and recycling characterization/audit services, drafting and updating solid waste/recycling policies and regulations, stakeholder engagement and consensus building, recycling technical assistance, grant research and writing, data analysis, and database management.

Dan Leo, JD | Innovative and Future Technologies

20+	20+	3+	100+
Years of Renewable Energy Experience	RNG Facilities	Advanced Biofuel Facilities	Patent Applications

Dan has over **20 years of experience in renewable energy industries, including fuel ethanol, gasification, pyrolysis, syngas cleaning, Fischer-Tropsch synthesis, and renewable natural gas (RNG) production**. His background is in chemical process engineering and intellectual property management and he currently is a member of the SCS Energy process engineering team, a division within SCS, which is responsible for the design, construction, and operation/maintenance of biogas to Renewable Natural Gas and energy facilities. He provides a wide array of engineering and patent services ranging from innovation to commercialization. During his career, he invented, commercialized, and authored a portfolio of sixty-three patents and patent applications all over the world directing a renewable energy gasification to liquid fuel technology package.

Kayla Ouellette | Natural Areas

12+	7+	130+	14+
Years of GIS Experience	Gov't Entities Served with GIS Services	Solid Waste Projects Last 5 Years	Solid Waste/Recycling Planning Projects

Kayla brings over **12 years of experience and serves as the GIS Manager for the Southeast Business Unit.** She has experience in environmental assessment and remediation and solid waste compliance. Before working at SCS, she worked with MS DEQ in the Lead Paint educational outreach program. She is familiar with many data sources and different GIS applications such as Story Maps and Web Apps, Experience Builders and others to customize the best GIS solution for a given task. She applies this knowledge to her GIS practice to help streamline workflows using ESRI and Trimble products for environmental assessments, remediation, and solid waste GIS applications. She serves as our ArcGIS Online Administrator and creates training presentations and SOP documentation for GIS and non-GIS staff. Project GIS experience includes collecting field data with Trimble GPS units and various ESRI apps, data creation and management, geoprocessing, creating and managing surveys on Survey 123, creating maps and managing data through ArcGIS Online, scripting with ArcPy, and strong statistical and analytical capabilities.

ARCADIS

Leah Richter, PE, TRUE Advisor | Assistant Project Manager; Existing Solid Waste Disposal and Recycling Process/Resources Task Lead

26	240+	90+	25+
Years of Solid Waste Management Experience	Solid Waste and Recycling Projects	Projects Managed	Years Focused on Solid Waste in Broward County

A lifelong Broward County resident, Leah has an extensive background in environmental and civil engineering and has spent the entirety of her 26-year career working in the solid waste industry in South Florida. Leah is a TRUE Advisor, certified by Green Business Certification Inc., demonstrating her commitment to advancing zero waste values and policies and serving as an advisor in supporting and implementing zero waste programs. She specializes in solid waste projects involving recycling, zero waste, waste-to-energy, materials recovery, recycling, and landfilling. She currently serves as Arcadis' Florida Solid Waste Practice Leader and is primarily responsible for assisting municipal clients with managing their solid waste management planning, operational, and capital program needs. Her experience includes master planning, siting analysis, program management and delivery, transactional consulting and due diligence, vendor procurement, contract compliance, regulatory permitting, public outreach, litigation support services, solid waste advisory committee support, environmental compliance, and operation and maintenance evaluation. **Recently, Leah served as the Project Manager for the Broward County Solid Waste Working Group Recycling Study focusing on the future of solid waste management in the county, as well as has worked with Broward County for the entirety of her career in Arcadis's role as Consulting Engineer for the County's solid waste management system for decades.**

Mark Hammond | Technical Advisor

46	35	12+	2M
Years of Solid Waste Management Experience	Years in Senior Management/Executive Leadership Roles for Solid Waste Authority of Palm Beach County	Years Served in SWANA Leadership Roles, including President	Tons of Solid Waste Managed per Year as Executive Director

Mark is a **talented former Executive Director bringing 46 years of experience in solid waste management and leadership.** Proven operational leadership, hands-on community outreach and consensus-building skills, and ability to transform vision into reality. He brings his expertise to Arcadis as a Special Advisor on solid waste, recycling, and resource recovery projects nationally.

Tom Henderson | Technical Advisor

45	150+	10,000+	30+
Years of Solid Waste Management Experience	Solid Waste Facilities Permitting, Planning, and Reporting	Tons per Day Managed as Solid Waste Director	Years Serving in Local Government Solid Waste Leadership Roles

Tom has 45 years of experience in developing and managing large integrated solid waste management systems. His experience also includes the planning, design, permitting, financing, construction, start-up, and operation of large regional transfer stations, landfills, and material recovery facilities. **He was instrumental in the development of the Miami-Dade and Broward County and most recently, the Palm Beach County integrated solid waste management systems**, including successful procurement of permits and all agreements.

Robert Ryall, PE | Cost Estimating, Financial Analysis and Funding

20+	$3B+	50+	FL
Years of Financial and Strategic Planning Experience	Utility Financing Projects	Public Engagement Projects	Professional Engineer

Robert is a nationally recognized consultant with expertise in financial and strategic planning for utilities around the country. **He has assisted with over $3 billion in utility financing and has extensive experience in utility rate-making, impact fees, bond feasibility studies and acquisition/valuation analysis, and the development and use of interactive financial models**. In addition to his financial experience, he is a Professional Engineer in Florida and has been involved in many strategic planning studies, including master plans, capacity analysis, consolidation studies, and asset management-related engagements. He is a contributor to industry manuals of practice and is a frequent speaker at regional and national events, including the Utility Management Conference, and other regional events around the country. He recently founded the Finance and Rates Committee within the AWWA Florida Section.

Alexander Bellino | Cost Estimating, Financial Analysis and Funding

9+	20+	100+
Years of Financial Analysis Experience	Solid Waste Financial Planning/Forecasting Studies	Finance-Related Utility Projects

Alex is a Senior Management Consultant with expertise in financial and strategic planning and forecasting for solid waste, water, wastewater, stormwater, and electric utilities around the country. He has **extensive knowledge and experience across all phases of the utility rate-making process** (revenue sufficiency analysis, cost of service, and rate design), system development fee/impact fee/miscellaneous fee analysis and development, bond feasibility studies, acquisition/valuation analysis, and developing and using interactive financial models.

Cindy Eckert, PE | Cost Estimating, Financial Analysis and Funding

10+	12+	65+	18+	50+
Years of Financial Analysis Experience	Solid Waste Facilities Permitting, Reporting, Compliance Audits	Engineering/Planning Studies	Years of Engineering Experience	Solid Waste Projects

Cindy has **more than 18 years of experience working with public utilities including solid waste management** where she has provided negotiation support, financial and life-cycle cost analysis, and solid waste rate studies. She has assisted with the development and analysis of a landfill gas-to-energy (LFGE) Facility Agreement, resolution of landfill operational claims, and development of amendments to landfill and facility operating agreements. She routinely provides owner's agent services including facility inspections, construction monitoring, contract development and administration, and assistance with environmental permitting and monitoring.

Chris Tilman, PE | Regulatory Requirements and Policy Review Task Lead; Options Analysis

24+	50+	50+	20+
Years of Solid Waste Management Experience	Solid Waste Facilities Permitting, Planning, Reporting, Compliance Audits	Engineering/Planning Studies	Public Engagement Projects

Chris provides professional engineering and consulting services in several civil engineering disciplines. He specializes in assisting municipal and industrial clients in Central and South Florida with solid waste and utility system planning, management, financing, engineering, capital improvements, and operations. His 25 years of experience includes project management and delivery, bond engineering services, solid waste and utility infrastructure planning, engineering, permitting, and construction projects, mathematical modeling, fleet analyses, construction cost estimating, and operation and maintenance evaluations. **He currently serves as the Bond Engineer Program Manager for the Miami-Dade County Solid Waste Management Department and most recently conducted a feasibility and siting study evaluating alternatives for zero waste processing facility locations and technologies**.

Joseph Krupa, PE | Implementation Plan and Timelines Task Lead; Options Analysis; Operations Plan Development

30+	30+	30+	240+
Years of Solid Waste Management Experience	Years Solid Waste Facilities Permitting, Planning, Reporting, Compliance Audits	Years Engineering/ Planning Studies	Solid Waste and Recycling Projects

Joseph currently serves as the national Resource Recovery Technical Lead for Arcadis. He has 30 years of experience specializing in solid waste projects involving recycling, resource recovery, renewable energy, material recovery, renewable natural gas, waste conversion, landfills, waste-to-fuel, and biosolids management facilities. **He has served as the Engineering Technical or Project Manager on over $1B dollars in new construction or refurbishment of solid waste management and recycling facilities and over $3B dollars in technical due diligence for transactions or commercialization of solid waste management facilities**. His experience spans the entire project life cycle including recent relevant experience with solid waste management facilities master planning, siting, feasibility studies, permitting, vendor procurement, design criteria package and detailed engineering specifications development, technology studies, and implementation of the technologies into projects, contract negotiations, design review, construction and acceptance testing monitoring, and operations monitoring.

Michael DeLoach, PE | Implementation Plan and Timelines; Education, Outreach, and Public Workshops; Options Analysis

14	100+	35+	15+
Years of Technology Evaluation and Operation Experience	Solid Waste Facilities Permitting, Planning, Reporting, Compliance Audits	Engineering/Planning Studies	Innovative Technologies Due Diligence Assessments

Michael is an innovative technology specialist, specializing in chemical and mechanical engineering disciplines and construction oversight. He has a strong background in solid waste management, waste-to-energy (WTE), innovative gasification technologies, and power generation facilities and possesses an American Society of Mechanical Engineers Qualified Refuse Operator license (ASME-QRO) for operating power plants. He has been part of the municipal bond engineering oversight, procurement assistance, and/or engineering consulting teams for nine separate waste-to-energy facilities operated by four different facility operators, and numerous transfer stations, and has experience with over one billion dollars in new construction or refurbishment of power generation facilities. **He has been a key team member during several recent due diligence efforts assessing innovative waste gasification technologies for the production of syngas for conversion to power and biofuels and has provided confidential due-diligence inspections of power-generating facilities and commercial viability assessments of innovative technology in support of over three billion dollars** in purchases and investments relating to solid waste or innovative waste gasification technologies.

Steve Nesbitt, PE | Options Analysis

40	50+	100+	10+
Years of Solid Waste Management Experience	Solid Waste Facilities Permitting, Planning, Reporting, Compliance Audits	Engineering/ Planning Studies	Public Engagement Projects

Steve has served municipal government sector clients for over 40 years across the United States, as well as in Canada and abroad, in a variety of project delivery roles. His combination of comprehensive experience and specialized expertise enables him to provide that 'C-Suite' perspective to our senior-most municipal government sector clients in their planning and development of complex MSW management systems.

Program/Project Management, as well as Technical Service Offerings, have been provided for a broad range of solid waste management infrastructure/facilities including planning and business advisory services in support of MSW management systems development, as well as capital project delivery for a range of MSW infrastructure including transfer stations, materials recycling facilities and municipal solid waste landfills, with associated regulatory permitting, design, construction, compliance monitoring and corrective action. **Multiple innovative, 'first-of-its-kind' strategies have been developed and implemented for a range of solid waste management facilities and are a testimony of his creative problem-solving ability** while gaining a comprehensive understanding of federal and state regulatory frameworks, as well as establishing a familiarity of working with senior-most regulatory and client stakeholders.

Melissa Hew | Resiliency/Climate Impact

20+	15+	10+	3+
Resilience, Sustainability, Climate Adaptation Projects	Engineering/ Planning Studies	Public Engagement Projects	Years Served as Technical Advisor for Southeast Florida Regional Climate Compact

Melissa is a Senior Consultant with Arcadis' Urban and Coastal Resiliency practice. She has extensive experience in partnership and capacity building and stakeholder engagement. She has been successful at managing and building relationships with internal and external stakeholders, community partners, elected officials, and residents to achieve strategic resilience goals. Her project experience includes the areas of **funding strategy development, grant and loan management and compliance, watershed planning, nature-based infrastructure, climate adaptation, sustainability, and environmental protection**. She has experience monitoring and evaluating sustainability trends for facilities and programs. She has developed recycling toolkits for commercial and institutional buildings in the New Orleans area. She is also a named contributor to the City of Miami's first Circularity Assessment Protocol - a study to assess the lifecycle of plastics and waste.

Shen Xin | Resiliency/Climate Impact

2+	5+	6+	2+
Years of Experience	Solid Waste Management, Organics, Zero Waste Planning Projects	Engineering/Planning Studies	Public Engagement Projects

Shen has experience working with public sector clients on municipal solid waste (MSW) management system planning and consulting. She has **supported multiple projects on developing waste generation projections, analyzing MSW waste systems performance, and developing a solid waste management master plan**. In addition, she has strong skills in data analytics and technology, allowing her to deliver advanced analysis and complex technical products.

Nichole Lynch, TRUE Advisor | Regulatory Requirements and Policy Review; Implementation Plan and Timelines; Education, Outreach, and Public Workshops

17+	40+	45+	5+
Years of Solid Waste Management Experience	Solid Waste Facilities Planning, Permitting, Reporting	Engineering/Planning Studies	Public Engagement Projects

Nichole has over 17 years of solid waste consulting project experience and is uniquely qualified to assist the Authority with the development of the Solid Waste and Recycling Master Plan as she assisted with several projects for the now disbanded Resource Recovery Board and Solid Waste District, as well served as Deputy Project Manager for the Solid Waste and Recycling Issues Study. The institutional knowledge gained as part of these efforts gives her **an in-depth understanding of the nuances of Broward County's solid waste system needs**. Combined with her solid waste permitting, site analysis, and feasibility study experience for other municipal solid waste clients throughout South Florida, she will be an asset to the project delivery team and the Authority.

Karyn Riley, JD | Education, Outreach, and Public Workshops

12+	20+	18+	17+
Years of Experience	Policy and Government Affairs	Executive Leadership	Public Engagement Projects

A senior leader with a strong background in organizational leadership, Karyn is skilled at leading teams and developing creative solutions to proactively address complex problems. She has **executive-level experience in administration and operations, stakeholder engagement, government relations, communications, and corporate law**. With broad competencies in program development, strategic planning, and project management, she has transformed organizations and processes. She has been recognized for her accomplishments while serving in highly visible professional and civic leadership roles and is a sought-after presenter on topics related to leadership, advocacy, and equity.

Angela Dalsis | Natural Areas

24+	50+	2M+	15+
Years of Natural Resources Experience	Environmental Assessments and Impact Studies	Acrea of Wetlands and Habitats Evaluated	Public Engagement Projects

Angela provides strategic regulatory and environmental consulting support to private and public clients and specializes in Clean Water Act Section 404 permitting and the National Environmental Policy Act. She is a Professional Wetland Scientist with 24 years of experience in the field of natural resources. She has **extensive experience with environmental permitting, habitat assessment, and aquatic resource delineation for roadway and rail, utility, remediation, and treatment wetland projects**. She has provided technical leadership for aquatic resource and mitigation assessments under NEPA, as well as managed comment databases, prepared summary of comments, and presented comment database and wetland topics at scoping and public meetings for a 3rd Party EIS.

RRS

Michael Timpane | Future Solid Waste Needs and Alternative Options Analysis Task Lead; Recyclable Materials; Facility Maintenance

40+	40+	200+	5
Years of Waste Management Experience	Years of MRF/Facility Optimization Experience	Resource Recovery Projects	Years Served at MRF American National Standards Institute

Michael is a principal and vice president of process optimization and material recovery at RRS, where he works with material manufacturers, municipalities, solid waste and recycling companies, materials recovery facilities, NGOs, NPOs, and Fortune 500 consumer product groups. **With over 40 years in field operations and development roles with the largest public recycling companies in the U.S., Michael is proficient in the technical execution of recycling systems pricing, processing, landfill diversion technology, facility development, material streams, recycling/organics system economics, recoverable commodities behavior, supply studies, A&M due diligence, and process** improvement. Before RRS, Michael directed Waste Management, Inc.'s E-cycling Unit, single-stream pricing efforts, material stream analysis, and Municipal Recycling efforts. Michael also was Southeast Area VP for BFI over waste processing and diversion for eleven years and was with Reynolds Aluminum Recycling Company for fifteen years. He is a founding member of both the NWRA Recycling Committee and the ISRI MRF Committee.

Juri Freeman | Recycling/Zero Waste

17+	17+	100+	10+
Years of Materials Management Experience	Years of Economic Analysis Experience	Waste Related Projects	Years Served at National Recycling Coalition

Juri Freeman is a Principal at RRS. He utilizes **over 17 years of solid waste and recycling experience to provide technical, strategic, and communications client support.** Juri draws from his former experience as a recycling program manager in the public sector including overseeing and growing residential recycling and composting programs, public school/K-12 collections and education, facility operations, and employee engagement - within the confines of limited budgets. Past consulting projects put Juri at the forefront of zero waste planning, forecasting and modeling, outreach campaigns, sustainability program evaluation, and stakeholder and public process engagement. Juri has previously served as the president of the Colorado Association for Recycling and the chairman of the National Recycling Coalition.

Hunt Briggs, MBA | Organics/Composting

15+	15+	200+	5+
Years of Compost Infrastructure Experience	Years of Circular Economy Experience	Compost/ Circulatory Projects	Public Engagement Projects

Hunt Briggs is a Senior Consultant at RRS bringing **over 15 years of experience in work focused on environment, sustainability, and the circular economy**. Leading the firm's organics practice, Hunt advises brands and retailers in the private sector on issues of packaging and organics recovery, helps build organics processing infrastructure including assisting project developers in the design and implementation of organics recycling technologies such as composting and anaerobic digestion, and works with states and municipalities to achieve ambitious diversion goals. He led the RRS project team in developing the ReFED Roadmap to Reduce U.S. Food Waste report, identifying the economic potential, feasibility, and key insights associated with the most promising solutions for this waste stream. In the public sector, Hunt has conducted performance and measurement initiatives such as recycling rates and the economic impacts related to material recovery.

Samantha Kappalman | Education, Outreach, and Public Workshops

25+	6+	60+	20+
Years of Public Relations Experience	Years of Recycling Focused Communications Experience	Resource Recovery Projects	Public Engagement Projects

Samantha has expertise in public affairs, tackling challenging issues, distilling complex topics, meeting tight deadlines, taking an inclusive, global-first, human approach, and consistently delivering superior products while establishing strong relationships and engaging stakeholders. With more than 25 years of experience, Samantha is highly qualified in developing and implementing marketing, communications, legislative, media, and community outreach strategies, behavior change and focus groups, project management, policy analysis and advocacy, and supplying senior management with key messages, analytics, and trends.

JD Lindeberg, PE, LEED® AP | Innovative and Future Technologies

38+	100+	75+	250+
Years of MRF and Facility Experience	Solid Waste Facilities Permitting, Reporting, Compliance Audits	Engineering/ Planning Studies	Facility Diversion, & Compost Projects

JD is a Principal and President of RRS bringing over 38 years of experience developing corporate sustainability systems, material recovery and processing systems, biomass energy and organics recovery, business planning and plan development, project due diligence and risk management, capital project planning, and project financing. His training and experience as a professional engineer give an added dimension to his business background and provide insight into the development of award-winning projects. Recently his efforts have focused on increasing recovery through the innovative development and application of recovery technologies to increase overall recovery in response to both public and private demand for higher recycling rates. He is a well-known speaker on the national level, where he has delivered numerous speeches on the topic. He has also had the opportunity to pursue the development of environmental and sustainable technology through his involvement in the non-profit Environmental Capital Network and his own ventures into “green” home and resort construction.

Mercury.

Eric Johnson | Education, Outreach, and Public Workshops Task Lead

30+	30+	30+	30+
Years of Public Outreach Experience	Public Affairs Campaigns	Strategic Communications and Message Development Projects	Gov’t Relations Projects

Eric possesses a wealth of experience in leading large-scale public affairs campaigns, including conducting strategic outreach and communications for municipalities, facilitating city referendums, supporting public bonds initiatives, and collaborating with developers to garner community support for projects. With over three decades of experience at various levels of government, including local, state, and federal, Eric brings extensive knowledge and expertise to his role as Managing Director at Mercury's Fort Lauderdale office.

Table 1-1 presents the SCS Team's experience and qualifications based on the scope of services identified in your RFP.

Table 1-1. Team Member Qualifications

Key Personnel/Firm	Years of Experience	Solid Waste Disposal and Recycling Processes and Resources Evaluation	Feasibility Analysis	Financial Studies	Future Needs Assessment	Waste Generation Estimates	Recycling Needs Analysis	Recycling Legislative Trends	Regional Processing Facilities	Recycling Benchmarking	Education & Outreach
SCS											
Daniel Dietch, MBA	31	■	■	■	■	■	■	■	■	■	■
Bob Gardner, PE, BCEE	44+	■	■	■	■	■	■	■	■	■	■
Michelle Leonard	36+	■	■	■	■	■	■	■	■	■	■
Stacey Demers, LEED	30+	■	■	■	■	■	■	■	■	■	■
Robert Curtis, PE	33	■	■	■	■	■	■	■	■	■	
Vita Quinn, MBA	17	■	■	■	■	■		■	■	■	■
Ketan Shah, PhD	10	■	■	■	■	■	■	■	■	■	
Candy Elliot, PG	17+										■
Brent Dieleman, TRUE Advisor	19+	■	■	■	■	■	■	■	■	■	■
Daniel Leo, JD	20	■	■		■						
Kayla Ouellette	12+		■			■		■			■
Arcadis											
Leah Richter, PE, TRUE Advisor	26	■	■	■	■	■	■	■	■		■
Mark Hammond	46	■	■	■	■	■	■	■	■	■	■
Tom Henderson	45	■	■	■	■	■	■	■	■	■	■
Robert Ryall, PE	20		■	■	■						■
Alexander Bellino	7		■	■	■						
Cindy Eckert, PE, CFM	18	■	■	■	■	■	■	■	■		■
Chris Tilman, PE, BCEE	24	■	■	■	■	■	■	■	■		■
Joseph Krupa, PE	30	■	■	■	■	■	■	■	■		■
Michael DeLoach, PE	14	■	■	■	■	■	■	■	■	■	■

Key Personnel/Firm	Years of Experience	Solid Waste Disposal and Recycling Processes and Resources Evaluation	Feasibility Analysis	Financial Studies	Future Needs Assessment	Waste Generation Estimates	Recycling Needs Analysis	Recycling Legislative Trends	Regional Processing Facilities	Recycling Benchmarking	Education & Outreach
Arcadis											
Steve Nesbitt, PE	38	■	■	■	■	■	■	■	■	■	■
Melissa Hew	12		■	■	■						■
Shen Xin	2	■	■	■	■	■	■		■	■	
Nichole Lynch, TRUE Advisor	17	■	■	■	■	■	■	■	■	■	■
Karyn Riley, JD	12		■		■				■		■
Angela Dalsis	24	■	■		■				■		■
RRS											
Michael Timpane	40	■	■	■	■	■	■		■	■	
Juri Freeman	17	■	■	■	■	■	■			■	■
Hunt Briggs, MBA	15	■	■	■	■	■	■	■		■	
Samantha Kappalman	25	■			■		■	■	■		■
JD Lindeberg, PE, LEED® AP	38	■	■	■	■	■	■	■	■	■	
Mercury											
Eric Johnson	30+										■

SCS ENGINEERS

ARCADIS

RRS

Mercury.

Our Team Leadership Benefits the Authority

- ✓ Daniel Dietch and Leah Richter, PE, TRUE Advisor have worked together for Broward County for more than 10 years, and collectively in Broward County for more than 25 years
- ✓ Our Task Leads are industry experts from around the Country
- ✓ We have selected local staff experienced with Broward County and its solid waste program
- ✓ We possess a diverse solid waste client portfolio across the state of similar successful multi-year contracts
- ✓ We have a track record of taking on any solid waste assignment and successfully completing it on time and budget
- ✓ We are committed to the Authority's success

SUBCONSULTANTS

The SCS Team includes three highly qualified subconsultant partners, each with extensive knowledge and history working with Broward County as well as many of its municipalities. Collectively, the SCS Team brings to the Authority the best in class in solid waste management strategic planning and problem solving. We have a proven history of working side by side on some of the most challenging solid waste projects in the State of Florida, for clients such as Broward County, Orange County, and Hillsborough County. As our teaming partners, they will provide leadership and support in all of the service areas required for the successful preparation of the Master Plan. Specifically, our teaming partners making up the SCS team are further highlighted below in **Table 1-2**.

Table 1-2. Subconsultants

Firm	Project Role	Worked with SCS
ARCADIS	Assistant Project Manager, Technical Advisors, Existing Solid Waste Disposal and Recycling Process/Resources Task Lead, Cost Estimating, Financial Analysis, and Funding Support, Regulatory Requirements and Policy Review Task Lead and Support, Education, Outreach, and Public Workshops Support, Future Solid Waste Needs and Alternative Options Analysis Support, Implementation and Timelines Task Lead and Support, and Additional Services Task Leads	✓
RRS	Existing Solid Waste Disposal and Recycling Process/Resources Support, Education, Outreach, and Public Workshops Support, Future Solid Waste Needs and Alternative Options Analysis Task Lead and Support, and Additional Services Support	✓
Mercury.	Education, Outreach, and Public Workshops Task Lead	

MASTER PLAN PREPARATION EXPERIENCE

SCS ENGINEERS

We are a 1,200+ employee-owned firm with more than 180 staff members located in the Southeast providing solid waste environmental engineering, construction, construction quality assurance, construction management, and operation and maintenance services. Additionally, SCS offers full-service operation, maintenance, and management (OM&M); construction capabilities, including design/construct, construction contracting; landfill gas and control system support; and remediation systems, through our SCS Field Services Division. That is our present status and our projected direction.

Whereas many firms have closed or reduced their solid waste programs, we continue to grow. We hired over 30 new solid waste and environmental staff members in our Southeast Business Unit program last year and foresee continued growth. This growth in our solid waste and environmental programs is a testament of our commitment to our clients and our capacity to continue assisting you well into the future. Rest assured; we are committed to successfully supporting you during the duration of this contract. Based on our understanding of your current and projected workload, and because we have the largest dedicated solid waste staff in the state, we have the resources, capacity, and experience to continue completing projects you will need assistance with. We have successfully conducted studies, innovative designs, and managed construction projects with you and at thousands of solid waste systems/facilities around the world. This significant experience we bring will be shared with you on what we have seen elsewhere that works and what provides no benefit.

SCS has completed **more than 500 SMM projects**, including:

- Projecting waste generation, recycling, and disposal quantities
- Identifying technically and financially viable zero-waste strategies
- Evaluating the capacity of facilities and regulations to manage waste solid waste systems
- Establishing incentives for municipalities to develop programs and facilities to reduce reliance on landfills
- Facilitating stakeholder meetings
- Preparing reports and presentations for the local community and state regulators

Questions to ask and answers you need when selecting the most qualified engineering firm

1. Is solid waste the focus of your company or is it just a smaller division within the organization? **SCS was founded on the solid waste industry and continues to be a leader in solid waste engineering.**
2. What is the stability of your firm, how long has it been in business, is it growing or shrinking, will your firm provide the services required for the full duration of the contract? **SCS has been in the solid waste industry for over 53 years, will not stray, and we remain one of the few firms that continue to grow.**
3. How reputable is your firm? **SCS is recognized in the ENR Top 500 as #1 in Solid Waste and has been recognized as one of the top two firms each year for the past 22 years. We are leading the charge to sustainability through innovative programs, green building design and specifications, construction and demolition debris recycling programs, and procurement policies that work with your overall program to remain economically sustainable.**

53 Years in Solid Waste

The Authority is set to manage a unique solid waste system that requires a firm dedicated to providing solid waste services. SCS was founded over 53 years ago to provide solid waste engineering and consulting services. Since that time, our focus has not strayed and will not in the future.

1988 Florida Office Opens

SCS has assisted Florida clients over the past three decades with solid waste challenges providing support on a wide variety of projects including master planning, financial services and characterization studies.

Table 1-3. Sustainable Materials Management Services

Sustainable Materials Management Services		
Strategic & Financial Advisory	• Zero Waste Plans • Business Advisory Services • Feasibility Analysis	• Waste Generation Studies • Cost-Benefit Analysis • Affordability Analysis
Organizational Assessments	• Organizational Structure • Labor/Operational Benchmarking • Customer Billing & Service Reviews • Special Event Diversion Planning	• Operational Analysis & Process Improvements • Benchmarking of Services & Fees • Performance Reviews
Financial & Economic Analysis	• Rate Studies • Cost of Service Studies • Alternative Rate Structures • Indirect Cost Apportionment • Public/Private Partnerships	• Hauler Audits • Development Fees • Non-Ad Valorem Assessments • Zero Based Budgeting • Impact Fees
Program Planning & Development	• Collection Assessments • Diversion Program Development • Construction/Demolition Diversion • LEED Certification • Evaluation of Plan Alternatives	• Public-Private Partnership Planning • Fleet/Equipment Replacement Plans • Sustainability Plans • CIP/Asset Management Plans
Other Consulting Services	• Public Education Campaign • Expert Witness Testimony • Public Education Programs • Public Meetings • Regulatory Reporting	• Workshops and Seminars • Reserve Fund Analysis • Contract Management Solutions • Ordinance Review • Negotiation Facilitation

ARCADIS

Arcadis at a Glance

Worldwide	North America	Florida
28,000 + Staff	5,500 + Staff	342 Staff
70+ Countries	120 + Offices	8 Offices

Arcadis U.S., Inc. (Arcadis) is the leading global Design & Consultancy firm for natural and built assets. Applying deep market sector insights and collective design, consultancy, engineering, project, and management services, Arcadis works in partnership with clients to deliver exceptional and sustainable outcomes throughout the life-cycle of their natural and built assets. We are 35,000+ people active in over 70 countries that generate $4.2 billion in revenues. **Arcadis has a multi-disciplinary staff of more than 5,500 in over 120 offices in the US, including their South Florida offices (Plantation, Boynton Beach, Boca Raton, and Miami), with a staff of over 180 professionals. Our Florida Solid Waste Practice is led from our Plantation office by Leah Richter our designated Assistant Project Manager for this Solicitation.**

Arcadis has implemented hundreds of solid waste projects since the firm's formation in the early 1900s. We have long recognized the value of an integrated approach to solid waste management that combines master planning, waste reduction, material recovery, energy recovery, and landfill disposal. Our experience includes the planning, design, construction, and operations monitoring of virtually all types of processing and handling facilities, including materials recovery facilities, transfer stations, landfills, composting, and waste-to-energy (WTE) facilities. **Arcadis has provided services for solid waste projects with a construction value of more than $10 billion in the last 10 years.** These projects have included WTE, landfills, composting, and recycling programs and facilities. In the public

sector, we have represented clients ranging from small municipalities to large, metropolitan cities and counties; we have provided solid waste management services to locales generating anywhere from 30 to 13,000 TPD of MSW.

Arcadis served as the County's Consulting Engineer for more than 20 years, from the formation of the original solid waste system in the early 90s until the expiration of the ILA. Most recently, Arcadis supported the SWWG and the County with the development of the Solid Waste and Recycling Issues Study, which provided recommendations ultimately leading to the formation of the current Authority.

Additionally, our private clients range from small and mid-sized companies to nationally recognized Fortune 500 firms. With our multidisciplinary staff, Arcadis provides all of the specialized services needed to plan, design, and implement successful solid waste management projects. Among these are specialists in design, operations and maintenance, environmental analysis, including hydrogeologic studies and wetlands assessments, permitting, human and ecological risk assessment, leachate/wastewater treatment, storm water management, odor evaluation and control, and design and construction administration. Past and present work includes services from strategic planning and visioning through siting, permitting, design, construction, operations monitoring and project closeout.

RRS

RRS has decades of experience supporting public sector clients in the development of holistic, forward-thinking solid waste, materials management, and zero waste master plans. RRS' approach to solid waste management planning incorporates a rigorous strategic planning process along with developing a comprehensive understanding of the entire waste management system through key stakeholder interviews, data collection and analysis, program evaluation, waste generation modeling for various types of wastes and recycled commodities, national scope database utilization for program and generation data for the U.S. and Canada, geographical information system (GIS) application, best practice benchmarking, and financial modeling. RRS can update an existing plan, identify the feasibility of alternative options, or build a plan from the ground up, including implementation and community outreach planning.

We have successfully helped hundreds of state and local governments in the design, implementation, evaluation, and optimization of their systems, programs, and equipment. Our philosophy has always been to look at the entire recovery system, from collection and processing to policy and engagement, when assisting municipal clients in solving materials management challenges. This systems-based approach is formed by our years of working in the public sector, both as public-sector staff and consultants, to create actionable and realistic solid waste management waste master plans that maximize impacts, societal benefits, and community acceptance. RRS utilizes project- and data-management software to manage project tasks and resource allocation, timesheets, and budgets. To ensure strong data management, analysis, and deliverables, we use internal quality assurance (QA) and control protocols, including extensive multi-level internal reviews of all work products.

Mercury.

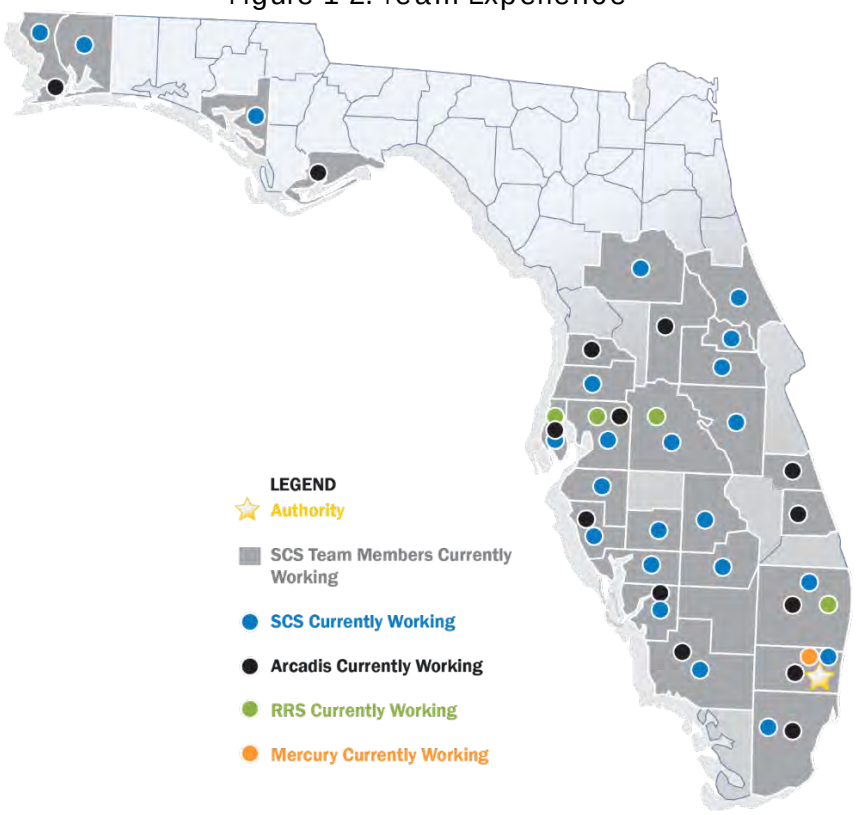
Mercury is a high-stakes public affairs firm with local knowledge and relationships. We believe that our skills and expertise will be an invaluable resource for you as you develop your Master Plan and build consensus and support from the public, elected leaders, community stakeholders, and environmental leaders. With a track record of proven results, our team knows how to build support for large, public endeavors to help create an environment that is conducive to obtain your ultimate goals.

Our team approaches projects with a mentality that focuses on a concise message, grassroots support, earned media, and organizing the unique assets of public entity to deliver results. Working alongside your leadership and technical experts, we assist with addressing the more public aspects of the effort, so the technical team can focus their efforts more efficiently.

TEAM PROJECT EXPERIENCE

The SCS Team has worked with many municipalities in Florida demonstrating our extensive experience and understanding of solid waste management in the unique geography, regulatory environment, and industry perspective of Florida. **Figure 1-2** map highlights this experience.

Figure 1-2. Team Experience



Team Qualifications

Each of our SCS Team members bring expertise to the overall delivery of the 16 tasks outlined in the RFP. **Table 1-4** shows which firm will serve as lead and which firms will provide support.

Table1-4. Team Qualifications Based on Scope of Work Tasks

Key Firm	Task 1 – Project Introduction	Task 2 – Project Kick-off Meeting	Task 3 – Evaluate Existing Solid Waste Disposal And	Task 4 – Financial Overview	Task 5 - Future Needs Assessment	Task 6 – Regulatory Requirements and Policy	Task 7 – Recommendations and Findings	Task 8 – Implementation Plan and Timelines	Task 9 – Education and Outreach	Task 10 – Preparation of Draft Master Plan	Task 11 – Conduct Workshops	Task 12 – Preparation of Final Master Plan	Task 13 – Develop Plan of Operations	Task 14 – Facility Maintenance	Task 15 – Identify Innovative and Future	Task 16 – Highlight Natural Areas Near Facilities
SCS	★	★	■	★	■	■	■	■	■	★	■	★	■	■	■	★
Arcadis	■	■	★	■	■	★	★	★	■	■	■	■	★	■	■	■
RRS	■	■	■	■	★	■	■	■	★	■	■	■	■	★	★	■
Mercury									■		★					

★ Lead Firm ■ Support Firm

Broward County Local Team Offices

SCS, Arcadis, and Mercury team members have Broward County office locations (**Figure 1-3**) to better serve the Authority. Each are located just minutes from the Authority's offices, allowing us to respond quickly to any requests for meetings with the Authority or associated stakeholders.

Figure 1-3. Team Office Locations

RIGHT
Team ● Schedule ● Solution

Solid Waste Disposal and Recyclable Materials Processing Authority of Broward County

QA/QC

Robert Gardner, PE, BCEE (SCS)

PROJECT MANAGER

Daniel Dietch, MBA (SCS)

ASSISTANT PROJECT MANAGER

Leah Richter, PE,
TRUE Advisor (Arcadis)

TECHNICAL ADVISORS

Michelle Leonard (SCS)
Mark Hammond (Arcadis)
Tom Henderson (Arcadis)

EXISTING SOLID WASTE DISPOSAL AND RECYCLING PROCESS/RESOURCES

TASK LEAD - Leah Richter, PE, TRUE Advisor (Arcadis)

WASTE GENERATION/COMPOSITION
Stacey Demers, LEED® AP (SCS)

ORGANICS/COMPOSTING
Robert Curtis, PE (SCS)
Hunt Briggs (RRS)

RECYCLABLE MATERIALS
Michael Timpane (RRS)

COST ESTIMATING, FINANCIAL ANALYSIS AND FUNDING

TASK LEAD - Vita Quinn, MBA (SCS)

Robert Ryall, PE (Arcadis) Cindy Eckert, PE (Arcadis)
Alex Bellino (Arcadis)

FUTURE SOLID WASTE NEEDS AND ALTERNATIVE OPTIONS ANALYSIS

TASK LEAD - Michael Timpane (RRS)

OPTIONS ANALYSIS
Ketan Shah, PhD (SCS)
Chris Tilman, PE (Arcadis)
Joseph Krupa, PE (Arcadis)
Michael DeLoach (Arcadis)
Steve Nesbitt, PE (Arcadis)

ENVIRONMENTAL JUSTICE
Candy Elliott, PG (SCS)

RESILIENCY/CLIMATE IMPACT
Melissa Hew (Arcadis)
Shen Xin (Arcadis)

RECYCLING/ZERO WASTE
Brent Dieleman, TRUE Advisor (SCS)
Juri Freeman (RRS)

REGULATORY REQUIREMENTS AND POLICY REVIEW

TASK LEAD
Chris Tilman, PE (Arcadis)

Nichole Lynch, TRUE Advisor (Arcadis)
Robert Curtis, PE (SCS)

IMPLEMENTATION PLAN AND TIMELINES

TASK LEAD - Joseph Krupa, PE (Arcadis)

Nichole Lynch, TRUE Advisor (Arcadis)
Michael DeLoach, PE (Arcadis)

EDUCATION, OUTREACH, AND PUBLIC WORKSHOPS

TASK LEAD – Eric Johnson (Mercury)

Samantha Kappalman (RRS)
Nichole Lynch, TRUE Advisor (Arcadis)
Michael DeLoach, PE (Arcadis)
Karyn Riley, JD (Arcadis)

ADDITIONAL SERVICES

OPERATIONS PLAN DEVELOPMENT
Joe Krupa, PE (Arcadis)

INNOVATIVE AND FUTURE TECHNOLOGIES
JD Lindeberg, PE, LEED® AP (RRS)
Dan Leo, JD (SCS)

FACILITY MAINTENANCE
Michael Timpane (RRS)

NATURAL AREAS
Kayla Ouellette (SCS)
Angela Dalsis (Arcadis)

SCS Resumes

RIGHT
Team ● Schedule ● Solution

SCS ENGINEERS

Daniel Dietch, MBA

Project Manager | Miami, FL

31
Years of Experience

Daniel leads SCS's Southeast Regions' Sustainable Materials Management Practice and works closely with SCS's national experts to support our regional clients. Daniel has more than 30 years of academic and professional experience in solid waste management. He uses this experience to provide municipal clients with strategic solid waste consulting, including solid waste and recycling planning, public engagement, procurements for solid waste and recycling facilities and services, operations monitoring, rate structure/alternative financing analyses, ordinance development, and contract negotiations. Work products include strategic plans, procurement documents, operations reports, technology reports, benefit/cost analyses, rate models, contracts, ordinances, and customized data management systems. In addition, he is active in his local and professional communities having served as a five-term Mayor of Surfside, FL, Board President of The CLEO Institute, Advisory Board Member of the American Flood Coalition, as well as active roles with the Solid Waste Association of North America and Recycle Florida Today.

EDUCATION

MBA, Management
MPS, Environmental Management
BA, Geology

RELEVANT EXPERIENCE

- ✓ Solid Waste Disposal and Recycling Processes and Resources Evaluation
- ✓ Feasibility Analysis
- ✓ Financial Studies
- ✓ Future Needs Assessment
- ✓ Waste Generation Estimates
- ✓ Recycling Needs Analysis
- ✓ Recycling Legislative Trends
- ✓ Regional Processing Facilities
- ✓ Recycling Benchmarking
- ✓ Education & Outreach

Relevant Experience

50+
Solid Waste/Recycling Planning Projects

10+
Solid Waste Facilities Permitting, Reporting, Compliance Audits

20+
Public Engagement Projects

Integrated Solid Waste Management Strategy; Collier County, Naples, FL; Project Manager

SCS prepared an update to the County's Integrated Solid Waste Management Strategy. Activities included preparing for and facilitating an Integrated Solid Waste Management Strategy Status Update workshop with the County's Project Delivery Team to review the activities and principal results since the 2006 Integrated Solid Waste Management Strategy Workshop. Following the workshop, SCS prepared a status summary memorandum that documented progress since 2006 related to the identified solid waste management initiatives, programs, and facilities. In addition, SCS conducted a survey of comparable Florida counties and prepared a "State of Solid Waste Management in Florida" memorandum that captured information including new public and private landfills, landfill capacity, new collection agreements, and new recycling facilities. SCS also prepared fact sheets that analyzed the technical, financial, and operational feasibility as well a potential landfill capacity (i.e., airspace) savings, estimated carbon emission reductions, and estimated fiscal impacts for each option. While the project has been completed, SCS will be engaged under a separate authorization to support a workshop with the Board of County Commissioners.

Solid Waste Management Options Analysis; Manatee County, Bradenton, FL; Task Manager

Led the analysis and preparation of the following deliverables: 1) coordinated and prepared a population and waste disposal projection memorandum; 2) coordinated and prepared a summary memorandum an overview of current vendors and technologies for commercially proven, emerging, and developing thermal conversion technologies, including a discussion of the benefits and challenges, footprint, a review of capital expenditures for the development of the project, and an estimated timeline from siting to start up; 3) coordinated and prepared a transfer station model and analysis and preparing a summary memorandum that considers factors such as the cost of current operations, the cost of transfer station construction; the ongoing costs of onsite transfer station operations and staffing; alternative disposal facility tipping fees; distance to alternative disposal

facilities; the cost to transfer waste to disposal facilities; and the impact of different project delivery options; and 4) coordinated and prepared a summary memorandum based on the option to purchase land outside of the County for waste disposal.

Waste Feasibility Study and Solid Waste Master Plan; Fort Partners, Exumas, Bahamas; Project Manager
Developed a solid waste management plan to guide resource stewardship during the construction phase and the subsequent operations phase of their world-class luxury resort development on Norman's Cay. The solid waste management plan presents a time and activity delineated framework to transition from a waste destruction and disposal approach to one of waste reduction and resource stewardship and management.

Recycling Options Analysis; Leon County/City of Tallahassee, Tallahassee, FL; Project Manager
Performed a comprehensive feasibility study on behalf of the County and City that explored several recyclable materials management options, including seeking alternate proposals for single-stream recycling; hauling single-stream recyclables to the next nearest processor; constructing and operating a County-owned recycling facility; discontinuing the County's recycling program; and renegotiating the current agreement with their long-time service provider. Each option included a thorough analysis and projected annual costs for the County. Based on the feasibility study findings and SCS's recommendation, the County and City Commissions each decided to extend their current agreements as it represented the best value option.

Recycling Feasibility Study; City of Mobile/Mobile County, Mobile, AL; Project Director
Evaluated the feasibility of several options and alternatives to increase recycling within the Mobile area. The feasibility study activities included planning and facilitating a kick-off meeting with the partner communities, conducting public outreach and engagement, assessing the current conditions (i.e., data collection and records review), preparing solid waste generation estimates, conducting a recycling needs analysis, reviewing state recycling legislative trends, and benchmarking with similar communities.

Gulf Coast Recycling Analysis; The Recycling Partnership, Atlanta, GA; Project Director
Developed a model to capture and analyze the full costs and impacts of establishing and/or expanding single-family and multi-family recycling collection systems as well as investing in various levels of materials sortation and processing systems in Texas and Louisiana.

Materials Recovery Procurement Assistance Project; Orange County, Orlando, FL; Project Manager
Leading the public-private procurement of a new Materials Recovery Facility. Responsibilities include project management, preparing a Request for Information to solicit information related to processing technologies for recyclable materials, market conditions, trends, risk allocation, cost factors, etc., facilitating a Market Sounding Event, preparing and evaluating the request for proposal and recommending a best value option to the County Commission.

Recycling Options Assessment; The Recycling Partnership, Atlanta, GA; Project Manager
Led a recycling options assessment for the City of Atlanta, GA in terms of cost, efficiency, and effectiveness. Options evaluated included: 1) using a dedicated recycling fleet and labor; 2) reconfiguring collection services from weekly to bi-weekly; 3) reconfiguring collection services from 5 days per week to four days per week; and 4) outsourcing recycling services to a private vendor. Based on the study, the City engaged SCS through The Recycling Partnership to optimize collection routes and continue to utilize a dedicated fleet and labor.

Experience Prior to SCS

Waste and Recycling Services Broward RRB Assistance; Broward County, Fort Lauderdale, FL; Task Manager
Assisted the Resource Recovery Board to plan and execute a solid waste management visioning summit related to future solid waste management in Broward County. Activities included participation at steering committee meetings, development of an informational CD, facilitating break-out discussion sessions, and preparation of a unifying policy statement. Ongoing stakeholder engagements included the preparation of a request for expressions of interest and the preparation of a strategic framework guide for policy makers.

Thermal Technology Review Update; The City of Calgary, Calgary, AB; Project Manager
Prepared a status update to thermal conversion technology information provided in the Waste Organic Materials and Biosolids Master Plan, which was presented to the Standing Policy Committee on Utilities and Environment in February. The technical memorandum summarized emerging thermal technologies and trends in those technologies related to scale, applications, and conversion efficiency. In addition, the memorandum provided an overview of procurement activities related to thermal technologies in North America. The update was presented to the Standing Policy Committee on Utilities and Environment.

Integrated Solid Waste Facilities Master Plan; Collier County, Naples, FL; Project Manager
Prepared a comprehensive solid waste facilities master plan consistent with the County's Integrated Solid Waste Management Strategy to guide the development of needed solid waste management infrastructure for the next 50 years and beyond. Performed a solid waste facility needs assessment, including existing and planned facilities and infrastructure, trend analysis, and contractual constraints. The solid waste facilities master plan included a siting analysis and economic analysis, as well as a phased development approach.

MASDAR Sustainable Waste Implementation Plan; Abu Dhabi, UAE; Task Manager
Developed the sustainable waste implementation plan for the world's first zero-carbon and zero-waste sustainable city. Activities included analyzing waste generation; identifying and characterizing emerging and commercially proven thermal, biological, and mechanical solid waste management technologies; developing an integrated systems approach using emerging and commercially proven thermal, biological, and mechanical solid waste management technologies that will work toward achieving zero waste, zero carbon and energy production; and performing an options analysis for the integrated systems compared to the program objectives. Work also involved modeling (i.e., simulating) different solid waste management alternatives on a life-cycle cost basis to identify the interaction of the variables such as zero waste (percent diversion from a landfill), carbon footprint (tons of CO^2 equivalent), and other environmental releases to the air, land, and water; energy consumption/production (kWh per ton); cost (per ton); and land requirements (acres); and optimizing the preferred alternative, developing a project phasing plan, and preparing a summary technical report.

Residential Solid Waste and Recycling Collection Services RFP, Osceola County, Kissimmee, FL; Project Manager
Led the development of a request for proposals for residential solid waste and recycling services to residential properties within the County. Activities included developing a project management plan, surveying and benchmarking comparable jurisdictions to identify best practices, facilitating industry outreach, drafting the RFP, providing technical input on the draft service agreement, leading Administration and County Commissioner briefings. The new collection contracts are designed to enable the County to achieve the State of Florida's 75% Recycling Goal.

Theater Energy and Efficiency Master Plan; U.S. Army Central Command, Technical Expert
Served as a subject matter expert guiding the solid waste elements of the Theater Energy and Efficiency Master Plan. The Plan builds on the Environmental Component Plan for the 20-country Central Command Area of Responsibility. The goals of the Theater Energy and Efficiency Master Plan include decreasing the life-cycle costs for solid waste management, reducing the environmental footprint and the environmental impacts and creating host nation goodwill through cooperative management of their waste resources. The Plan identified specific solid waste management technologies and solutions that can be efficiently and effectively implemented in Afghanistan and other contingency environments to support U.S. military operations. Targeted solutions relate to recycling, organics management, and waste-to-energy.

Select Publications and Presentations

Dietch, D, "Leon County and the City of Tallahassee Partner on a Recycling Analysis to Assess Best Value Options," Recycle Florida Today Renewable News, 2021.

Dietch, D., Wood, J.J., Beinstein, R., "Sustainable Cities and Solid Waste," Planning Sustainable Cities: An Infrastructure-based Approach, Zofnass Program for Sustainable Infrastructure, Harvard University Graduate School of Design, 2016.

Robert Gardner, PE, BCEE

QA/QC | National Solid Waste Expert | Virginia Beach, VA

44+
Years of Experience

Bob is responsible for overseeing SCS's nationwide solid waste management practice, which includes solid waste planning and studies, financial analysis, landfill services, operation and maintenance, and construction. He works closely with SCS's national and regional clients. Since joining SCS in 1980, he has completed solid waste, hazardous waste, environmental assessment, facility design, compliance audit, and other environmental study projects for municipal and private clients.

Relevant Experience

348+
Solid Waste Projects Last 5 Years

20+
Solid Waste Master Plan Projects Last 5 Years

6+
Waste Characterization Studies

Solid Waste Master Plan, Orange County, FL; Project Director
Responsible for the preparation of a solid waste master plan for Orange County, including evaluation of the County's landfill, transfer station, and recycling operations for a 50-year planning horizon, review of the County's existing facilities and operations, siting study for new transfer station facilities, evaluation of the maximum disposal capacity of the existing landfill facility, a preliminary siting study for a new Class I landfill, development a commercial recycling plan, and preparation of a master plan report.

Hampton Roads Planning District Commission, VA, Project Director, Development of a Solid Waste Management System for 2018 and Beyond
Responsible for evaluation of alternatives and recommendations for managing solid waste in the south Hampton Roads Region after 2018, when the current agreements between Chesapeake, Franklin, Isle of Wight County, Norfolk, Portsmouth, Southampton County, Suffolk, Virginia Beach, and the Southeastern Public Service Authority (SPSA) expire. Tasks included evaluation of solid waste management technologies, evaluation of institutional models for future cooperative arrangements within the region, development of pro forma models to evaluate alternatives, facilitation with the Chief Administrative Officers from each City and County involved in the process, and preparation of final recommendations and report.

Zero Waste Policy Analysis Report; City of Virginia Beach, VA, Project Director
Responsible for the preparation of an analysis considering the potential adoption of a Zero Waste policy for the City of Virginia Beach. The purpose of the report was to provide supporting technical information and policy analysis for the City Council regarding Zero Waste programs and their applicability to the City. The analysis evaluated the definition of Zero Waste, the types of Zero Waste programs implemented throughout the United States, review of several similar size municipalities that have adopted Zero Waste policies, and the implications of adopting a Zero Waste policy for the City in terms of program changes, facility infrastructure needs, ordinance revisions, diversion requirements, and disposal practices.

Solid Waste and Landfill Consulting Services and Master Plan, Orange County, FL; Project Director
Continuing services, landfill engineering consulting contract, and responsible for overall project oversight, quality control review, and engineering assistance associated with various engineering and study projects. Projects included evaluation of the County's solid waste transfer operations, evaluation of landfill gas system

EDUCATION

ME, Civil Engineering
BS, Civil Engineering

PROFESSIONAL LICENSES

Professional Engineer – FL, AL, AR, GA, LA, ME, MS, NJ, NY, PR, SC, SD, VA, WA

RELEVANT EXPERIENCE

- ✓ Solid Waste Disposal and Recycling Processes and Resources Evaluation
- ✓ Feasibility Analysis
- ✓ Financial Studies
- ✓ Future Needs Assessment
- ✓ Waste Generation Estimates
- ✓ Recycling Needs Analysis
- ✓ Recycling Legislative Trends
- ✓ Regional Processing Facilities
- ✓ Recycling Benchmarking
- ✓ Education & Outreach

improvements at its Class I landfill, design and permitting of a gas collection and control system pursuant to the new source performance standards (NSPS), design of an anvil top surface recoating at the Porter Transfer Station, design of a new coating system to rehabilitate the County's aboveground, concrete leachate storage tanks, and preparation of a 50-year solid waste master plan. The master plan study included solid waste projections, assessment of current and future transfer and disposal needs, a preliminary siting study for a new Class I landfill and several new transfer stations, a solid waste disposal optimization study of the County's existing solid waste management facility, economic analyses, and preparation of the master plan report.

Solid Waste Management Plan, Dorchester County, MD; Staff Engineer
Responsible for field studies and engineering evaluations supporting the development of a 10-year solid waste management plan for Dorchester County, Maryland. Evaluated existing collection systems and landfills; developed conceptual designs and cost estimates for a resource recovery facility (modular incinerator) and an 80-ton-per-day transfer station; assessed current composting operations at the County wastewater treatment facility; supervised a solid waste weighing and characterization program; and recommended modifications to the County's disposal and collection system.

Solid Waste Rate Study, City of Virginia Beach, VA; Project Director
Responsible for the preparation of a comprehensive rate study for the City's Solid Waste Management Division. Tasks included 1) review of the City's historical and current budgets and expenses associated with solid waste collection (automated curbside collection, bulky waste, and yard waste), recycling, and disposal, 2) preparation of a pro forma rate model to evaluate the required solid waste management fee that residents would need to be charged ($/household/month) for solid waste management services considering several operational and financial performance scenarios, and 3) preparation of a report to support future proposed rates.

Development of Solid Waste Special Assessment Program, Broward Solid Waste Disposal District, FL; Project Director
Responsible for the development of a solid waste special assessment program for the Broward Solid Waste Disposal District, including evaluation of alternative special assessment strategies and programs used by other counties and municipalities throughout Florida and elsewhere, field testing to develop generation estimates for commercial properties; development of organization and procedures for implementing a special assessment, and preparing final report presenting the special assessment findings and program. The District included 25 separate municipalities and the unincorporated areas of Broward County.

Procurement Assistance for Solid Waste Management System Vendor Selection, Southeastern Public Service Authority, Chesapeake, VA, Project Director
Responsible for independently reviewing the analysis of the proposals received by SPSA from three private companies to provide comprehensive solid waste management services (375,000 tons per year) to the region after the current use and support agreement between the member communities expire in January 2018. The proposals received included managing the region's waste at an existing waste to energy facility (Wheelabrator), long-hauling for disposal at an out-of-region landfill (Republic Services), and constructing a new mixed waste processing facility, with disposal of residuals in SPSA's regional landfill (Repower South). Wheelabrator and Republic have demonstrated capabilities of providing the services they are offering, but offered rates that were higher than Repower South. However, Repower South has never developed or operated a similar facility, although its team members appear to have experience relevant to the key elements of the project, including, design, permitting, construction, financing, and operation. Tasks included review of the financial and technical elements of the proposals, site visit to a mixed waste processing facility that produces pelletized fuel from solid waste, financial evaluation, and presentation of findings to the SPSA Board.

Michelle Leonard

Technical Advisor | Pasadena, CA

36
Years of Experience

Michelle has 36 years of experience in environmental consulting and project management, with an emphasis on solid waste management planning and facilities. She has assisted public and private sector clients in the preparation of solid waste management plans; designed and implemented waste reduction, recycling, and reuse programs; and evaluated existing programs to identify opportunities to reduce, reuse, and recycle solid waste. She has prepared plans and permits for transfer stations, material recovery facilities (MRFs), and drop-off and buy-back centers. She has a strong working knowledge of solid waste management regulations and practices and has presented numerous successful projects to city, county, and state regulators.

EDUCATION

BS, Environmental Studies

RELEVANT EXPERIENCE

- ✓ Solid Waste Disposal and Recycling Processes and Resources Evaluation
- ✓ Feasibility Analysis
- ✓ Future Needs Assessment
- ✓ Waste Generation Estimates
- ✓ Recycling Needs Analysis
- ✓ Recycling Legislative Trends
- ✓ Regional Processing Facilities
- ✓ Recycling Benchmarking
- ✓ Education & Outreach

Relevant Experience

66+
Waste Characterization Studies

35
Waste Diversion Feasibility Studies

30
Waste Collection Assessments

Solid Waste and Moderate Risk Waste Management Plan, County of Yakima, Yakima, WA; Project Director

Michelle was Project Director for the 2022 update of the County Solid Waste and MRW Plan. The Plan Update was prepared to meet the requirements of all applicable federal, state and local regulations and guidelines, particularly chapter 70.A.205.045 RCW, the State Solid Waste Management Plan, and associated State Guidelines, and other local, state or federal policies, regulations or goals that affect solid waste management. The Plan Update is an integrated, long-term strategy for waste and materials management. The strategy incorporates policies and programs that address the different segments of the waste stream and the different management approaches that must be taken to accomplish the County's goals and objectives. In addition to waste handling systems, the Plan Update will also include tools to accomplish its implementation. The plan has been updated to incorporate new requirements, including the Contamination Reduction and Outreach Plan.

Solid Waste Management Master Plan, Miami-Dade County Department of Solid Waste, Miami-Dade County, FL; Senior Technical Advisor

Michelle assisted in the preparation of a solid waste master plan identifying options and improvements to the solid waste system, including the collection, transfer, and processing operations. A series of public workshops and meetings were conducted to identify the preferred options for implementation over the planning period.

Iowa Hub and Spoke Recycling Study, Iowa Department of Natural Resources, Des Moines, IA; Project Director

The Iowa Department of Natural Resources contracted with SCS to inventory existing recycling operations within rural Iowa, and assess the feasibility of creating rural partnerships with a hub-and-spoke type of system. The study included identifying existing rural recycling services, service providers, and recycling gaps, and providing strategies to fill recycling gaps, within the structure of a regional hub-and-spoke recycling system. Prepared a report that summarized our research and provided recommendations for implementing this type of recycling system as a means of increasing rural recycling participation while maintaining and improving rural recycling efficiencies and economics.

Solid Waste Master Plan, City of Odessa, TX; Project Director
The City needed to develop a Solid Waste Management Master Plan due to unexpected population growth, resulting in an increased competition for human resources. The City wanted to ensure that long-term goals were fiscally and operationally sustainable. Emphasis of needs were stressed at a comprehensive financial review to implement a cost control model and plan. As part of the Master Planning process, SCS conducted an-online survey of residents and businesses as to their concerns about the existing waste management system and desire to increase landfill diversion.

South Bay Waste Management Authority (ReThink Waste) Site Optimization Study
Project Director. Michelle leads the SCS team in evaluating various options to optimize the existing solid waste transfer, processing, and collection yard. The Authority is challenged with serving its growing communities and their waste collection, processing, recycling, and disposal needs on a restricted site that has been in operation for 25 years. The project has conducted a thorough analysis to gauge the capacity of the facility to meet is existing and future needs. The project was conducted in three phases: 1. Assessment (Audit/Inventory) Phase; 2. Site Optimization and Selection Phase, and 3. Design and Cost Estimation Phase. The results and recommendations will be presented to the Board of Directors for decision-making.

Commercial, Institutional Recycling Program (CIRP), Los Angeles County Public Works, Alhambra, CA; Project Director
Michelle and the SCS Team are currently assisting the County to implement its Road Map to a Sustainable Waste Management Future, which establishes diversion strategies for the region, County operations, and the County unincorporated communities. SCS is providing Technical Assistance to County facilities, including commercial recycling audits, recommendations for program enhancements, and assisting with recycling program implementation at County facilities and at large waste generators. SCS has prepared a Zero Waste Event Guide, evaluated operations at 25 County facilities and prepared Resource Management Plans for those facilities, developed an online training program for County staff, created an awards program for facilities that are achieving high levels of diversion, identified and procured outreach materials and recycling containers for distribution to County facilities and other businesses. SCS was re-awarded the contract when it went up for bid.

Solid Waste Management Plan Update, Kittitas County, Ellensburg, WA; Project Manager
Michelle worked with the SCS Team to develop the Kittitas County Solid Waste Management Plan while providing decision makers within the County with a set of goals and policies for implementation and evaluation of future solid waste management efforts. Michelle assisted the County and Solid Waste Advisory Committee in evaluating Solid Waste Programs and Systems for adequacy in meeting current and future, local and regional needs, and developed a set of goals based on these needs. Policy issues addressed within the plan included: Waste Reduction: Prevention and Recycling, Special Wastes, Refuse Collection, Transfer Stations, Landfill Versus Long Haul, Administration, Enforcement.

SB 1383 and Sustainable Materials Management, Fresno County, Fresno, CA; Project Director
Michelle leads the SCS Team in preparing a solid waste masterplan that meets the County's 5- to 20-year goals, while taking into consideration the economic, social, and environmental issues of various solid waste management policies, programs, and infrastructure options for SB 1383. We have developed a food donation capacity study for the County that identifies local organizations that collect and donate food. The County has franchise agreements and a permit system for residential and commercial collection, but service is not mandatory. Therefore, we are evaluating the County's existing agreements with its haulers to develop collection and service options that will enable the County to incorporate SB 1383 requirements. We are conducting a capacity analysis to identify options for the processing of organic materials. We will also review the existing County ordinances and create language for necessary changes to ensure regulatory compliance.

Zero Waste Strategic Operations Plan (ZWSP), City of Santa Monica, Santa Monica, CA; Project Manager
Michelle was responsible for preparing a strategic operations plan that evaluated current conditions, and recommended policies, programs, and infrastructure to reach the City's goal of zero waste by 2030. The project included planning of a zero waste ordinance, guiding principles, waste characterization and generation projections, and review and recommendation of suitable options. The ZWSP also evaluated the impacts on the City's rate structure, and mechanisms to finance the program.

Stacey Demers, LEED® AP

Waste Generation/Composition | Reston, VA

30
Years of Experience

Stacey Demers provides SCS with strong technical and analytical skills in planning, statistics, sample design for environmental programs, and modeling. Project activities have included program assessments, data analyses, database management, sampling protocols, and associated field sampling specific to sustainability metrics. She has 30 years of experience in the environmental field focusing on diversion programs and energy.

Relevant Experience

56	34	12
Waste Characterization Studies	Waste Diversion Feasibility Studies	Waste Collection Assessments

Waste Generation and Composition Study, Broward County, FL; Project Manager

Coordinated with private haulers to install on-board scales to four waste collection vehicles to weigh refuse generated by over 1000 businesses spanning 16 commercial generator types. Concurrently managed the sampling and sorting of representative commercial and residential waste and recyclables; and visual characterization of construction and demolition debris disposed in the County. Final deliverables will define the quantity and composition of waste generated in the County.

Zero Waste Plan and Solid Waste Management Plan, Arlington County, VA, Project Director

Identified feasible zero waste strategies and estimated associated implementation costs, greenhouse gas savings, and impact on diversion rates for each. Presented analysis to Solid Waste Advisory Committee and incorporated their comments into the plan that was submitted to the County Board of Supervisors and Virginia Department of Environmental Quality.

Zero Waste Strategic Initiatives, Prince George's County, MD, Project Manager

Evaluated the County's existing waste diversion programs and practices and identified options for reducing waste and increasing waste diversion through reuse, recycling, and composting programs. Engaged multiple stakeholders to identify gaps and recommend options for progress toward zero waste goals.

Solid Waste Management Plan, Prince William County, VA, Project Manager

Developed the state-mandated solid waste management plan to document existing services and project future solid waste management needs. Worked in a collaborative effort with County staff and stakeholders to tailor programs and policies to the needs and specific conditions of the County and its incorporated towns.

Recycling Options Analysis, Leon County and the City of Tallahassee, FL, Lead Analyst

Assessed existing recycling conditions in the County and City, estimated future recycling needs, and developed alternative recycling scenarios involving multiple facilities and collection options.

Assessing New Recycling Strategies in Light of China National Sword Policies, Frederick County, VA, Project Director

Assessed options to reduce costs, improve efficiencies, and reduce transportation and processing costs related to effects of China's National Sword Policies. SCS evaluated the county's options for utilizing various out-of-

EDUCATION

BS, Statistics

PROFESSIONAL LICENSES

LEED Accredited Professional

RELEVANT EXPERIENCE

- ✓ Solid Waste Disposal and Recycling Processes and Resources Evaluation
- ✓ Feasibility Analysis
- ✓ Financial Studies
- ✓ Future Needs Assessment
- ✓ Waste Generation Estimates
- ✓ Recycling Needs Analysis
- ✓ Recycling Legislative Trends
- ✓ Regional Processing Facilities
- ✓ Recycling Benchmarking
- ✓ Education & Outreach

county processing facilities, partnering with neighboring communities, developing a facility to condense materials, and collaborating with the private sector.

Evaluation of Regional Recycling Options, Northern Shenandoah Valley Regional Commission, VA, Project Director
Evaluated regional recycling options that would improve efficiencies and reduce escalating transportation and processing costs related to China's National Sword Policies. Researched options for rail haul to distant markets, developing a centralized processing facility, utilizing a recycling broker, and regional procurement options.

Development of a Regional Recycling Strategy for Fort Hood Army Installation and Surrounding Cities, TX, Project Manager
Assessed the feasibility and increased efficiency of developing a regional recycling program. SCS developed approaches that varied in complexity: from sharing resources to significant capital investment in a centrally located Material Recovery Facility.

Comprehensive Review of Solid Waste Collections, Transportation, and Disposal Options, Town of Chapel Hill, NC, Task Leader
Identified opportunities to enhance existing collection recycling collection services, improve efficiencies, and evaluate the applicability of innovative technological developments for City waste management operations.

Improving Efficiency and Equity of Municipal Waste Collection Services, City of College Park, MD, Project Director
Evaluated the curbside collection of trash, yard waste, recycling, and bulky waste and recommended methods to improve efficiency and reduce program abuses. Developed practical and implementable solutions for continued high service to all residents and presented these recommendations to City Council.

Modeling Cost of Service for Residential and Commercial Organics Collection, City of Long Beach, CA, Lead Analyst
Evaluated the costs for compliance with pending legislation in California that requires source separation of organics. Estimated the growth in segregated organic materials as the program matures, additional equipment and labor needs, and facility options.

Evaluation of Collection Services for City of Oklahoma City, OK, Task Leader
Evaluated Oklahoma City's residential solid waste collection system and provide recommendations for future changes in services. Observed collection operations and evaluated the efficiency of both City and private contractor crews in "urban" and "rural" geographic service areas. Conducted a benchmarking study of collection operations and associated costs for other municipal collection programs, both regionally and nationwide.

Evaluation of Waste and Recycling Collection, Rockbridge County, VA, Project Director
Evaluated a series of issues and alternatives appropriate for a rural County's waste collection, transportation, disposal, and recycling functions. SCS evaluated the efficiency of the County's network of staffed and unstaffed waste and recycling collection centers and recommended a restructured network for enhanced services.

Feasibility of Organic Waste Diversion of Residential Facilities, University of Maryland, College Park, MD; Project Director
Assessed types of materials generated by two different types of residential facilities (traditional style dormitory and apartments/suites) and evaluate the feasibility of an organic diversion program. SCS surveyed experiences of other universities that had implemented some type of organic diversion program in residential facilities, recommended materials to include in the program and other logistics (equipment, collection, aggregation, transportation, staffing) and estimated capital costs and maintenance costs for the program.

Robert Curtis, PE

Organics/Composting | Tampa, FL

33+
Years of Experience

Bob has more than 33 years of experience designing, permitting, managing, and overseeing construction of civil and environmental projects for both public and private clients. He specializes in creating detailed designs for landfill development and closure, landfill gas collection and conveyance systems, stormwater management and erosion control plans, and compost facility master planning and process design. Bob has worked with a variety of waste streams that range from low-strength industrial waste and sludges to municipal solid waste (MSW) and construction and demolition debris (CDD). Bob is the regional leader of SCS' organics material and composting initiative.

Relevant Experience

9	150+	250+
Composting Projects Last 5 Years	Solid Waste Projects Last 5 Years	Acres CM & CQA Services

Southeast County Landfill Biosolids Composting Facility, Hillsborough County, Lithia, FL; Project Director
Project director coordinating a multidisciplinary design team to design, permit, bid (ongoing), and construct (ongoing) an expansion of the existing Biosolids Composting Facility at Southeast County Landfill. Preliminary evaluation of the site included utility locate, ground survey, geotechnical explorations, and continuous client feedback to improve upon the design of the existing facility. The expansion design incorporated a 6,000-gallon above ground diesel tank for equipment, approximately 3-acre structure with composting floor and leachate collection, leachate conveyance and pumping infrastructure, an improved leachate storage and tanker loading area, stormwater improvements, and permitting through multiple agencies.

Winget Mills Composting Facility, Barry Recycling, Hendry County, FL; Project Director
Prepared design drawings and permit applications for a proposed 75,000 dry tons per year composting facility in Hendry County. Facility required FDEP Wastewater and Environmental Resource Permits, as well as County permits for traffic and wetland impacts. The proposed project will use an aerated static pile system to compost biosolids collected from local wastewater treatment plants and yard waste treated to a Class AA standard.

Stormwater Assistance, Atlas Organics, Western Florida; Project Director
Provided stormwater permitting assistance for four compost sites located in western Florida, including Sarasota, Port Charlotte, Tampa, and Lutz Description of project. SCS provided permitting and design services to keep the facilities in compliance with local and state regulations. Coordinated with field staff and engineering staff to conduct Environmental Resource Permit Inspections for two Atlas Organics Composting sites in Florida. Drafted and submitted the reports to the Florida Department of Environmental Protection (FDEP) and the Southwest Florida Water Management District (SWFWMD).

Compost Facility Design and Master Plan, All In Removal/Nature Coast Soils, Suwanee, FL; Project Director
Developed a Master Plan, Permitting, Facility Design, and regulatory support for a new horse bedding composting facility. This facility will support the processing and bagging of an estimated 200,000 plus CY of material each year.

EDUCATION

BS, Forest Engineering

PROFESSIONAL LICENSES

Professional Engineer – FL, AL, GA, ME, NC, SC, TN

PROFESSIONAL MEMBERSHIP

US Composting Council (USCC) and Florida Composting Council (FLCC)

RELEVANT EXPERIENCE

- ✓ Solid Waste Disposal and Recycling Processes and Resources Evaluation
- ✓ Feasibility Analysis
- ✓ Financial Studies
- ✓ Future Needs Assessment
- ✓ Waste Generation Estimates
- ✓ Recycling Needs Analysis
- ✓ Regional Processing Facilities
- ✓ Recycling Benchmarking

Alternative Leachate Treatment Study - Perdido Landfill, Escambia County, Cantonment, FL; Project Director
Conducted feasibility study of the landfill's leachate management system. Leachate from landfill pumped to Emerald Coast Utility Authority (ECUA) wastewater treatment plant for treatment and disposal. Ammonia concentrations in leachate well above contract level causing the ECUA to restrict volume. Evaluated various treatment options for total nitrogen and provided recommendations to County. Evaluated a hybrid of onsite treatment and disposal with a portion of the treated effluent being discharged to the ECUA. Alternative treatment methods included: additional on-site storage, wetland treatment, storage pond aeration, mixing groundwater with leachate, discharge to rapid infiltration basins, misting systems, floating wetland (vegetative) mats, and upflow bio-activated filters.

New Landfill Site Selection, Confidential Client, FL; Project Manager
Managed team conducting new landfill site investigation. Utilized GIS to narrow list of potential large tracts of land to 10 sites meeting current FDEP, Army Corp, SWFMD, and other regulators standards. Developed conceptual landfill layout on each property and presented the top five sites to County, leading to field investigation.

Solid Waste Annual Report for Lena Road Landfill, Manatee County, Bradenton, FL; Project Director
Provided annual evaluations of the solid waste management system (facilities and infrastructure) for annual report to Board of County Commissioners. Report included inspection of solid waste sites, review of permits, review of compliance submittals to FDEP, and general compliance with County covenants.

Northwest Transfer Station Redevelopment, Hillsborough County, FL; Project Director
Managed a team of SCS and eight subconsultants (various disciplines) to conduct oversight of the design build process. The work included: review of design drawings, submittals, design-build team Construction Quality Assurance plan, permits, and some limited Construction Quality Assurance work. Peer review of 60%, 90%, and construction level drawings, specifications, calculations, FDEP solid waste permit, ERP stormwater permit, County permits, and wastewater permit.

Guantanamo Bay Landfill, US Navy, Guantanamo Naval Station, Cuba; Senior Project Manager
Engineer of record for design-build of a new 11-acre solid waste landfill at a naval base in Guantanamo Bay, Cuba. Design included new landfill cell, stormwater ponds, new water main, roadways, parking areas and other processing areas. Site permitted through U.S. EPA. Performed construction services including review of shop drawings and answering Requests for Information.

Landfill Operations Plan and Geotechnical Evaluation, Great Salt Pond Landfill, EEG/World Bank, Sint Maarten; Project Manager
Prepared landfill operations plan for Main Landfill and Irma Dump on the Island of Sint Maarten. Developed fill sequence figures, regrading, and compaction plans to optimize remaining airspace following influx of debris from Hurricane Irma. Calculated remaining airspace and sideslope grades. Investigated fires within the waste, prepared health and safety plan to address residents in shanty huts bordering landfill and prepared long-term debris management plans.

Experience Prior to SCS

Solid Waste Master Plan, Hillsborough County, Tampa, FL; Project Professional
Developed a Master Plan for future solid waste facilities. Reviewed current and estimated future population and density to plan for solid waste operation centers. Provided a report of available properties and County owned properties of adequate size for transfer stations, hazardous waste collection facilities, and citizen collection centers.

Recycling Study, Sun Waste Company, Palm Beach, FL; Project Professional
Conducted recycling study and report for material recovery facility. Study focused on types of recycling material and contamination from various communities. Percentages of materials used to determine rates from the communities.

Vita Quinn, MBA

Financial Advisor | Orlando, FL

17+
Years of Experience

Vita has over 17 years of experience working with public sector entities as a management consultant and financial analyst. She has developed financial sustainability solutions for various general governments, enterprise funds, and quasi-governmental entities. Her areas of expertise include non-ad valorem special assessment development, fiscal impact analysis, cost-benefit analysis, capital planning, impact fee development, and bond feasibility analysis. Her utility experience includes cost apportionment and rate/fee/tax design for solid waste, recycling, stormwater, water, and sewer.

Relevant Experience

80+
Solid Waste Projects last 5 Years

100+
Rate and Financial Studies

5
Years SWANA Board of Directors

Management Consulting Projects

- Broward County, FL – Waste Generation & Waste Composition Studies
- Broward County, FL – Revenue Development for Independent Solid Waste Authority
- Orange County, FL – Model Development for Financial Assurance Costs & Reporting
- Fresno County, CA – Hauler Rate Negotiations
- Council Bluffs, IA – Utility Billing Analysis
- City of Atlanta, GA – Expert Witness Services
- Stanford University, CA – Annual Hauler Rate Negotiations
- City of El Segundo, CA – Procurement Forms

Rate Studies/Cost of Service/Master Plans

- Collier County, FL – Landfill Expansion Analysis
- City of Virginia Beach, VA – Solid Waste Revenue Sufficiency Analysis
- City of Odessa, TX – Solid Waste Management Plan
- City of New Braunfels, TX – Solid Waste Management Plan Update and Rate Studies
- City of Fort Lauderdale, FL – Solid Waste Cost Allocation & Rate Design
- Indian Creek Village, FL – Water Revenue Sufficiency Analysis & Stormwater Rate Study
- Village of Pinecrest, FL – Stormwater Fee Study and Update
- City of West Palm Beach, FL – Solid Waste Rate Study
- City of St. Cloud, FL – General Fund & Utility Integrated Analysis (Water, Sewer, Bulk Water)
- City of Cocoa, FL – Integrated Water and General Fund Financial Sustainability Analysis, Regional Water Rate Development
- City of Coconut Creek, FL – Water & Wastewater Utility Rate Study
- Nassau County, FL –Water & Sewer Rate Study, Miscellaneous Fee/Charge Development
- Okaloosa County, FL – Water & Wastewater Revenue Sufficiency and Bond Feasibility
- City of Wauchula, FL, Solid Waste Rate Study
- City of Cape Coral, FL – Water & Wastewater Rate Study

EDUCATION

MBA, Finance/Real Estate Development
BS, International Economics

RELEVANT EXPERIENCE

- ✓ Solid Waste Disposal and Recycling Processes and Resources Evaluation
- ✓ Feasibility Analysis
- ✓ Financial Studies
- ✓ Future Needs Assessment
- ✓ Waste Generation Estimates
- ✓ Recycling Benchmarking
- ✓ Education & Outreach

- Clay County Utility Authority, FL – Water & Sewer Revenue Sufficiency Analysis, Lakes Replenishment Program Funding Analysis, and Comparative Impact Fee Study
- Town of Mount Dora, FL – Stormwater Rate Study
- City of Neptune Beach, FL – Water & Sewer Revenue Sufficiency Analysis
- City of Clearwater, FL – Water, Sewer, and Solid Waste Revenue Sufficiency Analysis
- City of Atlanta, GA – Solid Waste Rate Study
- City of Myrtle Beach, SC – Solid Waste Collections Rate & Transfer Station Tipping Fee Study
- City of Greenville, SC – Solid Waste Rate Study

Funding/Bond Feasibility/Operational Analysis

- Manatee County, FL – Facility Location Breakeven Analysis
- City of Los Alamos, NM – Composting Alternatives and Financial Feasibility Analysis
- Okaloosa County, FL – Revenue Bond Feasibility Analysis, Utility Privatization Study
- Butte County, CA – Solid Waste Management Plan
- Dane County, WI – Analysis of Debt Funding, New Site Development, Rate Alternatives
- City of Anaheim, CA – Revenue Analysis and On-Call Financial Services
- The Recycling Partnership – Analysis of Recycling Program Alternatives
- Stanford University, CA – Zero Waste Program Assistance
- City of Bristol, VA –Solid Waste Independent Cost Analysis and Evaluation of Landfill Alternatives
- City of Dubuque, IA – Financial Analysis of Alternative Composting Technologies
- City of Waynesboro, VA – Solid Waste Collections System and Recycling Evaluation
- Manatee County, FL – Cost-Benefit Analysis of Waste to Energy Plant Repairs
- Chittenden Solid Waste District, VT – Compost Business Analysis / PPP
- City of Lynchburg, VA – Solid Waste Collections System Evaluation & Enterprise Fund Financial Plan
- City of Glendale, CA – Solid Waste Rate Matrix and Miscellaneous Fee Development
- City of Odessa, TX – Fleet Rental Rate Analysis
- City of Davis, CA – SB 1383 Planning and Financial Feasibility Analysis
- Salinas Valley Solid Waste Authority, CA – SB 1383 Planning and Cost Analysis
- Los Angeles County, CA – Organics Alternative Technology Comparative Analysis
- Mattress Recycling Council, CA – Analysis of Disposal Alternatives
- SAWS, WY – Water Rate Study of Joint Powers Board Alternatives

General Government/Fiscal Impact/Tax Programs

- City of Odessa, TX – Fleet Rental Rate Analysis
- City of Fort Lauderdale, FL – General Government & Utility Integrated Analysis (Water, Sewer, Regional Wastewater, Stormwater, Sanitation, Airport, Parking, Building Funds)
- City of Temple Terrace, FL – Solid Waste and General Fund Integrated Analysis
- City of Zephyrhills, FL – General Fund Financial Sustainability Analysis
- Indian Creek Village, FL – General Government Financial Sustainability Analysis
- City of Lynn Haven, FL – Fiscal Impact Analysis
- City of Fort Myers, FL – General Fund Financial Sustainability Analysis
- City of New Port Richey, FL – General Fund and Utility Integrated Financial Sustainability Analysis, General Fund Indirect Cost Allocation
- Albemarle County, VA – Fiscal Impact Analysis of Moving County Facilities / PPP
- Town of Longboat Key, FL – Beach Renourishment Tax Program Update
- Plant City, FL – General Fund Fiscal Impact Consulting
- City of Anaheim, CA – Facilities Services Revenue Sufficiency and Labor Rate Calculation
- City of Orange Cove, CA – Indirect Cost Allocation Analysis

Ketan Shah, PhD

Options Analyst| Bellevue, WA

10
Years of Experience

Dr. Shah has over ten years of environmental and solid waste engineering experience. He provides engineering support services for sustainable materials management, landfill gas modeling, life cycle assessment, landfill design, permitting, construction management, and reporting for landfill projects. He also is experienced in life cycle assessment, environmental systems modeling, optimization, and solid waste management systems and has developed an interest in a comparative statistical analysis between developed and developing countries Solid waste decision-support and decision-making tools with optimization framework.

Relevant Experience

80+
Solid Waste Facilities Permitting, Reporting, Compliance Audits

12+
Engineering/ Planning Studies/ Solid Waste Projects

20+
Public Sector Projects

Lifecycle Analysis of Single use Plastic Water Bottles, State of Iowa; Options Analyst
Evaluated all the life cycle stages of single use plastic bottles for the state of Iowa with OpenLCA tool and using US Life cycle inventory (USLCI), hosted by the U.S. Federal LCA Commons Database selected: National Renewable Energy Laboratory/USLCI repository as JSON-LD. Comparative LCIA of scenarios, different permutations for single use water bottled parameter analysis.

Transfer Station design, layout, drawings, technical specs, Engineering reports, Plan of Operations and permitting, Kittitas County, WA; Options Analyst
This project provided an analysis and options for their new transfer station design, facilities layout, capacity sizing and analysis, efficiency analysis, and recommendations for both operational and capital improvements for the Kittitas County, WA. Future facility needs will be projected based on operational and waste generation data collected, to facilitate the County's decision-making process. The project focuses on elevation challenges with new landscape, shallow water table, high muck levels, and permit clearance, identifying most efficient and effective ways to address those challenges were part of the project.

Transfer Station Feasibility Study, Island County Coupeville Solid Waste Management Facility (CSWMF), Island County, WA; Options Analyst
The study provided an analysis and options for their existing transfer station, a capacity analysis, compactor analysis, an efficiency analysis, and recommendations for both operational and capital improvements for the CSWMF. Future facility needs were projected based on operational and waste generation data collected, to facilitate the County's decision-making process to upgrade the existing facility with new compactor, versus recommending a new transfer station. The study focused on identifying operational and facility improvements that increases the capacity and efficiency of the transfer station operations, especially as a low footprint and high throughput facility.

EDUCATION

PhD, Civil and Environmental Engineering
MBA, Technology Management
BE, Chemical Engineering,

SPECIALTY CERTIFICATIONS

HAZWOPER 40 hr Certified
Nuclear Gauge Safety Training and Transportation
Life Cycle Thinking in Business Decisions, Life Cycle Initiative
Navigating Environmental Sustainability: A Guide for Leaders
Progress and Challenges in International Solid Waste Management, Disposal and Greenhouse Gas Reductions

EXPERIENCE

- ✓ Solid Waste Disposal and Recycling Processes and Resources Evaluation
- ✓ Feasibility Analysis
- ✓ Financial Studies
- ✓ Future Needs Assessment
- ✓ Waste Generation Estimates
- ✓ Recycling Needs Analysis
- ✓ Regional Processing Facilities
- ✓ Recycling Benchmarking

Compost Facility Operating Plan Specification Review, Meridian composting, WA; Options Analyst
Operating plan specification review for compost facility of 175,000 TPA, Operating plan specification review to integrate process water, storm water and Roof water totaling 2 million gallons of water.

Intrinsic Advance Materials for Hanes Inc, CA; Options Analyst
Estimation of methane generation from biodegradation of polyester in the US landfills. This research project includes providing the methane estimates that discuss the data, assumptions, and calculation methods used to develop the estimates. Methane emissions estimates to help assess the potential impacts that producing new consumer products made with biodegradable polyester will have on greenhouse gas (GHG) emissions. Objective 1 – Develop Estimates of Methane Generation from Disposed Polyester. Objective 2 – Prepare Estimates of Methane Recovery Rates and Emissions Reduction from Utilization. Objective 3 – Estimate Annual Net Methane Emissions for 100 Years.

Landfill Gas Collection and Control System Design, Terrace Heights Landfill, WA; Options Analyst
Assisted in the design of the landfill gas collection and control system utilizing components of the ongoing initial GCCS design, the EPA LandGEM model. Well design and analysis. Provided assistance to prepare bidding documents for construction contractors.

Bi-monthly Compliance Reviews, Wasco County Landfill, OR; Project Professional
Responsible for preparing, reviewing, and submitting bimonthly compliance reviews for LFG extraction wells that are exceeding New Source Performance Standards (NSPS) regulatory limits and providing recommendations to remediate the exceedances by reviewing wellhead monitoring data, liquid level measurements, and OM&M evaluations.

Kirby Canyon Landfill, Waste Management, Morgan Hill, CA; Project Professional
Designing the database review questions to estimate emissions from unpaved roads, LNG, RNG, and transport vehicles. Tasks include evaluating landfill gas extraction well exceedances, monitoring excursions, and Environmental Protection Division (EPD) compliance submittals, landfill surface emissions monitoring (SEM) results, dust suppression plan recordkeeping, LFG flare data and other site-specific documentation to send to the state EPD.

City of Vancouver landfill, Canada; Project Professional
Condensate pump engineering calculation to find the pump head using the annual leachate and precipitation values. Using SDR 11 and 17 pipe types for T type joints and determining the elevation of water in the system side pipe.

Annual reporting for Wasco County and Alaska regional landfill; WA and AK, Staff Professional
Title V Compliance, Responsible for preparing, reviewing, and submitting semi-annual and annual compliance reviews for landfills and LFG extraction wells that are exceeding New Source Performance Standards (NSPS) regulatory limits and providing recommendations to remediate the exceedances.

Phase VB Closure Construction Quality Assurance (CQA), Pierce County Recycling, Composting and Disposal LLC dba LRI, LRI Landfill, Graham, WA; Staff Professional
Supported CQA tasks and activities for the installation of geosynthetic clay liner and geomembrane for landfill final closure at the LRI Landfill (Graham, WA). That included testing of soils and geomembrane through destructive and non-destructive techniques, and oversight for the installation of a temporary and permanent GCCS system on the Closure, with regulatory compliance and documentation.

Cell 9A: Construction Quality Assurance, Pierce County Recycling, Composting and Disposal LLC dba LRI, LRI Landfill, Graham, WA; Staff Professional
Performed CQA for the construction of cell during the summer of 2022. Responsibilities involved contractor communications, construction observation, and testing. Included production and installation of engineered soils, geosynthetic installation including geosynthetic clay liner (GCL), geomembrane. Facilitated communication between the construction contractors, SCS project managers and directors, and the client to ensure that the

design specifications and intentions were adhered to the clients' expectations. Worked with all parties to identify and troubleshoot field changes that occurred during the projects and to come up with timely solutions. geotextile, soil compaction testing, precast concrete structures and HDPE pipe installation.

Kirby Canyon Landfill, Waste Management, Morgan Hill, CA; Staff Professional
Designing the database review questions for the client Waste Management to estimate emissions from unpaved roads, LNG, RNG and transport vehicles. Tasks include evaluating landfill gas extraction well exceedances, monitoring excursions, and Environmental Protection Division (EPD) compliance submittals, landfill surface emissions monitoring (SEM) results, dust suppression plan recordkeeping, LFG flare data and other site-specific documentation to send to the state EPD.

Air compliance using HARP2EIM tool, County of San Bernardino, Victorville, CA; Staff Professional
To determine the level of toxicity of carcinogens in the pollutants and quantifying pollutants from flare system.

Landfill gas modeling, Ecowaste landfill, BC; Project Manager
Methane recovery potential from the C&D waste stream. Working on the coverage, efficiency and actual emissions. Finding total recovery potential, recovery from existing/ planned system and actual LFG recovery.

Landfill gas Recovery modeling, Global Infrastructure Management; Project Professional
All USA, 18 LFG models for sites located in different regions of the States, to help make investment decision for the Renewable Natural Gas facility. The analysis involved thorough usage of GHG reporting tool, precipitation data, Methane generation potential and decay rate constant analysis and interpretation. Proper documentation in form of Technical memo was provided to client.

Article, Publications, and Presentations

Shah, K V. and Sattler, M. (Jan. 2020 issue), Solid Waste Management Challenges and Solutions in India, Air and Waste Management Association, EM, The Magazine for Environmental Managers. *https://pubs.awma.org/flip/EM-Jan-2020/emjan20.pdf*

Shah, K V., Methane Emissions from Disposal of Biodegradable Polyester in U.S. Landfills. The Air & Waste Management Association's 115th Annual conference & Exhibition, San Francisco, CA 2022.

Shah, K V. and Sattler, M. (March 2021), Existing Solid Waste Management Challenges and Solutions in Developing countries: Case study of India. Thirty- Sixth International Conference on Solid Waste Technology and Management., Maryland, 2021

Shah, K V. (March 2021), Status of Municipal Solid Waste Management in Gujarat, India. Thirty-Sixth International Conference on Solid Waste Technology and Management., Maryland, 2021

Shah, K V. and Sattler, M. (October 2020) Solid Waste Management Life Cycle Assessment Decision-Making Tools for Developing Countries: A State-of-the-Art Review. 5th Eurasia Waste Management Symposium. *Under review for publication in the Journal of Environmental Research and Technology*

Shah, K V., Shanru, T., and Jose, V., The study of environmental impact on industrial methane dispersion in the atmosphere based on GIS technology**,** ArcGIS, Plume plotter and Gaussian Equations were used for Air Dispersion modelling: Dallas, Texas, (2019).

Shah, K V., Kumar, S., Kumar G., Multivariate Statistical Modelling on Integrated Municipal Solid Waste Management for the City with population of 50,000 and generating 40,000 TPA, detailed analysis on response and various independent variables. Statistical Regression Analysis was done using SAS software, **(**2018).

Shah, K V., Effective ways, and sustainability of processing technologies along with strategies for solid waste management in India: 31st International Conference on Solid Waste Technology and Management; The Journal of Solid Waste Technology and Management to be convened on April 3rd – 6th 2016, Warwick, Philadelphia

Candy Elliott, PG

Environmental Justice |National Environmental Justice Expert | Raleigh, NC

17+
Years of Experience

Candy has over 17 years of experience in the environmental industry. She has prepared Environmental Justice reviews and reports for multiple programs, including solid waste and underground injection control. She was recently named the SCS Engineers National Expert in Environmental Justice. Candy has presented and held workshops at regional and national conferences and has participated in community outreach efforts. She has managed projects including environmental site assessments, comprehensive site assessments, brownfield assessments, underground storage tank closures, and soil and groundwater remediation projects.

Relevant Experience

10+
Environmental Justice Review Projects

10+
Solid Waste Projects Last 5 Years

9+
Municipalities Last 5 Years

Private Landfill, NC; Environmental Justice Lead
Prepared an Environmental Justice Report as part of a landfill expansion permit. Accessed and compiled data from the USEPA EJScreen, the United States Census databases, and the NCDEQ Community Mapping System.

Mecklenburg County, NC; Environmental Justice Lead
Prepared an Environmental Justice Report as part of a recycling center and transfer station permit. Accessed and compiled data from the USEPA EJScreen, the United States Census databases, United States and North Carolina Bureaus of Indian Affairs, and the NCDEQ Community Mapping System.

Private Landfill, Charlotte, NC; Environmental Justice Lead
Prepared an Environmental Justice Report as part of a recycling center and transfer station permit. Accessed and compiled data from the USEPA EJScreen, the United States Census databases, United States and North Carolina Bureaus of Indian Affairs, and the NCDEQ Community Mapping System.

Confidential Client, CA; Environmental Justice Lead
Performed Environmental Justice review for the area surrounding a Class VI injection well for geologic sequestration of carbon dioxide. Accessed data from the USEPA EJScreen, the United States Census databases, and the California Environmental Justice Screening Tool. Compiled community data for sensitive populations in areas with existing high-risk environmental activities. Worked with client on community outreach efforts.

Confidential Client, LA; Environmental Justice Lead
Performed Environmental Justice review for the area surrounding a Class VI injection well for geologic sequestration of carbon dioxide. Accessed data from the USEPA EJScreen, the United States Census Bureau databases, United States Bureau of Indian Affairs, and other state, federal and local sources. Compiled community data for sensitive populations in areas with existing high-risk environmental activities.

Confidential Client, TX; Environmental Justice Lead
Environmental Justice review for the area surrounding a Class VI injection well for geologic sequestration of carbon dioxide. Accessed data from the USEPA EJScreen, Climate and Economic Justice Screening Tool, Centers for Disease Control and Prevention, the United States Census Bureau databases, United States Bureau of Indian Affairs, and other state, federal and local sources. Compiled community data for sensitive populations in areas with existing high-risk environmental activities.

EDUCATION

MS, Geophysics
BS, Geology

PROFESSIONAL LICENSES

Professional Geologist – FL, NC, SC

RELEVANT EXPERIENCE

- ✓ Solid Waste Permitting
- ✓ Environmental Justice
- ✓ Community Outreach

Confidential Client, TX; Environmental Justice Lead
Performed Environmental Justice review for the area surrounding a Class I waste disposal well. Accessed data from the USEPA EJScreen, Climate and Economic Justice Screening Tool, Centers for Disease Control and Prevention, the United States Census Bureau databases, and other state, federal and local sources. Compiled community data for sensitive populations in areas with existing high-risk environmental activities.

Presentations

Environmental Justice presentations for SCS North Carolina Solid Waste Section Seminars (December 2021)

Environmental Justice workshop at West Virginia Brownfields and Main Street Conference (September 2023)

Environmental Justice presentation at the National Carbon Capture Conference in Des Moines, IA (November 2023)

Internal webinars on Environmental Justice (February 2024)

Brent Dieleman, TRUE Advisor

Waste Reduction and Recycling Lead | Reston, VA

19
Years of Experience

Brent Dieleman's solid waste planning experience centers on helping communities identify and understand what options exist for building a sustainable solid waste and waste diversion program that protects the environment and public health. Key specialties of Brent's experience include: recycling feasibility studies, collection program evaluation, stakeholder engagement and consensus building, recycling technical assistance, resource development, data analysis, recycling contamination measurement, and policy development. Brent will provide key technical support for Assessment of Current Conditions and Feasibility Analysis.

Relevant Experience

10+
Solid Waste Facilities Permitting, Reporting, Compliance Audits

10+
Engineering/ Planning Studies

5+
Public Engagement Projects

Recycling Program Options Assessment, Frederick County Dept. of Solid Waste, Winchester, VA; Project Manager
Partnered with the County to identify viable recycling markets when the current market ceased to exist; evaluated the benefits/challenges, costs, and considerations of (4) options identified.

Regional Recycling Opportunity Study, Northern Shenandoah Valley Planning Commission, Winchester, VA; Project Manager
In cooperation with NSVRC member communities, identified opportunities and options for regional collaboration to improve and advance recycling in the region; options identified were evaluated for cost, impact on operations, and partnerships to identify the most promising option for building a regional program.

Recycling Technical Assistance, Pennsylvania Department of Environmental Protection, Harrisburg, PA; Project Manager
Partnered with PADEP and over 50 communities to identify solutions to unique and specific recycling challenges; projects and scope varied from one community to another; key projects included curbside and drop-off recycling program feasibility analysis, policy development, collection assessments, unit-based pricing considerations, organics management program and facility analysis.

Solid Waste and Recycling Collections Analysis, City of Lynchburg, VA; Collections Technical Expert
Project focused on how existing programs for recycling, trash, bulky refuse, and yard waste could be improved; project activities included multiple days of field observations to identify challenges and talk with city staff on the front lines of collection; Brent led stakeholder meetings to receive input on the problems with existing programs and how potential solutions could be implemented.

Waste Characterization Study, City of Huntsville, AL; Field Supervisor
In partnership with the City, Brent designed and executed a one-week waste characterization study to identify the types and quantities of waste currently being disposed; data was analyzed to develop waste profiles for the residential and commercial generating sectors and the City as a whole.

EDUCATION

BA, Environmental Studies

PROFESSIONAL LICENSES

TRUE Advisor

RELEVANT EXPERIENCE

- ✓ Solid Waste Disposal and Recycling Processes and Resources Evaluation
- ✓ Feasibility Analysis
- ✓ Financial Studies
- ✓ Future Needs Assessment
- ✓ Waste Generation Estimates
- ✓ Recycling Needs Analysis
- ✓ Recycling Legislative Trends
- ✓ Regional Processing Facilities
- ✓ Recycling Benchmarking
- ✓ Education & Outreach

10-Year Solid Waste Management Plan, Howard County, MD; Project Manager
Project Manager leading the development of the County's new 10-year solid waste management plan for the period 2025-2034. He is responsible maintaining the project schedule and budget, developing a plan that meets the solid waste planning requirements for the State of Maryland, and engages community stakeholders to receive their input on solid waste planning issues.

Solid Waste Management Plan, Harford County, MD; Project Manager
Project Manager leading the development of the County's new 10-year solid waste management plan for the period 2025-2034. He is responsible maintaining the project schedule and budget, developing a plan that meets the solid waste planning requirements for the State of Maryland, and engages community stakeholders to receive their input on solid waste planning issues.

Twenty-Year Solid Waste Management Plan/Zero Waste Planning Services, Arlington County, VA Project Manager
Brent serves as the lead writer in drafting the County's new 20-year solid waste management plan; planning activities completed to date include develop a draft outline of the plan, research of state planning requirements, prioritize waste diversion initiatives (includes estimating initiative costs and greenhouse gas impacts), presentations to the Solid Waste Advisory Committee (SWAC), and draft portions of the plan.

Buncombe County Waste Diversion Plan, NC; Lead Author
Brent collaborated with the County to develop a waste diversion study that was adopted and approved by the County Board of Supervisors on November 1, 2022; Brent worked with County staff to identify waste diversion priorities to be studied as part of the plan; he quantified the potential impacts each initiative could have on waste disposal and diversion in the County and produced a plan for the County to achieve high diversion rate.

Zero Waste Strategic Plan, Prince George's County, MD; Lead Author
Brent developed and documented the County's strategy to reduce the quantity and toxicity of waste generated and increase the proportions of waste diverted to recycling and composting programs. A key objective of this project was to engage with stakeholders in the County to receive their feedback and ideas for what the County could prioritize in their plan.

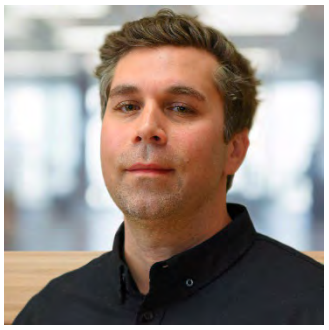
Waste Diversion Initiatives, Montgomery County, MD; Technical Support
Brent supports the County's efforts to evaluate programs and increase the amount of material diverted from disposal. Projects include multi-family and commercial recycling distance surveys, identifying undocumented recycling activities, and waste characterization.

Mandatory Commercial Organics Recycling Compliance Study, Los Angeles County Department of Public Works, CA; Technical Support
Brent researched the requirements of California's AB 1826 that requires businesses and multi-family properties to recycle organic materials from their waste stream. He developed recommendations for Los Angeles County to consider implementing the requirements of this law within the County's existing franchised hauler agreements.

Dan Leo, JD

Innovative and Future Technologies | Rochester, NY

20
Years of Experience



Dan has about 20 years of experience in renewable energy industries, including fuel ethanol, gasification, pyrolysis, syngas cleaning, Fischer-Tropsch synthesis, and renewable natural gas (RNG) production. His background is in chemical process engineering and intellectual property management and he currently is a member of the SCS Energy process engineering team, a division within SCS Engineers, which is responsible for the design, construction and operation/maintenance of biogas to Renewable Natural Gas & energy facilities. He provides a wide array of engineering and patent services ranging from innovation to commercialization. During his career, he invented, commercialized, and authored a portfolio of sixty-three patents & patent applications all over the world directed a renewable energy gasification to liquid fuel technology package.

EDUCATION

JD, University of Baltimore School of Law
MS, Chemical & Biological Engineering
BS, Chemical & Biological Engineering
AS, Engineering Science

PROFESSIONAL LICENSES

U.S. Patent Agent
Registration No. 68,506

RELEVANT EXPERIENCE

- ✓ Solid Waste Disposal and Recycling Processes and Resources Evaluation
- ✓ Feasibility Analysis
- ✓ Future Needs Assessment

Relevant Experience

20+
RNG Facilities

3
Advanced Biofuel Facilities

100+
Patent Applications

Waste Management Renewable Energy, LLC, High Acres
Complete engineering design of an 8,000 scfm landfill gas to pipeline quality renewable natural gas plant utilizing CO_2 and N_2 PSA separation technology at the Orchard Hills Landfill in Rochester, New York.

Waste Management Renewable Energy, LLC, Pheasant Point
Complete engineering design of an 8,000 scfm landfill gas to pipeline quality renewable natural gas plant utilizing CO_2 and N_2 PSA separation technology at the Orchard Hills Landfill in Bennington, Nebraska.

Waste Management Renewable Energy, LLC, Medley
Complete engineering design of an 8,000 scfm landfill gas to pipeline quality renewable natural gas plant utilizing CO_2 and N_2 PSA separation technology at the Orchard Hills Landfill in Medley, Florida.

Waste Management Renewable Energy, LLC, Columbia Ridge
Complete engineering design of a 12,000 scfm landfill gas to pipeline quality renewable natural gas plant utilizing CO_2 and N_2 PSA separation technology at the Orchard Hills Landfill in Arlington, Oregon.

Waste Management Renewable Energy, LLC, Covel Garden
Complete engineering design of an 8,000 scfm landfill gas to pipeline quality renewable natural gas plant utilizing CO_2 and N_2 PSA separation technology at the Orchard Hills Landfill in San Antonio, Texas.

Waste Management Renewable Energy, LLC, Security
Complete engineering design of a 3,000 scfm landfill gas to pipeline quality renewable natural gas plant utilizing CO_2 and N_2 PSA separation technology at the Orchard Hills Landfill in Cleveland, Texas.

Waste Management Renewable Energy, LLC, Temple
Complete engineering design of a 3,000 scfm landfill gas to pipeline quality renewable natural gas plant utilizing CO_2 and N_2 PSA separation technology at the Orchard Hills Landfill in Temple, Texas.

Waste Management Renewable Energy, LLC, Orchard Hills
Complete engineering design of an 8,000 scfm landfill gas to pipeline quality renewable natural gas plant utilizing CO_2 and N_2 PSA separation technology at the Orchard Hills Landfill in Davis Junction, Illinois.

Waste Management Renewable Energy, LLC, Simi Valley
Complete engineering design of a 9,000 scfm landfill gas to pipeline quality renewable natural gas plant utilizing CO_2 and N_2 PSA separation technology at the Simi Valley Landfill in Simi Valley, California.

Waste Management Renewable Energy, LLC, Standardized Plants
Complete engineering design of 3,000 scfm, 4,000 scfm, 6,000 scfm and an 8,000 scfm landfill gas to pipeline quality renewable natural gas plants utilizing CO_2 and N_2 PSA separation technology for a variety of locations.

Waste Management Renewable Energy, LLC, DFW
Complete engineering design of a 5,000 scfm landfill gas to pipeline quality renewable natural gas plant utilizing CO_2 and N_2 PSA separation technology at the DFW Landfill in Lewisville, Texas.

Sapphire RNG, LLC, Sapphire (Sampson)
Complete engineering design of a 6,000 scfm landfill gas to pipeline quality renewable natural gas CNG facility utilizing CO_2 membrane and N_2 PSA separation technology at the Sampson County Landfill in Roseboro, North Carolina.

Emerald RNG, LLC, Arbor Hills
Complete engineering design a 10,000 scfm landfill gas to pipeline quality renewable natural gas plant utilizing CO_2 membrane, catalytic O2 removal and N_2 PSA separation technology at the Arbor Hills Landfill in Northville, Michigan.

Bio Energy (Ohio), LLC, Lorain
Complete engineering design of an 8,000 scfm landfill gas to pipeline quality renewable natural gas plant utilizing CO_2 PSA, catalytic O2 removal and N_2 PSA separation technology at the Lorain Landfill in Oberlin, Ohio.

Bio Energy (Ohio), LLC, Limestone
Complete engineering design a 9,000 scfm landfill gas to pipeline quality renewable natural gas plant utilizing CO_2 PSA and N_2 PSA separation technology at the Carbon Limestone Landfill in Lowellville, Ohio.

Waste Management Renewable Energy, LLC, Fairless
Complete engineering design a 6,000 scfm landfill gas to pipeline quality renewable natural gas plant utilizing CO_2 and N_2 PSA separation technology at the Fairless Landfill in Morrisville, Pennsylvania.

Prince William RNG, LLC, Opal Fuels
Complete engineering design a 6,500 scfm landfill gas to pipeline quality renewable natural gas plant utilizing CO_2 membrane and N_2 PSA separation technology at the Prince William Landfill in Manassas, Virginia.

Waste Management Renewable Energy, LLC, Eco Vista
Complete engineering design a 3,000 scfm landfill gas to pipeline quality renewable natural gas plant utilizing CO_2 membrane and N_2 PSA separation technology at the Eco-Vista Landfill in Springdale, Arizona.

Conversion Energy Systems, Inc.
Engineering review of the existing 1st generation power producing plastics gasification system design and development assistance for the 2nd generation system.

NextEra Energy Inc., Ocean
Complete engineering design of a 6,500 scfm landfill gas to pipeline quality renewable natural gas plant utilizing CO_2 and N_2 PSA separation technology at the Orchard Hills Landfill in Manchester, New Jersey.

Kayla Ouellette

Natural Areas GIS Support/Data Management | Tampa, FL

12
Years of Experience

Kayla brings over 12 years of experience and serves as the GIS Manager for the Southeast Business Unit. She has experience in environmental assessment and remediation and solid waste compliance. Before working at SCS, she worked with MS DEQ in the Lead Paint educational outreach program. She is familiar with many data sources and different GIS applications such as Story Maps and Web Apps, Experience Builders and others to customize the best GIS solution for a given task. She applies this knowledge to her GIS practice to help streamline workflows using ESRI and Trimble products for environmental assessments, remediation, and solid waste GIS applications. She serves as our ArcGIS Online Administrator and creates training presentations and SOP documentation for GIS and non-GIS staff. Project GIS experience includes collecting field data with Trimble GPS units and various ESRI apps, data creation and management, geoprocessing, creating and managing surveys on Survey 123, creating maps and managing data through ArcGIS Online, scripting with ArcPy, and strong statistical and analytical capabilities.

EDUCATION

MS, Environmental Science and Policy
BS, Biology

RELEVANT EXPERIENCE

- ✓ Feasibility Analysis
- ✓ Waste Generation Estimates
- ✓ Recycling Legislative Trends
- ✓ Education & Outreach

Relevant Experience

130+
Solid Waste Projects Last 5 Years

7+
Government Entities Served with GIS Services

14+
Solid Waste/Recycling Planning Projects

Integrated Solid Waste Management Strategy; Collier County, Naples, FL; GIS Support/ Data Management Analyst

SCS prepared an update to the County's Integrated Solid Waste Management Strategy. Activities included preparing for and facilitating an Integrated Solid Waste Management Strategy Status Update workshop with the County's Project Delivery Team to review the activities and principal results since the 2006 Integrated Solid Waste Management Strategy Workshop. Following the workshop, SCS prepared a status summary memorandum that documented progress since 2006 related to the identified solid waste management initiatives, programs, and facilities. In addition, SCS conducted a survey of comparable Florida counties and prepared a "State of Solid Waste Management in Florida" memorandum that captured information including new public and private landfills, landfill capacity, new collection agreements, and new recycling facilities. SCS also prepared fact sheets that analyzed the technical, financial, and operational feasibility as well a potential landfill capacity (i.e., airspace) savings, estimated carbon emission reductions, and estimated fiscal impacts for each option. While the project has been completed, SCS will be engaged under a separate authorization to support a workshop with the Board of County Commissioners.

Solid Waste Management Options Analysis; Manatee County, Bradenton, FL.; GIS Support/ Data Management Analyst

Provided GIS Support/Data Management for the analysis and preparation of the following deliverables: 1) coordinated and prepared a population and waste disposal projection memorandum; 2) coordinated and prepared a summary memorandum an overview of current vendors and technologies for commercially proven, emerging, and developing thermal conversion technologies, including a discussion of the benefits and challenges, footprint, a review of capital expenditures for the development of the project, and an estimated timeline from siting to start up; 3) coordinated and prepared a transfer station model and analysis and preparing a summary memorandum that considers factors such as the cost of current operations, the cost of transfer station construction; the ongoing costs of onsite transfer station operations and staffing; alternative disposal

facility tipping fees; distance to alternative disposal facilities; the cost to transfer waste to disposal facilities; and the impact of different project delivery options; and 4) coordinated and prepared a summary memorandum based on the option to purchase land outside of the County for waste disposal.

Master Plan, Neal Road Recycling and Waste Facility, Butte County, Paradise, CA; GIS Support/ Data Management Analyst
The County of Butte (County), Department of Public Works awarded SCS a contract to develop a Master Plan for the Neal Road Recycling and Waste Facility (NRRWF). The NRRWF was operating without an updated Strategic Plan or Capital Improvement Plan since 2017. Kayla assisted with the site development plan by identifying site parcels in GIS and overlaying those parcels with site characterization layers, such as FEMA flood zones, elevation contours, etc. to inform facility design.

Solid Waste/Landfill Gas GIS Support, Various; GIS Support/Data Management Analyst
Kayla supports various landfill project teams by setting up digital maps and forms for efficient field data collection for activities including construction quality and assurance (CQA) activities, surface emissions monitoring (SEM), water level readings and others. She improves workflows by creating online applications in ArcGIS to streamline data review and deliverable creation. She also works directly with clients and their GIS departments to find the best way to collaborate on field data collection, viewing project progress and results. Clients include the Florida counties of Hillsborough, Manatee, Pasco, Polk, Palm Beach, Miami-Dade, Escambia, and Sarasota Counties in FL; DeKalb County, GA; Santa Rosa County, AL; the City of Springfield, MO and various Republic Services sites in MS, AL, GA, and FL.

Downtown Waste Study and Management Plan, City of Davis, CA; GIS Support/Data Management Analyst
Project involved developing a waste management plan for the City of Davis downtown core area. Historically a retail center, the downtown core has been gradually transitioning from majority brick-and-mortar retail to restaurants and food service establishments, impacting the amount and type of waste generated from businesses in the downtown, as well as the amount of waste left in the public waste receptacles on the sidewalks. The City has been working to find a balance between achieving the goals of CA state solid waste diversion regulations (AB 341, AB 1826 and SB 1383), welcoming more food-service businesses into areas previously used for retail, changing the use of spaces previously dedicated to utility services, and modifying existing waste collection areas to manage increasing volumes of waste. Part of this project involved a waste characterization study. Kayla used ArcGIS to develop a customer map of the Davis downtown study area. The map categorized the customer waste types into trash, organics and recycling. SCS field staff used the map in the Field Maps app to record the findings for each customer. The map streamlined the field data collection process and results analysis.

Waste Study, City of Carlsbad, CA; GIS Support/Data Management Analyst
Assist the City of Carlsbad Sustainable Materials Management Division with environmental outreach and education services for current solid waste regulations, new organics recycling regulations and with the implementation of a new Sustainable Materials Management Implementation Plan. Part of this project involved a waste characterization study of select public areas in the City. Kayla helped to create an online map to categorize waste bins and contents that SCS staff used in the field to record findings. The map streamlined the field data collection process and results analysis.

Recycling Options Analysis; Leon County/City of Tallahassee, Tallahassee, FL; GIS Support/ Data Management Analyst
Performed a comprehensive feasibility study on behalf of the County and City that explored several recyclable materials management options, including seeking alternate proposals for single-stream recycling; hauling single-stream recyclables to the next nearest processor; constructing and operating a County-owned recycling facility; discontinuing the County's recycling program; and renegotiating the current agreement with their long-time service provider. Each option included a thorough analysis and projected annual costs for the County. Based on the feasibility study findings and SCS's recommendation, the County and City Commissions each decided to extend their current agreements as it represented the best value option.

ARCADIS Resumes

RIGHT
Team ● Schedule ● Solution

SCS ENGINEERS

Leah Richter, PE, TRUE Advisor

Assistant Project Manager; Existing Solid Waste Disposal and Recycling Process/Resources Task Lead | Plantation, FL

26
Years of Experience

Leah has an extensive background in environmental and civil engineering and has spent the entirety of her 26-year career working in the solid waste industry in South Florida. She specializes in solid waste projects involving recycling, zero waste, waste-to-energy, materials recovery, recycling, and landfilling. She currently serves as Arcadis' Florida Solid Waste Practice Leader and is primarily responsible for assisting municipal clients with managing their solid waste management planning, operational, and capital program needs. Her experience includes master planning, siting analysis, program management and delivery, transactional consulting and due diligence, vendor procurement, contract compliance, regulatory permitting, public outreach, litigation support services, solid waste advisory committee support, environmental compliance, and operation and maintenance evaluation. Recently, she served as the Project Manager for the Broward County Solid Waste Working Group Recycling Study focusing on the future of solid waste management in the county, as well as has worked with Broward County for the entirety of her career in Arcadis's role as Consulting Engineer for the County's solid waste management system for decades. She is a TRUE Advisor, certified by Green Business Certification Inc., demonstrating her commitment to advancing zero-waste values and policies and serving as an advisor in supporting and implementing zero-waste programs.

EDUCATION

MS, Civil Engineering, Florida Atlantic University, 2002
BS, Environmental Engineering, University of Florida, 1997

PROFESSIONAL LICENSES

Professional Engineer – FL
TRUE Advisor – US Green Building Council (Zero Waste)
Program Management, Academy – University of Oxford (Said Business School)

RELEVANT EXPERIENCE

- ✓ Solid Waste Disposal and Recycling Processes and Resources Evaluation
- ✓ Feasibility Analysis
- ✓ Financial Studies
- ✓ Future Needs Assessment
- ✓ Waste Composition/ Waste Generation
- ✓ Recycling Needs Analysis
- ✓ Regional Processing Facilities
- ✓ Recycling Benchmarking
- ✓ Education & Outreach

Relevant Experience

240+
Solid Waste and Recycling Projects

90+
Projects Managed

25+
Years Focused on Solid Waste in Broward County

Recycling Study, Broward County, FL; Project Manager
Served as Project Manager for the County's study focused on how to achieve the state-mandated 75% recycling goal and developing a path forward for the future governance and infrastructure necessary for long-term solid waste management within Broward County. Evaluated whether retaining public ownership of a county-owned property would facilitate the meeting of that recycling goal or would provide other benefits in connection with solid waste disposal within Broward County. Prepared conceptual-level construction cost estimates of facilities required to meet a 75% recycling goal as a decision-making tool to evaluate the relative financial impact of different alternatives based on parameters such as the current and projected quantity and quality of solid waste and recyclables, required daily processing capacity of solid waste or recyclable materials and estimated size of the proposed alternatives. Facilitated stakeholder engagement workshops to establish consensus amongst more than 30 municipal partner cities and lay the framework for the future of the County's (now Authority's) solid waste system and capital program, including recommendations associated with new facilities to be constructed such as materials recycling, yard waste, organics and bulky waste processing, and waste to energy.

Solid Waste Visioning and Strategic Planning, Broward County, FL; Deputy Project Manager
Served as deputy project manager for the visioning and strategic planning undertaken by Broward County upon the expiration of the former ILA between the County and the member cities for solid waste. Broward County

was approaching a critical turning point in the management of their solid waste which would require stakeholder alignment and business/financial analyses to determine the next generation of solid waste management. In support of the County and building from our decades of working with the County as their Owner's Agent for their solid waste management system, Arcadis facilitated a "Trash Summit" to bring city managers, mayors, and other key stakeholders together to review the past, present, and potential future scenarios for the District.

Solid Waste Management Program and Operations Monitoring / Broward County, FL; Deputy Project Manager
County for more than 20 years as Owner's Agent for the County as they implemented and developed the full solid waste system infrastructure, governance, and long-term operations using a P3 contracting approach for the more than $600M facilities financed and constructed in the early 1990s. Served as Deputy Project Manager for the WTE facilities operations monitoring and solid waste program management. Projects included TAC assistance, RRB assistance, landfill gas evaluation ash monofil life expectancy evaluation, miscellaneous landfill improvements, siting evaluations, and materials recycling facility assessments.

Zero Waste Municipal Solid Waste Management System Analysis and Facility Condition Assessment, Montgomery County, MD; Technical Advisor
Technical Advisor for assessment of progressive MSW processing and/or treatment technologies to maximize waste diversion and reduce residual waste requiring disposal via conventional methods. The cost-benefit analysis resulted in an incremental cost of enhanced diversion via progressive add-on of processes/technologies to enable stakeholders to make an informed decision on modernizing their MSW management system. Specific efforts included cost/financial analyses, Greenhouse gas/carbon footprint, and other technical constraints/limitations; development of request for expression of interest; development of alternative MSW System configurations, sensitivity/cost analyses, analysis of preferred MSW System and development/issuance of request for proposal. Activities also included performance of a comprehensive MSW management facility condition assessment at their primary location used for waste disposal followed by a detailed assessment of individual infrastructure components, evaluation of their current condition, and estimated cost to retrofit/rehabilitate and/or repair) over short- and long-term planning horizons.

2020 Master Planning Activities Preliminary Feasibility Report, Solid Waste Authority (SWA) of Palm Beach County, West Palm Beach, FL; Principal in Charge
Served as Principle in Charge for the development of the Authority's 2020 Master Plan, focusing on Renewable Energy Facilities, ash reuse, and ash metals recovery over a 40-year planning period. The overall objective of this study, relative to the planning period, was to determine the size, site options, and implementation schedule of the required REF expansion capacity and to provide a preliminary planning analysis of the potential options for and fatal flaws that would inhibit developing that capacity preferably within the boundaries of the Authority's existing 1,300-acre Palm Beach Renewable Energy Park. The analysis also included waste generation modeling and waste capacity projections.

Food Waste Organics Processing Evaluation, Solid Waste Authority of Palm Beach County, West Palm Beach, FL; Principle in Charge
Served as Principle in Charge of evaluating existing, large-scale, food waste diversion programs currently operating in Florida and nationally, as well as conducting a regulatory review to identify possible constraints of implementing food waste diversion programs at the Authority's Renewable Energy Campus. The focus of the evaluation was on how solid waste programs collect/divert and process their food waste, as well as the ultimate applications for food waste processing end-products.

Miami-Dade County Bond Engineering Services / Department of Solid Waste Management, Miami-Dade County, FL; Principle in Charge
Serves as Principle in Charge for all of Arcadis' activities conducted under the Bond Engineering contract, which provides for comprehensive oversight and support related to all facets of the County's integrated solid waste management system, which includes resource recovery, landfilling, recycling, as well as residential and commercial collections. Key projects and activities include Facility Operations Monitoring and Annual Reporting,

Annual System Inspections and Reporting, Revenue Bond Refunding and Issuance Consulting Engineer's Feasibility Reports, Annual Adequacy of Rates and Fees, Munisport Landfill Closure, Virginia Key Landfill Closure. Most recently, led the preliminary siting analysis effort, conducted as directed by the Mayor's office and the BCC, evaluating the potential for suitable sites within the County for alternative processing facilities (renewable energy, zero waste facilities) and establishing the associated constraints and limitations, as well as cost, schedule and regulatory approval process associated with each alternative. The project also included the preparation of a State of the Industry report that analyzed current solid waste processing technologies.

Palm Beach Renewable Energy Facility - Owner's Representative and Design Criteria Professional, Solid Waste Authority of Palm Beach County, West Palm Beach, FL; Principal-in-Charge and Project Manager
Served as Principal-in-Charge and Project Manager for the planning, permitting, procurement, financing, public outreach, and conceptual design for the overall implementation of the new 3,000-ton per day (tpd) mass burn waste-to-energy (WTE) facility adjacent to the Authority's existing 2,000 tpd waste-to-energy facility. Key activities included development of procurement documents for the design-build-operator, development of application documents required under the Power Plant Siting Act and Prevention of Significant Deterioration program, development of a design criteria package to be utilized during the procurement process, development and implementation of an extensive public outreach program, negotiation of Power Purchase Agreement, detailed design review, construction and acceptance testing monitoring, and overall program management activities to support the development of this $672 million capital project. Construction was completed on an accelerated schedule by 2015 and Arcadis is currently serving as Consulting Engineer overseeing the operations and contractual performance.

Program Feasibility Assessment / Emerald Coast Utilities Authority, FL; Project Manager
Served as Project Manager to support the Emerald Coast Utilities Authority (ECUA) with its planning for the development and implementation of enhanced recycling and energy recovery programs, which was conducted in two phases. Building upon the due diligence review of Envirepel's proposal to ECUA, Phase 2 included the review of the broader feasibility of the overall program envisioned by ECUA and a review of the technical, financial, regulatory, and institutional concerns to evaluate the proposed program against ECUA requirements.

Utilities Waste Rate Study, City of Key West, FL; Technical Lead
Technical lead developed a financial model for the City's solid waste utility department. Annual activities included reviewing revenue characteristics (historical and budget), and other documentation provided to support revenue and expense projections; developing a comprehensive financial model to project cash flow for a five-year period; completing pricing surveys; and developing rate recommendations. Presented recommendations to the City Commission for adoption each year.

McKay Bay Solid Waste and Resource Recovery Engineer of Record, City of Tampa, FL; Project Manager
Serves as Project Manager for the operations monitoring and environmental compliance of the 1,000 tpd mass-burn waste-to-energy facility and attached transfer station and scalehouse owned by the City of Tampa. Oversees the operations monitoring efforts, inspections, and punchlist development, including the performance of annual and monthly facility inspections; general project management; monitoring of maintenance repairs and facility outages; review of spare parts inventory; development of facility punchlist reports; review of environmental and permit related issues; and general facility safety and environmental compliance. This work also includes assisting the City with various financial analyses, risk analysis and planning, and feasibility studies associated with operational and contractual long-term options.

Mark Hammond

Technical Advisor | Plantation, FL

46
Years of Experience

Mark is a talented Executive Director bringing 46 years of experience in solid waste management and leadership. Proven operational leadership, hands-on community outreach and consensus-building skills, and ability to transform vision into reality. He brings his expertise to Arcadis as a Special Advisor on solid waste, recycling, and resource recovery projects nationally.

Relevant Experience

35
Years in Senior Management/ Executive Leadership Roles for Solid Waste Authority of Palm Beach County

12+
Years Served in SWANA Leadership Roles, including President

2M
Tons of Solid Waste Managed per Year as Executive Director

Executive Directorship at Solid Waste Authority, Solid Waste Authority of Palm Beach County, West Palm Beach, FL; Executive Director
Led Authority in a manner that supported the agency mission to include developing and implementing county-wide programs for disposal, collection, recovery, and recycling of solid waste in a cost-effective and environmentally sound manner for 1.4 million residents of Palm Beach County. Administered a $300 million annual budget and 400 employees processing more than 2 million tons of waste per year.

Managing Directorship at Solid Waste Authority, Solid Waste Authority of Palm Beach County, West Palm Beach, FL; Managing Director
Next in line to the Executive Director, the Managing Director is principally responsible for directing the work of the Chief Operating Officer, Chief Financial Officer, Chief Engineer, Chief Administration Officer, Director of Human Resources, and Risk Administrator in the overall administration and management of the Authority. Provided direction and guidance in the development and implementation of Authority projects. Provided financial and analytical advisory support to the Executive Director for business planning, analysis, and decision-making. Acting Executive Director during absences of Executive Director and provided multi-agency coordination and liaison efforts necessary to effectively communicate and distribute information on Authority programs. Implemented projects.

Director of Operations - Solid Waste Authority, Solid Waste Authority of Palm Beach County, West Palm Beach, FL; Executive Director Support
Reported directly to the Executive Director. Managed overall operations of Authority including transfer stations, landfills, waste-to-energy, composting, and recycling. Managed personnel, developed budgets, monitored expenditures, developed bid specifications, and managed construction projects.

Waste Generation/Composition Analysis and Unsolicited Proposal Review, St. Lucie County, FL; Technical Advisor
Technical Advisor during the development of an analysis of the available waste stream and materials required for processing in a solid waste facility being proposed by a confidential unsolicited proposer. Supported the County with evaluating the proposal, estimating and quantifying the available waste stream, and reviewing alternative proposal options for ultimate negotiations with the vendor.

EDUCATION

BA, Business Administration, Northwood University
AS, Engineering Technology, State University of New York
AS, Forestry, Paul Smiths College

RELEVANT EXPERIENCE

- ✓ Solid Waste Disposal and Recycling Processes and Resources Evaluation
- ✓ Feasibility Analysis
- ✓ Financial Studies
- ✓ Future Needs Assessment
- ✓ Waste Generation Estimates
- ✓ Recycling Needs Analysis
- ✓ Recycling Legislative Trends
- ✓ Regional Processing Facilities
- ✓ Recycling Benchmarking
- ✓ Education & Outreach

Waste-to-Energy (WTE) Feasibility Study, King County, WA; Special Advisor
Special Advisor in the development of a feasibility study comparing WTE facility implementation to waste-export-by rail for more than 1 million tons per year of waste processing. Sized the feasibility design of the WTE facility for 3,000 and an alternative design of 4,000 ton per day. Reviewed air pollution control and greenhouse gas impacts. Developed financial model for the facility construction, implementation, and operations and maintenance costs. Met with stakeholder groups provided an overview of the project and addressed questions/ concerns.

Thomas Henderson

Technical Advisor | Plantation, FL

45
Years of Experience

Tom has 45 years of experience in developing and managing large integrated solid waste management systems. His experience also includes the planning, design, permitting, financing, construction, start-up, and operation of large regional transfer stations, landfills, and material recovery facilities. He was instrumental in the development of the Miami-Dade and Broward County and most recently, the Palm Beach County integrated solid waste management system, including successful procurement of permits and all agreements.

Relevant Experience

150+
Solid Waste Facilities Permitting, Planning, and Reporting

10,000+
Tons per Day Managed as Solid Waste Director

30+
Years Serving in Local Government Solid Waste Leadership Roles

Broward County Resource Recovery Project, County Administrator's Office, Broward County, FL; Director and Coordinator
Directed and coordinated the county's development, construction, and operation of new solid waste disposal capacity including two 2,250 tpd, 67 MW WTEs; a 588-acre regional sanitary landfill; a 60-acre ash residue landfill; and a 300 tpd materials recovery facility.

Director, Office of Integrated Waste Management, Broward County, FL; Director
The office provided a wide range of solid waste management services to 24 municipalities, county unincorporated areas, and public school and community college districts. Services provided included waste disposal at landfills and WTEs, waste collection, recycling, household hazardous waste, waste tire management, and lot clearing. Operated the largest WTE system of any local government in the United States, 4,500 tons per day of capacity, with 100% availability during tenure from 1991 to 1999. Developed recycling collection programs serving more than half a million residential, commercial, and institutional customers including a 300 tpd materials recovery facility. First local government solid waste system to receive a Double AA debt rating from Moody's and Standard and Poor's (1993). Recognized by the American Society of Civil Engineers as Outstanding Project of the Year and Solid Waste Association of North America as operator of the best small landfill (1993) and best large WTE (1994), WTE received numerous other awards from the National Association of Counties, National Association of County Information Officers, and U.S. Conference of Mayors.

Administrator, Solid Waste Management Administration, District of Columbia Government, Washington, DC; Administration
Administration provided a wide range of solid waste management and basic sanitation services to the District's residents, businesses, institutions, and visitors. Services provided include garbage, bulk, recycling, and household hazardous waste collection; street and alley sweeping and cleaning; street litter can collection; fall leaf collection; right-of-way mowing; snow removal; transfer station operations; sanitation regulation enforcement, debris management during emergencies; and support of special events. Negotiated two long-term waste disposal agreements at a regional WTE facility during tenure.

EDUCATION

AA, Liberal Arts, Miami-Dade College, 1967

RELEVANT EXPERIENCE

- ✓ Solid Waste Disposal and Recycling Processes and Resources Evaluation
- ✓ Feasibility Analysis
- ✓ Financial Studies
- ✓ Future Needs Assessment
- ✓ Waste Generation Estimates
- ✓ Recycling Needs Analysis
- ✓ Recycling Legislative Trends
- ✓ Regional Processing Facilities
- ✓ Recycling Benchmarking
- ✓ Education & Outreach

North Santa Clara Solid Waste Management Authority, Santa Clara County, Sunnyvale, CA; Manager
Managed a Joint Exercise of Powers Authority special district to plan, develop, and manage interim and long-term solid waste management solutions for the Silicon Valley area of Northern California. Supervised work of the authority's staff and directed activities of outside consultants. Developed and implemented an 18-month long-term project feasibility study which included a WTE, landfill, and transfer station/ materials recovery facility.

Palm Beach Renewable Energy Facility No. 1, Solid Waste Authority of Palm Beach County, West Palm Beach, FL; Strategic Advisor
Provided support to the Authority in negotiating and drafting an Engineering, Procurement, and Construction Services Agreement for the refurbishment of the 2,000 tpd refuse-derived fuel Renewable Energy Facility. The agreement covered the engineering, procurement, demolition, and reconstruction of two 1,000-ton-per-day process units including boilers, air pollution control equipment, and control systems. The cost plus a fixed fee agreement had an estimated value of $159 million. In addition, negotiated the extended Power Purchase Agreement with Florida Power & Light, which included allowances for carbon and renewable energy credits. Other activities included supporting construction, start-up, and operations monitoring.

Palm Beach Renewable Energy Facility No. 2, Solid Waste Authority of Palm Beach County, West Palm Beach, FL; Contract Administrator
Contract Administrator for the planning, permitting, procurement, financing, public outreach, and conceptual design for the overall implementation of a new 3,000 tpd WTE facility adjacent to the authority's existing renewable energy facility. Key activities included sizing and scoping of the project, development of procurement documents for the design-build-operator, development of application documents required under the Power Plant Siting Act, development of a design criteria package to be utilized during the procurement process, development and implementation of an extensive public outreach program, negotiation of Power Purchase and Interconnection Agreements, detailed design review, construction and acceptance testing monitoring, and overall program management activities to support the development of this $700 million capital project, the first of its kind in North America in more than 19 years. Additional activities included approval of all construction payments, punch list closeout, and warranty administration support.

Resource Recovery Project, Miami-Dade County, Miami, FL; Project Manager
County's Project Manager on the construction of a 3,000 tpd, 77MW waste-to-energy facility, and ash residue landfill project. Also responsible for management of the design and construction of two regional transfer stations, Northeast and Coral Way, and Black Point waste shredding plant, hazardous waste incinerator, and regional sanitary landfill.

Fort Riley Market Studies, Real Estate Div. Baltimore Dist. USACE, Fort Riley, KS; Feasibility Evaluation
Led the feasibility evaluation of leasing a parcel of land at Fort Riley, Kansas for the development of a WTE facility. A conceptual facility was modeled and evaluated to see if any fatal flaws could be identified. Several potential fatal flaws related to project cost and contracting framework were found and the project was not pursued.

Solid Waste Department Evaluation, City of Atlanta, Atlanta, GA; Operational and Financial Evaluation
Served as Technical Advisor for an operational and financial evaluation of the Solid Waste Department, including leading the development of a comprehensive financial model used for a baseline financial plan and also assessment of the financial impact of various changes to the operations and review of different rate scenarios. Developed Cost of Service analysis and review of rate structure as well as participated in the benchmark assessment of other regional solid waste services entities of similar size and services to the City. In the following years, the Solid Waste Services financial model with updated budget revenue and expenditure reports, budget projections, and the proposed rate adjustments provided by the City. Added expenditures for proposed service enhancements with multiple implementation scenarios. Developed multiple rate change implementation scenarios for the City's consideration.

Robert Ryall, PE

Cost Estimating, Financial Analysis and Funding | Orlando, FL

20+
Years of Experience

Robert is a nationally recognized consultant with expertise in financial and strategic planning for utilities around the country. He has assisted with over $3 billion in utility financing and has extensive experience in utility rate-making, impact fees, bond feasibility studies and acquisition/valuation analysis, and the development and use of interactive financial models. In addition to his financial experience, Mr. Ryall is a Professional Engineer in Florida and has been involved in many strategic planning studies, including master plans, capacity analysis, consolidation studies, and asset management-related engagements. Mr. Ryall is a contributor to industry manuals of practice and is a frequent speaker at regional and national events, including the Utility Management Conference, and other regional events around the country. He recently founded the Finance and Rates Committee within the AWWA Florida Section.

EDUCATION

MBA, Wake Forest University, 2002
BS, Environmental Engineering, University of Central Florida, 1998

PROFESSIONAL LICENSES

Professional Engineer – FL
American Water Works Association (AWWA)
Water Environmental Federation

RELEVANT EXPERIENCE

- ✓ Feasibility Analysis
- ✓ Financial Studies
- ✓ Future Needs Assessment
- ✓ Regional Processing Facilities
- ✓ Education & Outreach

Relevant Experience

$3B+
Utility Financing Projects

50+
Public Engagement Projects

FL
Professional Engineer

Miami-Dade Solid Waste Rates and Charges, Miami-Dade Department of Solid Waste Management, Miami, FL; Senior Financial Quality Consultant
Senior Financial Quality Consultant responsible for the annual financial assessment of the appropriateness of rates and charges and the renewal and replacement budget amount for each fiscal year in accordance with requirements of Section 508 of the Bond Ordinance. Project activities included collecting financial data, updating and confirming the financial model for the Department with the values published in the Comprehensive Annual Financial Report for each fiscal year, and evaluating the proposed budget to guarantee that it is sufficient to meet the Department's renewal and replacement needs and that revenues will be sufficient to meet the Department's debt service coverage, cash flow, and balance requirements.

Sanitation Department Revenue Sufficiency Evaluation, DeKalb County Department of Sanitation; Project Lead
DeKalb County's Department of Sanitation provides municipal solid waste services to residents and businesses of the County. In addition, the Sanitation department operates the south DeKalb landfill. To address ongoing capital and operational needs, DeKalb County retained Arcadis to perform a revenue sufficiency and fee study for the department. With Arcadis' assistance, the County was able to increase Landfill fees from $30 per ton to $100 per ton, in addition to fee increases to Commercial customers. The added revenue has allowed the County to invest in and improve overall Sanitation services.

Miami-Dade Solid Waste Utility Service Fee (USF) Reimbursable Cost Allocation Analysis, Miami-Dade Department of Solid Waste Management, Miami, FL; Senior Financial Quality Consultant
Senior Financial Quality Consultant responsible for the annual Reimbursable Cost Allocation Analysis conducted related to the Department's Utility Service Fee fund. Project activities involved a comprehensive review of the

Department's current and projected disposal expenses, identifying the purpose of each expense, determining whether or not it is eligible for reimbursement from USF receipts in accordance with Chapter 24 of the Miami-Dade County Code, appropriately allocating eligible expenses by fiscal year to allow the Department to recover or encumber receipts from the USF to which the Department is entitled, and the preparation of a report detailing the results of the analysis.

Water and Sewer Revenue Sufficiency Evaluation, DeKalb County Department of Watershed Management, GA; Project Lead

DeKalb County, Georgia's second largest water and sewer utility, engaged to complete a series of financial planning workshops to develop a five-year plan for funding the Department of Watershed Management's $2.7 billion capital program. The results of the revenue sufficiency evaluation were used to help secure $265 million in Water Infrastructure Finance and Innovation Authority (WIFIA) low-interest funding. Arcadis is next reviewing DeKalb County's water and sewer rates to explore options to achieve the rate revenue increases forecasted as part of the revenue sufficiency evaluation.

Annual Bond Consultant's Report Miami-Dade Water and Sewer Department (MDWSD), Miami, FL; Management and Finance

Assisted MDWSD with the preparation of the annual bond consultant's report. Responsibilities included participation in interviews with management and staff to document the department's achievements and understand critical issues, evaluating the capital program, evaluating bond precede expenditures, and developing financial forecasts to evaluate MDWSD's performance with respect to requirements of the master bond ordinance.

Review of Rate Structure and Customer Assistance Programs, District of Columbia Water, Washington DC; Independent Review

Led an independent review of DC Water's rate structure and customer assistance programs. The engagement included preparing an Independent Review of DC Water's cost-of-service approach, water and sewer rate structure, and customer assistance programs. The primary objective of the engagement was to provide DC Water with an independent review and recommendations for improving the cost-of-service approach used to develop the existing rate structure and to provide options to improve customer assistant programs. The results of the engagement provided DC Water information used to help continue to provide rate equity and long-term financial sustainability. The engagements also included a benchmarking survey of the Nation's largest water and sewer utilities.

Alexander Bellino

Cost Estimating, Financial Analysis and Funding | Charlotte, NC

9
Years of Experience

Alex is a Senior Management Consultant with expertise in financial and strategic planning and forecasting for solid waste, water, wastewater, stormwater, and electric utilities around the country. He has extensive knowledge and experience across all phases of the utility rate-making process (revenue sufficiency analysis, cost of service, and rate design), system development fee/impact fee/ miscellaneous fee analysis and development, bond feasibility studies, acquisition/ valuation analysis, and developing and using interactive financial models.

Relevant Experience

20+
Solid Waste Financial Planning/ Forecasting Studies

100+
Finance-Related Utility Projects

EDUCATION

MS, International Business, University of Florida, 2015

BS, Finance, University of Florida, 2014

RELEVANT EXPERIENCE

- ✓ Feasibility Analysis
- ✓ Financial Studies
- ✓ Future Needs Assessment
- ✓ Recycling Benchmarking

Miami-Dade Solid Waste Rates and Charges Analysis, Miami-Dade Department of Solid Waste Management (DSWM), Miami, FL; Financial Consultant
Financial Consultant responsible for the annual financial assessment of the appropriateness of rates and charges and the renewal and replacement budget amount for each fiscal year in accordance with requirements of Section 508 of the Bond Ordinance. Project activities included collecting financial data, updating and confirming the financial model for the department with the values published in the Comprehensive Annual Financial Report for each fiscal year, and evaluating the proposed budget to guarantee that it is sufficient to meet the department's renewal and replacement needs and that revenues will be sufficient to meet the department's debt service coverage, cash flow, and balance requirements.

Miami-Dade Solid Waste Utility Service Fee Reimbursable Cost Allocation Analysis, Miami-Dade Department of Solid Waste Management (DSWM), Miami, FL; Financial Consultant
Financial Consultant responsible for the annual Reimbursable Cost Allocation Analysis conducted related to the Department's Utility Service Fee (USF) fund. Project activities involved a comprehensive review of the department's current and projected disposal expenses, identifying the purpose of each expense, determining whether or not it is eligible for reimbursement from USF receipts in accordance with Chapter 24 of the Miami-Dade County Code, appropriately allocating eligible expenses by fiscal year to allow the department to recover or encumber receipts from the USF to which the department is entitled, and the preparation of a report detailing the results of the analysis.

Solid Waste Long Term Financial Plan Analysis, Miami-Dade Department of Solid Waste Management (DSWM), Miami, FL; Project Consultant
Conducted the revenue sufficiency analysis to evaluate the sufficiency of sanitation rates over a multi-year projection period and, to the extent necessary, develop a plan of annual solid waste rate adjustments that would provide adequate revenues during the projection period to satisfy all identified requirements, including 1) operating and maintenance costs, 2) capital improvement program costs (including renewal and replacement requirements), 3) existing and new debt service expenses and corresponding net income to debt service coverage ratios, and 4) adequate operating reserves.

Sanitation Rate Study, City of St. Petersburg, St. Petersburg, FL; Project Consultant
Project Consultant for this engagement, which involved conducting a revenue sufficiency analysis and residential rate survey for the City's Sanitation System.

- Conducted the revenue sufficiency analysis to evaluate the sufficiency of sanitation rates over a multi-year projection period and, to the extent necessary, develop a plan of annual sanitation rate adjustments that would provide adequate revenues during the projection period to satisfy all identified requirements, including 1) operating and maintenance costs, 2) capital improvement program costs (including renewal and replacement requirements), 3) existing and new debt service expenses and corresponding net income to debt service coverage ratios, and 4) adequate operating reserves.
- Conducted the residential rate survey to compare the monthly sanitation and recycling fees for a typical single-family residential customer of the City to that of other sanitation systems in the City's surrounding geographic area.

Sanitation Rate Study, County of DeKalb, GA; Project Consultant

Project Consultant for this engagement, which involved conducting a revenue sufficiency analysis and residential rate survey for the City's Sanitation System.

- Conducted the revenue sufficiency analysis to evaluate the sufficiency of sanitation rates over a multi-year projection period and, to the extent necessary, develop a plan of annual sanitation rate adjustments that would provide adequate revenues during the projection period to satisfy all identified requirements, including 1) operating and maintenance costs, 2) capital improvement program costs (including renewal and replacement requirements), 3) existing and new debt service expenses and corresponding net income to debt service coverage ratios, and 4) adequate operating reserves.
- Conducted the residential rate survey to compare the monthly sanitation and recycling fees for a typical single-family residential customer of the City to that of other sanitation systems in the City's surrounding geographic area.

Water and Sewer Revenue Sufficiency Analysis, Cost of Service, and Rate Design Study, Coral Springs Improvement District, Coral Springs, FL; Project Consultant
Project Consultant for this engagement. The project included completing a revenue sufficiency analysis to determine the District's future cash flow needs, a cost of service evaluation to determine the cost responsibility of the District's customers, and a rate structure evaluation to modify the water and sewer rate structure that more closely aligned with the cost of providing service, enhanced the fiscal stability and recovery of fixed costs and conformed to accepted national and local industry practice.

Comprehensive Rate Study, City of Fort Lauderdale, Fort Lauderdale, FL; Project Consultant
Project Consultant tasked with conducting revenue sufficiency analyses for eight of the city's enterprise/governmental funds including the Water, Sewer, Stormwater, Sanitation, Parking, Airport, Building, and General Funds. Conducted the analyses to evaluate the sufficiency of each individual funds' rates over a multi-year projection period and, if necessary, develop a plan of annual rate adjustments that would provide adequate revenues during the projection period that would satisfy all identified system requirements, including 1) operating and maintenance costs, 2) capital improvement program costs, 3) existing and new debt service expenses and corresponding net income to debt service coverage ratios, and 4) adequate operating reserves.

Cindy Eckert, PE, CDT, CFM

Cost Estimating, Financial Analysis and Funding | Tampa, FL

18
Years of Experience

Cindy has experience working with public utilities including solid waste management where she has provided negotiation support, financial and life-cycle cost analysis, and solid waste rate studies. She has assisted with the development and analysis of a landfill gas-to-energy (LFGE) Facility Agreement, resolution of landfill operational claims, and development of amendments to landfill and facility operating agreements. She routinely provides owner's agent services including facility inspections, construction monitoring, contract development and administration, and assistance with environmental permitting and monitoring.

Relevant Experience

12+
Solid Waste Facilities Permitting, Reporting, Compliance Audits

65+
Engineering/ Planning Studies

3+
Public Engagement Projects

Preliminary Solid Waste Master Plan Development, Solid Waste Authority of Palm Beach County, West Palm Beach, FL; Technical Lead
Served as Technical Lead for the development of the waste capacity model and financial model used for the Renewable Energy Facility (REF) portion of the Authority's 2060 Solid Waste Master Plan update. Activities included projecting waste generation over the planning period, determining processible waste capacity, and evaluating capacity options for a future renewable energy facility. Led the development of a financial model evaluating the capital and operations cost of three different renewable energy facility scenarios over the planning period and summarized the findings from these efforts in the Solid Waste Master Plan Preliminary Planning Report, developed PowerPoint presentations summarizing the overall Report findings, and presented to the client.

Solid Waste and Recycling Issues Study, Broward County, Fort Lauderdale, FL; Project Engineer
Served as Project Engineer on a study to provide options for meeting the Statewide 75% recycling goal. Assisted with population and solid waste quantity projections and identification of facilities needed to meet recycling goals, including conceptual level cost estimates.

Solid Waste Department Evaluation, City of Atlanta, Atlanta, GA; Operational and Financial Evaluation
Performed operational and financial evaluation of the Solid Waste Department, including leading the development of a comprehensive financial model used for a baseline financial plan and also assessment of the financial impact of various changes to the operations and review of different rate scenarios. Developed Cost of Service analysis and review of rate structure as well as participated in the benchmark assessment of other regional solid waste services entities of similar size and services to the City. In the following years, updated the Solid Waste Services financial model with updated budget revenue and expenditure reports, budget projections, and the proposed rate adjustments provided by the City. Added expenditures for proposed service enhancements with multiple implementation scenarios. Developed multiple rate change implementation scenarios for the City's consideration.

EDUCATION

BS, Chemical Engineer, University of Florida, 2005
BS, Chemistry, University of Florida, 2005

PROFESSIONAL LICENSES

Professional Engineer – FL
Certified Floodplain Manager
Construction Documents Technologist – Construction Specifications Institute

RELEVANT EXPERIENCE

- ✓ Solid Waste Disposal and Recycling Processes and Resources Evaluation
- ✓ Feasibility Analysis
- ✓ Financial Studies
- ✓ Future Needs Assessment
- ✓ Waste Generation Estimates
- ✓ Regional Processing Facilities
- ✓ Education & Outreach

Solid Waste Rate Study, City of Key West, Key West, FL
Lead the effort in building a new solid waste rate model and updating it annually. Annual efforts to analyze the City of Key West solid waste rate model include updating billing information, revenue, O&M expenses, capital improvement plan, updating solid waste reserves target, and providing a rate recommendation. Present analysis and final recommendations to the City Commission.

City of Virginia Beach Solid Waste Financial Planning, City of Virginia Beach, Virginia Beach, VA
Developed an integrated financial planning model as a dynamic mechanism to evaluate the impact of various scenarios of the financial operation of the solid waste fund and simulate future needs for revenues and associated fee adjustments based on projected revenue requirements.

Sanitation Department Financial Planning, City of Fort Smith, Fort Smith, AR; Operational and Financial Evaluation
Performed operational and financial evaluation of the Sanitation Department, including leading the development of a comprehensive financial model and equipment replacement plan. Performed Cost of Service analysis and review of rate structure, including providing recommendations for rate changes based on cost-of-service analysis. Developed and delivered the presentation to the City Board Members.

Waste to Energy vs. Waste Export by Rail Feasibility Study, King County, Seattle, WA; Feasibility Design
Assisted in the development of a feasibility study comparing waste-to-energy facility implementation to waste-export-by-rail for over 1M tons per year of waste processing. The feasibility design of the Waste-to-Energy (WTE) facility was sized for 3,000 and an alternative design of 4,000 tpd. Reviewed air pollution control and greenhouse gas impacts. Developed a financial model for the facility construction, implementation and operations and maintenance costs.

Professional Consulting Services for the McKay Bay Refuse-to-Energy Facility, City of Tampa, Tampa, FL; Deputy Project Manager
Serving as Deputy Project Manager and providing transition assistance and monitoring of the RTE facility, including performing on-site inspections, electrical revenue invoices, regular monitoring of Facility performance and operations, permitting and regulatory requirement monitoring and tracking, punchlist review, development, and maintenance, and annual report development. Previously reviewed operating contractor invoices and contract compliance until the transition to municipal operation. Also served as lead for the development of a comprehensive Transition Plan for the transition of the Facility from private operations to City operations. Assisted with the implementation of the Transition Plan, including the development of a transition and facility five-year budget tracking worksheet, environmental compliance activities and coordination, capital planning support, and other activities as requested by the City. Before the transition plan development, served as technical lead in the evaluation of operational efficiencies and feasibility of alternative operators or operating methods for the Facility, including the development of detailed financial projections of the top three options.

Waste-to-Energy Facilities Monitoring, Broward County Waste and Recycling Services, Fort Lauderdale, FL; Support Team Member
Assisted with the preparation of Semi-Annual and Quarterly Reports for the North and South WTE Facilities. Reviewed operational and environmental compliance data and composed reports.

Chris Tilman, PE, BCEE, CDT

Regulatory Requirements and Policy Review Task Lead;
Options Analysis | Miami, FL

24
Years of Experience

Chris provides professional engineering and consulting services in several civil engineering disciplines. He specializes in assisting municipal and industrial clients in Central and South Florida with solid waste and utility system planning, management, financing, engineering, capital improvements, and operations. His 25 years of experience includes project management and delivery, bond engineering services, solid waste and utility infrastructure planning, engineering, permitting, and construction projects, mathematical modeling, fleet analyses, construction cost estimating, and operation and maintenance evaluations. He currently serves as the Bond Engineer Program Manager for the Miami Dade County Solid Waste Management Department and works on several other civil engineering projects.

Relevant Experience

50+
Solid Waste Facilities Permitting, Planning, Reporting, Compliance Audits

50+
Engineering/ Planning Studies

20+
Public Engagement Projects

Solid Waste System Bond Engineering Services, Miami-Dade County Department of Solid Waste, Miami, FL; Bond Engineer Program Manager
Program Manager responsible for delivering all Bond Engineer services and projects for the County's Solid Waste System as requested by the Department, including Operations Monitoring of the County's Resource Recovery Facility, Annual Solid Waste System Inspections, Annual Landfill Closure and Long-Term Care Cost Estimates, Annual Landfill Airspace/Capacity Analysis, Annual Rates and Charges Analysis, as well as an annual Utilities Service Fee Reimbursable Cost Allocation Analysis.

The Bond Engineer projects also include the ongoing Bond Engineer Oversight of the Closure Enhancement of the Virginia Key Landfill and closure of the former Munisport Landfill, and the 2015 Solid Waste Refunding Revenue Bonds – Consulting Engineer's Report. Other project work included the Future Waste-to-Energy Facility Siting Alternatives Evaluation (2023) including a siting study/analysis to identify potential sites that would be suitable for the development of a future Waste-to-Energy facility and/or alternative processing facilities (i.e., windrow, ASP and in-vessel composting, anaerobic digestion, mixed waste processing, etc.) based on siting criteria developed with County personnel and Zero Waste considerations and preparing a report of findings. The project also included the preparation of a State of the Industry report that analyzes current solid waste processing technologies.

Zero Waste Municipal Solid Waste Management System Analysis, Montgomery County, MD; Technical Lead/Task Manager
Technical Lead/Task Manager for assessment of progressive MSW processing and/or treatment technologies to maximize waste diversion and reduce residual waste requiring disposal via conventional methods. Cost-benefit analysis resulted in incremental cost of enhanced diversion via progressive add-on of processes/technologies to enable stakeholders to make an informed decision on modernizing their MSW management system. Specific efforts included cost/financial analyses, Greenhouse gas/carbon footprint, and other technical constraints/limitations; development of request for expression of interest; development of alternative MSW

EDUCATION

BS Civil Engineering Auburn University 2000
MS Engineering Management Troy University 1997
BS Environmental Science Auburn University 1994

PROFESSIONAL LICENSES

Professional Engineer – FL, AL, GA
Board Certified Environmental Engineer - US
Construction Documents Technologist - US

RELEVANT EXPERIENCE

- ✓ Solid Waste Disposal and Recycling Processes and Resources Evaluation
- ✓ Feasibility Analysis
- ✓ Financial Studies
- ✓ Future Needs Assessment
- ✓ Waste Generation Estimates
- ✓ Regional Processing Facilities

System configurations, sensitivity/cost analyses, analysis of preferred MSW System and development/issuance of request for proposal.

Transfer Station, Escambia County Utility Authority, Pensacola, FL; Technical Lead/Engineer of Record
Technical Lead/Engineer of Record responsible for the preparation of the site civil and stormwater design and permitting for a new 600 tpd solid waste transfer station. Design elements include determining the required building size, location, and clearances for compactors and feed chutes, roadways and truck parking areas, compactor approach ramps, water and sewer utilities, and stormwater conveyance and retention/detention ponds.

Broward Interim Contingency (BIC) Landfill Stormwater System Certification, Broward County Waste and Recycling Services, Plantation, FL; Engineer of Record
Engineer of Record responsible for the preparation of the stormwater system certification documents for the 588-acre BIC landfill site. Project work included the acquisition and review of permit drawings and construction documents, field verification, preparation of certification documents, engineering calculations, and ICPR flow modeling to verify the existing system capacity.

Omni-Vest Landfill Closure, Florida Department of Environmental Protection, Pensacola, FL; Project Engineer
Project Engineer responsible for the design analysis of site stormwater controls in support of the approved Remedial Action Plan (RAP) to effect the closure of an unpermitted commercial landfill dating back before 1972. The RAP addressed longstanding groundwater pollution issues related to metals, volatile organic compounds, and polynuclear aromatic hydrocarbons at the site. Project work included reviewing historical records, coordinating with regulatory staff, preparation of stormwater calculations, Interconnected Channel and Pond Routing Model modeling, and detailed analysis reports to demonstrate that the proposed design necessary for closure of the Landfill was in accordance with the design requirements at the time of closure.

Renewable Energy Facility No. 1 Refurbishment Air Construction Permitting, Solid Waste Authority of Palm Beach County, West Palm Beach, FL; Engineer of Record
Engineer of Record, responsible for the preparation of the FDEP Air Construction permit application for a $167 million refurbishment of the existing REF#1 facility. Refurbishment work included replacement of the existing waterwall boilers, removal of the electrostatic precipitators, and installation of a urea injection system and fabric filter baghouses to improve the performance and emissions of the facility.

McKay Bay Waste-to-Energy Facility Title V Permit Renewal, City of Tampa, Tampa, FL; Engineer of Record
Engineer of Record for the 2005 and 2010 Title V Air Operation Permit Renewals for the McKay Bay Refuse-to-Energy Facility, a 1,000 tpd WTE plant. Responsible for the preparation of the permit application, including technical verification of facility equipment and operating parameters, equivalency calculations, and addressing Compliance Assurance Monitoring requirements and other regulatory issues.

Lee County Transfer Station, Lee County Solid Waste Division, Fort Myers, FL; Project Engineer
Assisted in the design of a new 47,000 sq. ft. transfer station and a 6.2-acre Horticultural Processing Facility adjacent to the Lee County WTE Facility. Design work included engineering calculations, ICPR modeling, permitting, and technical specifications of the modified stormwater system to serve the 24.6-acre property.

Lee County Materials Recovery Facility Relocation, Lee County Solid Waste Division, Fort Myers, FL; Project Engineer
Assisted in the design of a new 64,000-square-foot Recycled Materials Processing Facility adjacent to the Lee County WTE Facility. Design work included processing equipment CAD layouts, engineering calculations, ICPR modeling, SFWMD permitting, and technical specifications for the modified stormwater system to serve the 11-acre property.

Joe Krupa, PE

Implementation Plan and Timelines Task Lead; Options Analysis; Operations Plan Development | White Plains, NY

30
Years of Experience

Joe currently serves as the national Resource Recovery Technical Lead for Arcadis. He has 30 years of experience specializing in solid waste projects involving recycling, resource recovery, renewable energy, material recovery, renewable natural gas, waste conversion, landfills, waste-to-fuel, and biosolids management facilities. He has served as the Engineering Technical or Project Manager on over $1B dollars in new construction or refurbishment of solid waste management and recycling facilities and over $3B dollars in technical due diligence for transactions or commercialization of solid waste management facilities. His experience spans the entire project life cycle including recent relevant experience with solid waste management facilities master planning, siting, feasibility studies, permitting, vendor procurement, design criteria package and detailed engineering specifications development, technology studies, and implementation of the technologies into projects, contract negotiations, design review, construction and acceptance testing monitoring, and operations monitoring.

EDUCATION

ME, Environmental Engineering, Manhattan College, 1996

BS, Mechanical Engineering, North Carolina State University, 1993

PROFESSIONAL LICENSES

Professional Engineer – NY

RELEVANT EXPERIENCE

- ✓ Solid Waste Disposal and Recycling Processes and Resources Evaluation
- ✓ Feasibility Analysis
- ✓ Financial Studies
- ✓ Future Needs Assessment
- ✓ Waste Generation Estimates
- ✓ Recycling Needs Analysis
- ✓ Recycling Legislative Trends
- ✓ Regional Processing Facilities
- ✓ Recycling Benchmarking

Relevant Experience

30+
Years Solid Waste Facilities Permitting, Planning, Reporting, Compliance Audits

30+
Years Engineering/ Planning Studies

240+
Solid Waste & Recycling Projects

Solid Waste Management Program Broward County Waste and Recycling Services, Broward County, FL; Lead Technical Advisor

Served as Lead Technical Advisor for Arcadis solid waste system planning services and Operations Monitoring services. Evaluated site requirements to develop County property for either an organics processing facility, materials recovery facility, transfer station, or WTE facility. Served as technical lead developing these solid waste facilities option analyses and cost estimation for the solid waste and recycling issues study for waste disposal options to achieve a 75% recycling goal. Participated in stakeholder meetings with municipal officials from over 36 municipalities and the County Solid Waste Advisory Board. Provided QA/QC services and reviewed annual resource recovery facilities operations monitoring and year-to-year trend analysis reports. Managed demonstration test monitoring for a single-stream materials recovery facility.

Solid Waste Management Plan and Recycling and Procurement Projects Support, Westchester County Department of Environmental Facilities, Westchester County, NY; Project Manager

Managed County solid waste management plan update development that included developing waste projections based on population forecasts and identifying reuse, reduction, and recycling programs for consideration to achieve the state's recycling goals. Managed County C&D debris recycling facility feasibility study and stormwater site improvements at the materials recovery facility and transfer station site. Evaluated confidential mechanical biological treatment vendor proposal to implement at a transfer station. Managed development of the request for proposals for the disposal of the County's municipal solid waste per NYS General Municipal Law 120-w. Performed due diligence of materials recovery facility retrofit vendor.

Palm Beach Renewable Energy Facility No. 2 – New WTE Facility Implementation; Operations Monitoring; and Ash Reuse Projects, Solid Waste Authority of Palm Beach County, West Palm Beach, FL; Technical Evaluation
Developed the constraints and limitations analysis for siting a New Proposed 3,000 tpd WTE Facility adjacent to the Authority's North County Resource Recovery Facility (NCRRF) (now known as PBREF No. 1). Prepared the Design Criteria Package for the request for proposal (RFP) for the new WTE Facility. Performed the technical evaluation of the technical proposal and prepared the technical proposal evaluation. Managed the technical services support during the design review phase; reviewed change orders and applications for payments; responded to requests for information and served as Engineering Manager for the construction monitoring. Currently, managing the operations monitoring efforts. Managed the project to conduct due diligence site visits to ash re-use facilities and developed a feasibility study report for re-using ash residue from both facilities.

New Waste to Energy (WTE) Facility Implementation and Existing Facility Retrofit, Solid Waste Authority of Palm Beach County, West Palm Beach, FL; Technical Support
Participated in the feasibility analysis for siting a new 3,000-tpd WTE facility. Led technical support team in developing design-build-operate procurement documents, including design criteria and evaluating technical proposals. Provided technical support for permitting such as air permit, Consumptive Use Permit, and Power Plant Siting Application that included an Environmental Justice Impact Evaluation and Audit. Led technical support team reviewing submittals, change orders, RFIs, construction monitoring, and facility acceptance test monitoring. As the project manager, managing the team responsible for design-build procurement selection, ESDC, and construction monitoring 2,000-tpd WTE facility retrofit.

Siting Alternatives and State of the Industry Study, Miami-Dade County, FL; Lead Technical Advisor
Lead Technical Advisor to conduct a preliminary analysis of potential sites that could be suitable to develop future solid waste management facilities, including consideration of zero waste alternatives, within 60 days. Developed initial screening criteria to short-list 238 potential parcels that met criteria including environmental justice concerns using the USEPA EJScreen tool. Evaluated 23 short-listed parcels using detailed screening criteria. Developed initial cost estimate for several possible facilities. In parallel, led the development of a State of the Industry Study which evaluated and identified the current technologies available to process MSW and at what capacities and scale.

Waste-to-Energy Retrofit Study, Dutchess County Resource Recovery Agency, Poughkeepsie, NY; Technical Support
Prepared an operation enhancement study report of the resource recovery facility. The facility was originally specified for 400-tpd. However, the vendor provided O'Connor rotary combustors with a 500-tpd nominal capacity. The purpose of the study was to recommend operation enhancements to continuously operate at 500-tpd. Activities included day-to-day client coordination; project management; operating data analysis; flue gas pressure, temperature, and flow measurement field testing; developing recommendations; developing cost estimates for recommendations; reviewing energy optimization strategies; presenting results; and preparing summary report.

Municipal Solid Waste (MSW) Management System Analysis, WTE Facility Condition Assessment, Single-Stream Conversion Feasibility Study - Montgomery County, MD; Technical Lead or Task / Project Manager
Served as Technical Lead/Task Manager for WTE Facility Condition Assessment and assessment of progressive MSW processing and/or treatment technologies to maximize waste diversion and reduce residual waste requiring disposal via conventional methods. The cost-benefit analysis resulted in an incremental cost of enhanced diversion via progressive add-on of processes/technologies to enable stakeholders to make an informed decision on modernizing their MSW management system. Specific efforts included cost/financial analyses, Greenhouse gas/carbon footprint, and other technical constraints/limitations; development of request for expression of interest; development of alternative MSW System configurations, sensitivity/cost analyses, analysis of preferred MSW System and development/issuance of request for proposal. Managed the feasibility study for converting dual stream materials recovery facility (MRF) to a single-stream MRF.

Michael DeLoach, PE, CDT, ASME-QRO

Implementation Plan and Timelines; Education, Outreach, and Public Workshops; Options Analysis | Tampa, FL

14
Years of Experience

Michael is an innovative technology specialist, specializing in chemical and mechanical engineering disciplines and construction oversight. He has a strong background in solid waste management, waste-to-energy (WTE), innovative gasification technologies, and power generation facilities and possesses an American Society of Mechanical Engineers Qualified Refuse Operator license (ASME-QRO) for operating power plants. He has been part of the municipal bond engineering oversight, procurement assistance, and/or engineering consulting teams for nine separate waste-to-energy facilities operated by four different facility operators, and numerous transfer stations, and has experience with over one billion dollars in new construction or refurbishment of power generation facilities. He has been a key team member during several recent due diligence efforts assessing innovative waste gasification technologies for the production of syngas for conversion to power and biofuels and has provided confidential due-diligence inspections of power-generating facilities and commercial viability assessments of innovative technology in support of over three billion dollars in purchases and investments relating to solid waste or innovative waste gasification technologies.

Relevant Experience

100+
Solid Waste Facilities Permitting, Planning, Reporting, Compliance Audits

35+
Engineering/ Planning Studies

15+
Innovative Technologies Due Diligence Assessments

Broward County Solid Waste and Recycling Study, Broward County, Fort Lauderdale, FL; Engineering and Financial Review Team Member
Served as part of the engineering and financial review team for the solid waste and recycling study performed for Broward County, Florida. The goal of the Study was to determine how Broward County can attain the statewide 75% recycling goal and to review the governance structure and plan for future solid waste management. Assisted in evaluating potential uses of an available land site for transfer station, recycling, WTE, and materials recovery facility (MRF) construction, including capital and operations cost estimates and development of the final report for the County.

Preliminary Solid Waste Master Plan Development, Solid Waste Authority of Palm Beach County, West Palm Beach, FL; Project Engineer and Management Consultant
Served as Project Engineer and Management Consultant for the development of the Renewable Energy Facility (REF) portion of the Authority's 2060 Solid Waste Master Plan update. Activities included identifying and reviewing the regulatory process for developing REF expansion alternatives at the Authority site in consideration of existing permit limiting conditions, assisting in the development of the anticipated emissions determination, gathering and providing data inputs for use in updating and running scenarios in the air dispersion model, developing waste capacity models and reviewing landfill models, developing detailed cost estimates for construction of a new 3,000 tpd waste-to-energy facility and associated site impacts, reviewed current water use sources and developed a water balance diagram and water use table for both current and future conditions for the entire site, summarized the findings from these efforts in the Solid Waste Master Plan Preliminary Planning Report, developed PowerPoint presentations summarizing the overall Report findings and presented to the client.

EDUCATION

BS, Chemical Engineering, University of South Florida, 2009

PROFESSIONAL LICENSES

- Professional Engineer – FL
- Construction Documents Technologist (CDT) – FL
- American Society of Mechanical Engineers Qualified Refuse Operator License (ASME-QRO)

RELEVANT EXPERIENCE

- ✓ Solid Waste Disposal and Recycling Processes and Resources Evaluation
- ✓ Feasibility Analysis
- ✓ Financial Studies
- ✓ Future Needs Assessment
- ✓ Waste Generation Estimates
- ✓ Recycling Needs Analysis
- ✓ Recycling Legislative Trends
- ✓ Regional Processing Facilities
- ✓ Recycling Benchmarking
- ✓ Education & Outreach

McKay Bay Refuse-to-Energy Facility, City of Tampa, Tampa, FL; Engineer and Assistant Project Manager
Currently serves as an Engineer and Assistant Project Manager for the operations monitoring and environmental compliance of the 1,000 tpd mass burn refuse-to-energy facility and attached transfer station and scalehouse owned by the City of Tampa. Leads the efforts for operations monitoring, capital improvements engineering and process review, facility inspections, and punchlist development. Recent additional projects include:

Evaluation of operational efficiency and feasibility for the facility. Served as Technical Lead in the evaluation of operational efficiencies and feasibility of alternative operators or operating methods for the Facility. This evaluation includes determining the feasible operational options to evaluate and development of evaluation criteria and deal breakers, including financial proforma, capital project development, and other risk analysis and evaluation.

Transition Planning for the facility. Developed a comprehensive Transition Plan for the transition of the Facility from private operations to City operations. Efforts included several workshops with City stakeholders, the development of an Emergency Plan for use if the Operator abandoned the contract, determining requirements to transition such as bondholder, regulatory, and internal City requirements, and identifying and mitigating potential obstacles to the transition process. Currently assisting with the implementation of the Transition Plan, including the development of transition and facility five-year budget and tracking worksheet, insurance requirements and inspections, environmental compliance activities and coordination, capital planning support, and other activities as requested by the City.

Technical and Financial Feasibility of a Plasma-Enhanced Gasification System Confidential Client, Houston, TX; Engineer, Technical Advisor, and Financial Evaluator
Assisted in the engineering, technical, and financial feasibility evaluation of new gasification technology for assured destruction of hazardous waste via plasma-enhanced syngas generation for a company procuring financing to begin the design and construction of the new technology. Evaluated the state of gasification technology development and commercial status, the proposed financial and technology implementation plan, the waste availability and procurement plan, permitting, and performed a detailed assessment of the technology components. Assessed potential technical and operational risks that could impact the proposed project financial plan and project capital costs, operations costs, and potential revenue streams.

Municipal Solid Waste to Biofuel Technical Due Diligence, Confidential Aviation Client, Midwest United States: Engineer, Technical Advisor and Financial Evaluator
Assisted in the engineering, technical, and financial feasibility evaluation of new gasification technology for a major aviation sector client seeking a source of sustainable biofuels. Due diligence assessment was on a proposed 1,200-ton-per-day municipal solid waste (MSW) to a biofuel facility using an innovative waste gasification technology. Evaluated the state of gasification technology development, the proposed financial and technology implementation plan, the waste availability and procurement plan, and performed a detailed assessment of the technology components including MSW pre-processing, waste gasification, syngas clean-up, and Fischer-Tropsch process for conversion of syngas to biofuel. Assessed potential technical and operational risks that could impact the proposed project financial plan and project capital costs, operations costs, and potential revenue streams.

Due Diligence Review of Solid Waste Recycling Facilities, Confidential Client, US; Technical and Financial Review
Provided technical and financial review including capex and opex evaluations, contracts and revenue stream projections, and technical integrity review of the assets. Assets reviewed included municipal solid waste material recovery facilities, construction and demolition debris processing facilities, composting facilities, and anaerobic digestion facilities. Led the development of a financial model to project future capex and opex costs and revenues as well as identifying potential financial, contractual, and operational risks.

Steve Nesbitt, PE

Options Analysis | Newport News, VA

40
Years of Experience

Over the last 40 years of his professional career, Steve has been fortunate to have had the opportunity to serve Municipal government sector clients here across the United States, as well as Canada and abroad, in a variety of project delivery roles. His combination of comprehensive experience and specialized expertise enables him to provide that 'C-Suite' perspective to our senior-most municipal government sector clients in their planning and development of complex MSW management systems.

Program/Project Management, as well as Technical Service Offerings, have been provided for a broad range of solid waste management infrastructure/facilities including planning and business advisory services in support of MSW management systems development, as well as capital project delivery for a range of MSW infrastructure including transfer stations, materials recycling facilities and municipal solid waste landfills (MSWLF), with associated regulatory permitting, design, construction, compliance monitoring and corrective action. Multiple innovative, 'first-of-its-kind' strategies have been developed and implemented for a range of solid waste management facilities and are a testimony of his creative problem-solving ability while gaining a comprehensive understanding of federal and state regulatory frameworks, as well as establishing a familiarity with working with senior-most regulatory and client stakeholders.

EDUCATION

MS, Geotechnical Engineering, University of Toronto, 1984

BS, Civil Engineering, University of Toronto, 1981

PROFESSIONAL LICENSES

Professional Engineer – Ont

RELEVANT EXPERIENCE

- ✓ Solid Waste Disposal and Recycling Processes and Resources Evaluation
- ✓ Feasibility Analysis
- ✓ Financial Studies
- ✓ Future Needs Assessment
- ✓ Waste Generation Estimates
- ✓ Regional Processing Facilities
- ✓ Recycling Benchmarking
- ✓ Education & Outreach

Relevant Experience

50+
Solid Waste Facilities Permitting, Planning, Reporting, Compliance Audits

100+
Engineering/ Planning Studies

10+
Public Engagement Projects

Municipal Solid Waste Management System Analysis/Moving Toward a Zero Waste Strategy, Department of Environmental Protection, Montgomery County, MD
Project Director/Project Manager responsible for providing both comprehensive and specialized professional consulting services in support of the County's progressive environmental agenda and movement toward "zero waste". Our efforts included both traditional engineering analyses associated with detailed condition assessment of specific MSW infrastructure, including both resource recovery facility and transfer station, as well as planning and business advisory services used in performing a comprehensive assessment of alternative MSW management technologies and systems to balance cost and level of service with waste diversion goals and objectives.

Consultant Services Agreement/Indefinite Delivery Type Contract, MSW Management Professional Design Services, Department of the Environment, Waste Management Division, Prince George's County, MD
Project Director/Project Manager responsible for providing a broad range of specialized consulting and engineering services in support of the County's MSW management program objectives. Efforts included the development of a Ten-Year Solid Waste Master Plan Update performed under an expedited schedule to comply with COMAR Title 26 regulatory requirements, utilizing GIS based approach to characterize spatial MSW generation patterns to enable comparison with existing MSW infrastructure capacity and capabilities; condition assessment of the County's Materials Recycling Facility to enable the transition of operations from private sector vendor to County resources; development and implementation of an MSW System Benefit Charge to enable equitable generation of necessary revenues from the County's constituency and customer base; and owner-

agent services associated with oversight of private sector vendor responsible for design-build-operate of one of the County's MSW management facilities.

Annual Services Contract, MSW Management Consulting, City of Virginia Beach, VA
Project Manager responsible for the implementation of a multi-year Basic Order Agreement to provide comprehensive consulting services to the city leadership team comprised of the City Manager, City Attorney, and Directors of Public Works, Engineering, Finance, and Planning. These efforts addressed a range of programmatic issues associated with infrastructure development, operations, and maintenance, as well as business advisory services in anticipation of the cessation of inter-local agreements with a regional authority.

Related and specific efforts included long-term strategic planning of solid waste management system alternatives in anticipation of the cessation of inter-local agreements with a regional solid waste authority. Efforts included evaluation of emerging technologies; evaluation of constraints/limitations and methods to cure, abate, or mitigate associated risk; life-cycle cost analyses of various disposal alternatives; development of a financial model reflecting strategies/site development concepts to maximize the value and utility of infrastructure with anticipated $250 Million life-cycle cost savings; and presentations to the City leadership team including governing council members.

Annual Services Contract, MSW Management Consulting, City of Newport News, VA
Principal-In-Charge/Project Manager is responsible for the implementation of the Annual Services Contract in support of comprehensive civil/environmental engineering and specialty discipline offerings related to a broad range of City facility and infrastructure development and maintenance including extensive MSW management program support. Efforts were both programmatic as well as specific to individual capital project development and performed over an ongoing 25-year tenure.

Relevant and specific efforts included lifecycle capital as well as O&M planning for Solid Waste Disposal Facility No. 2, development of financial models with revenue and expenditure schedules as input to long-term planning and rate-setting, directly reporting to the City Managers' office, reflecting a range of revenue and borrowing requirements in a post-Carbone era and absence of flow control legislation.

MSW Planning and Business Advisory Services, Financial Pro-Forma/Alternatives Analysis, Isle of Wight County, VA
Principal-In-Charge/Project Manager is responsible for the implementation of an Annual Services Contract (ASC) for a broad range of civil/environmental engineering offerings to the County Administrator, County Attorney, and Director of Public Works. Efforts have been programmatic as well as in support of specific infrastructure development projects.

A complex multi-variable financial cost-of-service model was developed predicting the life-cycle unit cost of collection, transfer, and disposal for a range of system alternatives including both 'cost-based' (public sector) and 'market-based' (private sector) pricing alternatives. A combination of industry benchmarking and current budget estimates was used to project future inflated costs, which were subsequently returned to net present value (NPV) via an assumed discount rate. Sensitivity analyses were performed relative to tipping fees, waste generation rates, as well as cost of money. This was followed by the development of Request for Expressions of Interest (RFEI) and Request for Proposals (RFP) in support of a selected private sector vendor alternative. The process resulted in separate competitive bids for each of the collection, transfer, and disposal components in the absence of vertically integrated service providers within this rural community.

MSW Planning and Business Advisory Services, Monetization of County MSW Asset, Pittsylvania County, VA
Project Director/Project Manager responsible for development of MSW disposal cost-of-service proforma model development in combination with market analysis and capture plan to increase economy of scale in program life-cycle development and operations. Specific efforts included the development of a financially sustainable business model to transform the existing "under-funded" MSW management program with net negative revenue and reliant upon direct support by the General Fund, to a variable market-based rate structure with MSW tipping fees derived from additional waste generators within and beyond the County's jurisdictional

boundaries. Additional net income (revenue less life-cycle cost of operating expenses) would be used to offset the negative financial impact on the General Fund. Industry 'benchmarking' was performed in conjunction with market assessment within the surrounding "wasteshed" to develop an approach to doubling the facility's waste acceptance rate and capturing an "economy of scale".

Operations Assessment and Financial Pro-forma Analysis, City of Bristol, Bristol, VA
The Project Manager and Technical Lead responsible for the assessment of facility design and operations as input to optimization study and financial life-cycle cost-of-service analysis requested by the City Manager and governing council. Efforts included the identification and evaluation of alternatives to enhance operations and site development to minimize life-cycle costs, as well as surrounding waste-shed analysis and available means to capture associated revenues.

City of Prince Albert, SK, Business Case/Conceptual Design for MSWLF Development, Prince Albert, SK
Project Manager responsible for developing a conceptual plan and business case for ongoing site development, including evaluation of alternative revenue sources to offset the cost of facility development. Objectives included the development of conceptual-level drawings depicting phase site development, as well as an interactive financial pro-forma model showing anticipated life-cycle costs and revenue. The financial model enabled multi-variable analysis comparing anticipated revenues and costs of facility development, including various financing options, and cost-benefit analyses**.**

Melissa Hew, CFM

Resiliency/Climate Impact | Miami, FL

12
Years of Experience

Melissa is Senior Consultant with Arcadis' Urban and Coastal Resiliency practice. She has extensive experience in partnership and capacity building and stakeholder engagement. She has been successful at managing and building relationships with internal and external stakeholders, community partners, elected officials, and residents to achieve strategic resilience goals. Her project experience includes the areas of funding strategy development, grant and loan management and compliance, watershed planning, nature-based infrastructure, climate adaptation, sustainability, and environmental protection. She has experience monitoring and evaluating sustainability trends for facilities and programs. She has developed recycling toolkits for commercial and institutional buildings in the New Orleans area. She is also a named contributor for the City of Miami's first Circularity Assessment Protocol - a study to assess the lifecycle of plastics and waste.

Relevant Experience

20+
Resilience, Sustainability, Climate Adaptation Projects

12+
Engineering/ Planning Studies

10+
Public Engagement Projects

Hazard Mitigation Assistance Grant Management and Funding Support, City of St. Petersburg, FL; Grant Management and Hazard Mitigation
Providing ongoing grant management and hazard mitigation funding support including annual FEMA Flood Mitigation Assistance (FMA) grant management to elevate repetitive loss properties along nearby Tampa Bay; liaising with FEMA, FDEM and other agencies as needed for grant applications; and advising on other state and federal funding programs for City projects.

Comprehensive Resilience Services, Tarpon Springs, FL; Technical Support
Provided technical subject matter expertise for Shoreline Alternatives Feasibility Analysis & Funding Strategy.

Technical & Outreach Assistance, Office of Civic & Community Engagement University of Miami, FL; Resilience and Sustainability
Providing ongoing resilience and sustainability subject matter expertise, and assistance in stakeholder engagement and outreach in support of the University's Climate and Equity Mapping Platform (CAMP) Project. CAMP is aimed at developing innovative solutions to adapt, mitigate, and build resilience to extreme heat and other hazards for Miami's affordable housing stock.

Resilience Program Manager, City of Miami Office of Resilience & Sustainability, Miami, FL; Technical Support
Coordinated the development of the City of Miami's Circularity Assessment Protocol (CAP). The CAP analyzes sources and types of consumer plastics, the cost of reusable products and alternatives to plastics, and recycling issues. Facilitated tracking of the lifecycle of plastic products from their use to their disposal to understand its impacts on the environment. Facilitated assessment of consumer trends and public perceptions about waste and debris. Provided technical expertise for the analysis, planning, and preparation for sea level rise and other climate hazards – and led community workshops, public meetings, design charrettes and other events on these topics. Co-developed Miami's first Climate Ready Strategy to reduce risks of flood, heat, and storms over the next 40 years, and maximizing co-benefits. Created policies and recommended changes to existing policies to

EDUCATION

MS, Environmental Science – Water Resource Management & Assessment, Towson University

BA, Environmental Studies, Tulane University

PROFESSIONAL LICENSES

Certified Floodplain Manager

WEDG Associate

RELEVANT EXPERIENCE

- ✓ Solid Waste Disposal and Recycling Processes and Resources Evaluation
- ✓ Feasibility Analysis
- ✓ Financial Studies
- ✓ Future Needs Assessment
- ✓ Legislative Trends
- ✓ Education & Outreach

mitigate climate risks including policies for the adoption of updated SLR projections for City projects, futureproofing infrastructure, and enhancing natural ecosystems and biodiversity. Secured funding for and co-developed resilient affordable housing program - Keep Safe Miami. Provided resilience subject matter expertise and helped lead public engagement efforts for Miami Forever Bond. Worked closely with City's Floodplain Administrator on Community Rating System (CRS) program. Managed and engaged internal and external stakeholders, community partners and organizations, elected officials and residents to achieve programmatic and strategic goals for CRS and other programs.

Compact Climate Assessment Tool (C-CAT) Southeast Florida Regional Climate Change Compact, FL; Co-Developer (C-CAT)
Co-developed C-CAT with City of Miami, Compact and other partners. C-CAT provides local governments in southeast Florida with a means for prioritizing climate actions and enhancing public communication on progress of priority actions for reducing emissions, advancing adaptation, and integrating equity.

Facility Risk and Resilience Assessment, City of Hollywood, FL
Conducted and developed a facilities risk and resilience assessment in accordance with the requirements of the 2020 Water Infrastructure Act.

Comprehensive Funding Strategy and Grant Management Services, Prince William County, VA; Strategy
Developed strategy to align selected Prince William County Service Authority capital projects with appropriate federal and state funding programs for implementation.

Comprehensive Grant Management and Compliance Services, Dayton, OH; Grant Services
Providing Economic Development Agency grant compliance services for Dayton Water; liaising with the EDA as needed for grant compliance and management.

Federal Highway Administration Grant Services, Tennessee Department of Transportation, Tennessee; Grant Services
Proving ongoing support to the Tennessee Department of Transportation regarding the Federal Highway Administration's (FHWA) Emergency Relief program. Grant services include compile data and funding reports for FHWA review, quality assurance and control, produce approximate capital cost alternatives for implementation, and assist with project management.

Federal Emergency Management Agency (FEMA) Hazard Mitigation Assistance (HMA) Grant Management Services, Various Locations; Grant Services
Regularly provides various grant service offering for various FEMA HMA programs, including Hazard Mitigation Grant Program (HMGP) and Building Resilient Infrastructure and Communities (BRIC). Service offerings provided have included the complete development of grant applications, (including phased project applications), environmental and historic preservation reviews, comprehensive management of grant funds, audit- sound record keeping, and facilitating conversations and information requests between recipients, subrecipients, and FEMA. Grant applications have focused primarily on critical infrastructure hardening against flood hazard, drought, hurricane damage, earthquake, and/or loss of power.

Comprehensive Resilience Services, City of Portsmouth, VA; Community Engagement and Outreach Strategy
Developed inclusive community engagement and outreach strategy and leading stakeholder engagement for the City's Flood Resilience Plan development. Providing other ongoing services to address the City's increasing risk from coastal storms, tidal flooding, and other hazards including comprehensive FEMA BRIC grant management services, and development of a Data-Driven and Equity-Driven Flood Resilience Plan that will provide key actions for the City to improve its resilience posture.

Shen Xin

Resilience/Climate Impact | New York City, NY

2
Years of Experience

Shen has experience working with public sector clients on municipal solid waste (MSW) management system planning and consulting. She has supported multiple projects on developing waste generation projections, analyzing MSW waste systems performance, and developing a solid waste management master plan. In addition, she has strong skills in data analytics and technology, allowing her to deliver advanced analysis and complex technical products.

Relevant Experience

5+
Solid Waste Management, Organics, Zero Waste Planning Projects

6+
Engineering/ Planning Studies

2+
Public Engagement Projects

Municipal Solid Waste Management System Alternatives Analysis Montgomery County, MD; Project Engineer
Developed an Evaluation Model that scores the performance of potential MSW management systems by multiple criteria, including Greenhouse Gas Emission level and Environmental Justice concerns. Delivered several evaluation model options by researching and incorporating various scoring methodologies and performance analysis methodologies.

Ten-Year Solid Waste Management Plan Update Prince George's County, MD; Project Engineer
Updated and revised the County's Ten-Year Solid Waste Management Plan to reflect the County's priorities and program developments. Identified data gaps, digested relevant materials, and delivered the updated plan in writing.

Waste-to-Energy Facility Consulting St. Lucie County, FL; Project Engineer
Developed the waste shed analysis model that projects waste disposal in the potential wasteshed of a Waste-to-Energy Facility. Activities include researching and digesting provided and external data to inform the model methodology and model parameters, building a model using Excel, visualizing the model outcome, and drafting a technical memo to present the data, methodologies, and findings.

Commercial Waste Zone Implementation New York City Department of Sanitation (DSNY), New York, NY; Project Engineer
Assisted in the implementation of the Commercial Waste Zones franchise system. Conducted the traffic analysis showing that this program would reduce the Vehicle Miles Travelled of the NYC private carting industry by 50%, providing crucial evidence in support of the implementation of the law. The traffic analysis involves managing data collected from various city agencies and commercial carters, executing traffic simulation using Python and third-party routing software, presenting the method to the client, and delivering results through visualizations and technical writing. Supported other tasks by providing Power BI Dashboard and Microsoft Excel tools.

EDUCATION

BS, Applied Mathematics, Columbia University, 2020
MS, Urban Planning, Columbia University, 2022
Thesis: Solid waste generation modeling for New York City Housing Authority

PROFESSIONAL LICENSES

Zero Waste Academy Completion
American Planning Association New York Metropolitan Chapter (APA NYC)

RELEVANT EXPERIENCE

- ✓ Solid Waste Disposal and Recycling Processes and Resources Evaluation
- ✓ Future Needs Assessment
- ✓ Waste Generation Estimates
- ✓ Recycling Needs Analysis
- ✓ Recycling Legislative Trends
- ✓ Regional Processing Facilities
- ✓ Recycling Benchmarking
- ✓ Education & Outreach

NYC Organics Study Department of Citywide Administrative Services, New York, NY; Support Staff
Provided technical support by developing an organic materials flow model using Microsoft Power BI. Digested available materials, identified data gaps, and integrated data into a Sankey diagram.

Open Space and Transportation Plan, Brooklyn Navy Yard, New York, NY; Proposal Writing
Assisted the team in developing approaches and methodologies to evaluate existing conditions and investigate opportunities and constraints of the transportation and open space network in Brooklyn Navy Yard. Drafted language to show the team's proficiency with traffic data collection, traffic behavior analysis, and simulation.

EPA Solid Waste Infrastructure and Education/Outreach Gran Application, New York City Housing Authority, New York NY; Grant Writing
Provided Environmental Justice Mapping and Analysis per application requirement. Mapped project sites in relation to neighborhoods exposed to environmental and social justice issues using EJ Screen data and CEJST data. Supported drafting of project narrative.

Nichole Lynch, TRUE Advisor

Regulatory Requirements and Public Review | Plantation, FL

17
Years of Experience

Nichole has over 17 years of solid waste consulting project experience and is uniquely qualified to assist the Authority with the development of the Solid Waste and Recycling Master Plan as she assisted with several projects with the now disbanded Resource Recovery Board and Solid Waste District, as well served as Deputy Project Manager for the Solid Waste and Recycling Issues Study. The institutional knowledge gained as part of these efforts gives her an in-depth understanding of the nuances of Broward County's solid waste system needs. Combined with her solid waste permitting, site analysis, and feasibility study experience for other municipal solid waste clients throughout South Florida, she will be an asset to the project delivery team and the Authority.

EDUCATION

MPA, Columbia University in the City of New York, 2006

BS, Environmental Science, University of Florida, 2005

PROFESSIONAL LICENSES

TRUE Advisor – US Green Building Council (Zero Waste)

RELEVANT EXPERIENCE

- ✓ Feasibility Analysis
- ✓ Future Needs Assessment
- ✓ Waste Generation Estimates
- ✓ Recycling Needs Analysis
- ✓ Regional Processing Facilities

Relevant Experience

40+
Solid Waste Facilities Planning, Permitting, Reporting

45+
Engineering/ Planning Studies

5+
Public Engagement Projects

Solid Waste and Recycling Issues Study, Broward County Solid Waste Disposal District, Broward County, FL

Served as Deputy Project Manager for the development of the Broward County Solid Waste and Recycling Issues Study Report. The Report intended to gather the information necessary for the Broward County Solid Waste Working Group to make decisions regarding the future of solid waste management. Developed meeting materials including presentations, handouts, and agendas that were utilized at the kickoff meeting and subsequent workshops. Coordinated with the subconsultant regarding the development of a waste composition and quality estimate, the results of which were used to develop alternatives and options, including facilities and policies, that could be implemented to enable Broward County to achieve the 75% State of Florida recycling goal. Assisted with the development of a conceptual level cost estimate for each of the facilities proposed as well as conducted a land use code review for the County's Alpha 250 site, to determine if it could be utilized for solid waste disposal or processing purposes. Evaluated the buildable area of the Alpha 250 site and compared it to the minimum footprint of the solid waste facilities proposed to determine which facilities could be constructed on the site.

Facilitated a governance workshop, the intent of which, was to gather information from the Working Group and stakeholders regarding what type of governance structure should be implemented to govern a new solid waste disposal district. Developed a PowerPoint presentation that summarized the governance structures of independent and dependent solid waste districts and authorities throughout FL and the United States and presented to the Working Group and stakeholders. Developed technical memorandum summarizing the findings from the cost estimate, Alpha 250 site review, and governance workshop and presented the results to the Working Group and stakeholders.

Developed a comprehensive Study Report, detailing the findings from all efforts conducted during the project as well as recommendations for how the County should move forward with the development and implementation of a solid waste district. Developed a PowerPoint Presentation summarizing the findings and recommendations and presented to the Working Group, Broward League of Cities, and Broward County Mayor's Group at three

separate workshops. Finalized the Report in accordance with feedback received from these groups and issued to the Working Group for review and use in determining the next steps.

Request for Expression of Interest, Broward County Solid Waste Disposal District, Broward County, FL
Served as task leader for the development of a Request for Expression of Interest (RFEI) to identify vendors that can meet all or a portion of, the Broward County Solid Waste Disposal District's future solid waste processing and disposal requirements. Contacted appropriate solid waste advertising publications focused on circulating opportunities similar to the RFEI at the state, national, and international levels to attract the largest number of potential vendors. Conducted a detailed review of the 27 expressions of interest (EOI) received, and developed a matrix summarizing the key EOI information of the technologies proposed which was issued to the district for consideration. Additionally, she coordinated with appropriate district staff and select vendors to schedule a Q&A workshop, the purpose of which was to allow District staff to obtain clarification regarding vendors proposed technologies and approaches. Also assisted with the development of a final summary report, which included the pros and cons of each vendor's proposed approach and Arcadis' ultimate recommendation for which vendor to select.

Needs Assessment Survey, Broward County Solid Waste Disposal District, Broward County, FL
Served as task leader for the development of a needs assessment survey. The Resource Recovery Board (RRB) wanted to modify the governance and financial structure of its solid waste disposal district and tasked Arcadis with the development of the Survey to assist them in this effort. Assisted in the development of survey questions, that were developed to gauge city manager satisfaction with the current solid waste management system, their likes and dislikes, as well as the likelihood that their City would agree to be party to a new ILA after the expiration of the existing ILA in 2013. Utilized an Arcadis software, called Cvent, to create the survey electronically, coordinated with various City Managers and their staff to obtain correct email addresses, and issued the survey via email to all 31 of Broward County's cities. Also followed up with various city managers and their proxies to confirm completion of the survey, which resulted in 25 of the 31 Cities responding. Once the survey was closed, various queries of the collected data to categorize and summarize the results. Assisted with the development of a summary memorandum and presentation, which provided the findings of the needs assessment survey and was presented to the resource recovery board.

Visioning and Strategic Planning, Broward County Solid Waste Disposal District, Broward County, FL
Served as a project engineer for the long-term visioning and strategic planning needs of the Resource Recovery Board (RRB) and Technical Advisory Committee (TAC). Assisted with the development of four separate presentations designed to extract the future district's missions and values, determine solid waste best practices, evaluate emerging solid waste processing technologies, and analyze various governance structures. The presentations were facilitated by Arcadis staff and were given to a core group of RRB, TAC, Waste and Recycling Services (WRS) staff/members as well as other stakeholders. Assisted with codifying the decisions of this core group, by developing meeting summary notes and summary memorandum noting the groups' decisions. The information collected was used to develop a strategic framework and ultimately a strategic plan and strawman ILA. Assisted with drafting the strawman ILA based on the results collected through the visioning and strategic planning process.

Preliminary Solid Waste Master Plan Development, Solid Waste Authority of Palm Beach County: West Palm Beach, FL; Project Manager
Project Manager for the development of the Renewable Energy Facility (REF) portion of the Authority's 2060 Solid Waste Master Plan update. Activities included identifying and reviewing the regulatory process for developing REF expansion alternatives at the Authority site in consideration of existing permit limiting conditions, assisting in the development of the anticipated emissions determination, gathering and providing data inputs for use in updating and running scenarios in the air dispersion model, summarized the findings from these efforts in the Solid Waste Master Plan Preliminary Planning Report, developed PowerPoint presentations summarizing the overall Report findings and presented to the client.

Karyn A. Riley, Esq.

Education, Outreach, and Public Workshops | Hanover, MD

12
Years of Experience

A senior leader with a strong background in organizational leadership, Karyn is skilled at leading teams and developing creative solutions to proactively address complex problems. She has executive-level experience in administration and operations, stakeholder engagement, government relations, communications, and corporate law. With broad competencies in program development, strategic planning, and project management, Karyn has transformed organizations and processes. She has been recognized for her accomplishments while serving in highly visible professional and civic leadership roles and is a sought-after presenter on topics related to leadership, advocacy, and equity.

Relevant Experience

20+
Policy and Government Affairs

18+
Executive Leadership

17+
Public Engagement Projects

Arcadis US, Vice President and National Practice Lead, Water Equity and Social Impact
Member of the leadership team. Developed the practice focused on driving equity through engagement and social impact.

Subject Matter Expert, Stakeholder Engagement and Environmental Justice Analysis, Municipal Solid Waste (MSW) Management System Alternatives Analysis Montgomery County, MD
Launched stakeholder engagement process, including facilitating an in-person advisory board meeting and providing ongoing advisory services for the creation of an engagement plan. Oversee the development of an evaluation model that provides an environmental justice score for potential MSW management systems using criteria using public health, environmental, demographic, and economic data.

Subject Matter Expert – Policy and Engagement, Strategic Plan Development, WSSC Water, Laurel, Maryland
Served as a subject matter expert on policy, governance, and engagement as part of the client's strategic planning process and helped to facilitate the in-person workshop.

Subject Matter Expert – Communications, Stakeholder Engagement and Customer Service, Strategic Plan Development, Central Arkansas Water
Served as a subject matter expert on customer service, customer service programming, stakeholder engagement, and government relations as part of the client's strategic planning process and helped to facilitate an in-person workshop.

Program Manager, Community Benefits, Louisville Metropolitan Sewer District
Coordinate Arcadis' investment from the community benefits agreement with the Louisville Urban League on an infrastructure workforce development program.

EDUCATION

Juris Doctor, Syracuse University College of Law, Syracuse, NY
BA, English, Hampton University, Hampton, VA

PROFESSIONAL LICENSES

Licensed to Practice Law – DC, MD
Certificate in Leadership and Coaching – University of Kansas/National Urban Fellows
Certificate in Women's Entrepreneurship – Cornell University
Certificate in Sustainable Business Strategy – Harvard University School of Business Online

RELEVANT EXPERIENCE

- ✓ Stakeholder Engagement and Community Outreach
- ✓ Solid Waste Disposal and Recycling Processes and Resources Evaluation
- ✓ Environmental Justice Analysis
- ✓ Legislation and Policy
- ✓ Advisory, Executive Leadership
- ✓ Private and Partnership Development

Experience Prior to SCS

WSSC Water (Washington Suburban Sanitary Commission), Laurel, MD; Intergovernmental Relations Director (5/2016 to 9/2022) and Government Relations Manager (5/2015 to 5/2016)

Member of the executive and senior leadership teams for Maryland's largest - the nation's 8th largest - water and wastewater utility with an annual budget of almost $2B. Oversaw stakeholder engagement and partnerships with diverse business, community, and industry groups, and government and elected officials. Created and implemented the utility's legislative agenda and advocacy plans at the federal, state, county, and municipal levels. Developed enterprise-wide plan for strategic engagement and drove decisions that promoted organizational effectiveness.

Representative Accomplishments:

- Directed WSSC Water's public policy efforts and managed employees and consultants that implement public affairs campaigns, including creating the "This One Drop" advocacy framework which aligns water policy with policy for public health, environment, social justice, and economic development.
- Led a cross-functional team that examines and implements customer assistance and customer engagement programs and policies, resulting in an increase of over 50% in annual assistance of $3M and implementing internal policy changes that increased the number of eligible customers.
- Advised Congressional members staff and agency leaders on federal policy, including the Infrastructure and Investment Act, WIFIA, and WRDA, and hosted engagement and education opportunities, such as the "Experts on Tap" event on Capitol Hill and on-site tours.
- Secured state legislation that increased transparency and accountability through the creation of an Inspector General's Office, secured subpoena authority for the Board of Ethics and general counsel, and expanded protected classes under anti-discrimination legislation.
- Expanded awareness of utility as an anchor institute in economic development, including commissioning WSSC Water's first-ever economic impact study.
- Lead the development of WSSC Water's inaugural equity roadmap and present nationally on equity issues in the sector and community engagement. Serve as an executive sponsor of WSSC Water's Diversity, Equity, and Inclusion (DEI) Task Force and the DEI Committee.
- Secured legislation that expanded customer assistance programming to extend assistance to renters, established an emergency pipe repair loan program, and created a fee credit for senior housing.
- Oversaw execution of engagement activities, including a state-wide symposium on environmental issues and policy, and a fundraiser that raised over $150k for The WSSC Water Fund.
- Coordinate internal and external stakeholders and facilitate discussions to navigate complex construction projects and negotiate mutually beneficial results that mitigate cost impacts and public inconveniences, including moving forward a sewer replacement project stalled over 7+ years.
- Appointments: US Water Alliance (One Water Council; Water Equity Network; Water Agency Leadership Alliance); American Metropolitan Water Association (Legislative Committee); and Water Environment Federation (Workforce Diversity Committee).

Baltimore Development Corporation, Baltimore, MD; Chief of Staff (9/2013 to 10/2014)

As a member of the executive team, served as a strategic advisor to the President & CEO on operations, strategic planning, and communications. Oversaw the execution of high-priority projects that supported $100M+ in economic development activities. Managed the implementation of an annual operational plan, annual budget development, and proceedings. Led cross-functional teams, internally and externally.

Angela Dalsis

Natural Areas | Tampa, FL

24
Years of Experience

Angela provides strategic regulatory and environmental consulting support to private and public clients and specializes in Clean Water Act Section 404 permitting and the National Environmental Policy Act. She is a Professional Wetland Scientist with 24 years of experience in the field of natural resources. She has extensive experience with environmental permitting, habitat assessment, and aquatic resource delineation for roadway and rail, utility, remediation, and treatment wetland projects. She has provided technical leadership for aquatic resource and mitigation assessments under NEPA, as well as managed comment databases, prepared summary of comments, and presented comment database and wetland topics at scoping and public meetings for a 3rd Party EIS.

Relevant Experience

50+
Environmental Assessments and Impact Studies

2M+
Acres of Wetlands and Habitats Evaluated

15+
Public Engagement Projects

Future Zero Waste Facilities Siting Alternatives Analysis, Department of Solid Waste Management, Miami-Dade County, FL; Principal Scientist
Provided siting and planning support for the detailed screening evaluations of 22 sites in Miami-Dade County. These sites were screened for ecological attributes that may potentially complicate development including wetlands and surface waters, threatened and endangered species, Comprehensive Everglades Restoration Plan Projects, Miami-Dade policies that protect habitat for endangered and threatened species, and other permitting requirements. Detailed site screening site-packages and a Preliminary Siting Alternatives Report were prepared to detail the Siting Alternatives Analysis.

Confidential Project, Confidential Client and Project, Fort Myers, FL; Principal Scientist
Provided wetland delineation and habitat assessment for strategic siting of a distribution facility in order to avoid federal and state permitting requirements. Provided wetland delineation report and options to avoid Florida bonneted bat habitat and Section 7 Endangered Species Act requirements.

3rd Party Areawide Environmental Impact Statement (EIS) on Phosphate Mining in the Central Florida Phosphate District, U.S. Army Corps of Engineers, Mosaic, and CF Industries, Central FL; Principal Scientist
The Area-wide EIS for phosphate mining in the Central Florida Phosphate District (CFPD) covered 2,100 square miles and six counties. As Comment Database Lead and Wetlands Ecology Section Author, managed comment database for 5,000 comments received during the scoping and Draft EIS comment period. Presented comment database instructions to an audience of 4,000 individuals at the scoping and Draft EIS public meetings. Prepared comment summary for comments received on 20 resource issues during the Scoping Phase and the Draft EIS. Identified substantive comments and elevated those for review by the lead federal agency, U.S. Army Corps of Engineers, Jacksonville District. Managed Ecology booth during scoping and public meetings to discuss the potential effects of mining on ecological resources. Prepared natural resources, protected species, wetlands, and aquatic resources poster boards for the scoping meeting. Authored Wetlands Ecology Section of Draft and Final EIS, including preparing existing conditions and impact analysis for wetlands and streams within the CFPD.

EDUCATION

BS, Environmental Science and Policy, University of South Florida, 2000

PROFESSIONAL LICENSES

Professional Wetland Scientist #2299
40-hour OSHA HAZWOPER Training

RELEVANT EXPERIENCE

- ✓ Solid Waste Disposal and Recycling Processes and Resources Evaluation
- ✓ Feasibility Analysis
- ✓ Future Needs Assessment
- ✓ Regional Processing Facilities
- ✓ Education & Outreach

Environmental Assessment (EA) and Biological Evaluation (BE) for Army Reserve Center, US Army Corps of Engineers Louisville District, West Palm Beach, FL; Project Scientist
Authored the following sections of the West Palm Beach EA; soil and geology, water, natural resources, wetlands, threatened and endangered species, and coastal zone consistency. Responsibilities include lead writer for two BEs, site reconnaissance and review for the presence of listed species, and the evaluation of 3 alternative parcels and one preferred parcel.

Santa Maria to Los Indios Levee Rehabilitation, United States International Boundary and Water Commission, Hidalgo and Cameron Counties, TX; Lead Scientist
Reviewed proposed improvements to the levee to determine whether the proposed improvements would change the results of the previously prepared Final Environmental Assessment (EA) for Improvements to the Donna-Brownsville Levee System and Record of Decision.

Tyndall Air Force Base EA for a Subscale Drone Recovery Boat Dock, Tyndall Air Force Base, FL; Project Scientist
Project Scientist. Conducted research and authored wetlands, threatened and endangered species, and coastal zone consistency sections of the EA.

Cecil Field EA for Alteration of FLARNG AASF #1, Florida Army National Guard, Jacksonville, FL; Project Scientist
Conducted research and authored the Water Resources section of EA.

Hot Springs Site Reclamation, Confidential Client, Hot Springs, AR; Project Manager and Subject Matter Expert
Developed a Clean Water Act Section 404 permit strategy around a multi-step reclamation process for high-risk mine site closure. Obtained several USACE Nationwide Permits, an Arkansas Department of Environmental Quality renewal of (ADEQ) NPDES Discharge Permit, and ADEQ Short Term Activity Authorizations. Developed multiple construction stormwater pollution prevention plans (SWPPPs) and obtained ADEQ and Garland County approval. Managed 500-acre aquatic resource delineation and biological resource assessment, northern long-eared bat habitat assessment, migratory bird nest management plan, and cultural survey. Obtained permits and approvals from the USACE Vicksburg District and USFWS Arkansas Ecological Services Field Office.

RRS Resumes

RIGHT
Team • Schedule • Solution

SCS ENGINEERS

Michael Timpane

Future Solid Waste Needs and Alternative Options Analysis Task Lead/ Recyclables Materials; Facility Maintenance | St. Augustine, FL

40
Years of Experience

Michael is a principal and vice president of process optimization and material recovery at RRS, where he works with material manufacturers, municipalities, solid waste and recycling companies, materials recovery facilities, NGOs, NPOs, and Fortune 500 consumer product groups. With over 40 years in field operations and development roles with the largest public recycling companies in the U.S., Michael is proficient in the technical execution of recycling systems pricing, processing, landfill diversion technology, facility development, material streams, recycling/ organics system economics, recoverable commodities behavior, supply studies, A&M due diligence, and process improvement. Before RRS, Michael directed WM's E-cycling Unit, single-stream pricing efforts, material stream analysis, and Municipal Recycling efforts. Michael also was Southeast Area VP for BFI over waste processing and diversion for eleven years and was with Reynolds Aluminum Recycling Company for fifteen years. He is a founding member of both the NWRA Recycling Committee and the ISRI MRF Committee.

EDUCATION

BS, Geography/Ecosystems, University of California Los Angeles

RELEVANT EXPERIENCE

- ✓ Solid Waste Disposal and Recycling Processes and Resources Evaluation
- ✓ Feasibility Analysis
- ✓ Financial Studies
- ✓ Future Needs Assessment
- ✓ Waste Generation Estimates
- ✓ Recycling Needs Analysis
- ✓ Regional Processing Facilities
- ✓ Recycling Benchmarking

Relevant Experience

100+
Solid Waste Facilities Permitting, Reporting, Compliance Audits

80+
Engineering/ Planning Studies

45+
Public Engagement Projects

Florida Public-Private Partnerships; Project Manager
Current consultant on record for two contemplated material recovery facilities for two large regional (+1.5 million population) municipalities in Florida, including economic justification, vendor identification and development, specifications, and documents for the procurements. RRS is also providing support for the contract renewal ongoing for one of the counties.

Summary Recycling and Diversion Plan, Hillsborough County, FL (Subcontractor to CDM Smith); Project Team
Reviewed the recycling and diversion plan for Hillsborough County. A fact-finding trip was conducted at four mixed waste technology facilities and one MRF. After a thorough investigation of all available technology for waste programs, several recommendations were made to the client based on their needs. Responsible for fully vetting any new waste diversion technologies coming into the county based on the current RFP and companies. Presented its findings before the Board of County Commissioners, and the report was accepted. Recommendations were also made on a public-private MRF design-build-operate scope RFP for 2023 and a solid waste diversion RFQ for 2022.

Public Private Partnership MRF RFP/ITB Preparation, Hillsborough County, FL (Subcontractor to Geosyntec); Project Manager
Provided technical support across multiple work streams, including lead services for MRF RFP development, collection contract negotiations, diversion plan support, and MRF contract services to the County. Reviewed service agreements to provide opinions and rationales the County should consider for renewing its current franchise agreements.

Proforma Model Review, Pinellas County, FL; Project Manager
Performed data review for Pinellas County's building of a new material recovery facility (MRF); reviewed proforma and provided professional opinion on best options. Presented to the committee on final recommendations which were ultimately adopted by the County.

Recycling Processing RFP Support, City of Lakeland, FL; Project Manager
Supported the development of various requests for proposals (RFPs) and related addenda for the City of Lakeland's recycling processing strategy, including negotiating with contracted MRF operator on behalf of the City.

Transfer Station Material Management, Montgomery County, OH; Project Director
Assisted the County with ways to meet state-defined diversion goals. The team conducted waste characterizations, a facility operational review, and a financial analysis of a cardboard mining project. Compiled information into a report that included preliminary design and equipment recommendations.

C&D/Compost Site Analysis & Comparison Study, Boulder County, CO; Project Team
Conducting due diligence and fatal flaw analysis to help the county improve the long-term financial and environmental sustainability of site locations for compost and construction and demolition materials. The study includes stakeholder engagement and greenhouse gas emission modeling.

Juri Freeman

Recycling/Zero Waste | Boulder, CO

17
Years of Experience

Juri Freeman is a Principal at RRS. He utilizes over 17 years of solid waste and recycling experience to provide technical, strategic, and communications client support. Juri draws from his former experience as a recycling program manager in the public sector including overseeing and growing residential recycling and composting programs, public school/K-12 collections and education, facility operations, and employee engagement - all within the confines of limited budgets. Past consulting projects put Juri at the forefront of zero waste planning, forecasting and modeling, outreach campaigns, sustainability program evaluation, and stakeholder and public process engagement. Juri has previously served as the president of the Colorado Association for Recycling and the chairman of the National Recycling Coalition.

EDUCATION

BS, Environmental Science
Bucknell University

RELEVANT EXPERIENCE

- ✓ Solid Waste Disposal and Recycling Processes and Resources Evaluation
- ✓ Feasibility Analysis
- ✓ Financial Studies
- ✓ Future Needs Assessment
- ✓ Waste Generation Estimates
- ✓ Recycling Needs Analysis
- ✓ Recycling Benchmarking
- ✓ Education & Outreach

Relevant Experience

20+
Solid Waste Facilities Permitting, Reporting, Compliance Audits

15+
Engineering/ Planning Studies

11+
Public Engagement Projects

Zero Waste Action Plan, Hennepin County, MN; Project Manager
Developed an actionable pathway to advance the county from its current diversion rate of less than 50% to one that achieves zero waste through reduced reliance on both landfilling and waste-to-energy. Developed a plan that values waste reduction, reuse, recycling, and composting above waste-to-energy, included actions over aspirational language, and included space for diverse stakeholders to be fully engaged. The development of Hennepin County's Zero Waste Plan included a review of the existing waste management system and the programs and policies that influence it, a robust engagement process of industry stakeholders and the community, and the identification of strategies that will accelerate Hennepin County's path to zero waste in the decade ahead. The plan was shaped by broad community engagement and was viewed through a lens of diversity, equity, and inclusion. The new zero-waste plan complements the Climate Action Plan and is the foundation for the state's mandated Solid Waste Management Master Plan, which requires at least a 75% recycling rate by 2030.

Waste Diversion Improvement Project, Adams County, CO; Project Team
Evaluated and reviewed local ordinances, regulations, and policies established by Adams County relating to waste management. Assisted in the development of a stakeholder facilitation plan, including communication methodology, stakeholder group identification, and ultimately an engagement and public forum execution plan. Prepared and facilitated multiple engagement sessions and was present in a supportive role to other RRS team members in the remaining sessions. The public engagement directly impacts the current policy/ordinance recommendations presented to the Adams County project team.

Partnership and Innovation, Michigan Department of Environment, Great Lakes, and Energy; Project Team
Supporting state-wide, multi-year contract to create a platform to establish partnerships to grow recycling in Michigan and develop a challenge competition to overcome barriers associated with the use of recycled materials. Work will attract investment in Michigan recycling and grow local programs and businesses by building partnerships, collecting and interpreting data, and innovating through economic development, relationship management, materials marketing, and best management practices dissemination.

Sustainable Materials Management Roadmap, Fort Collins, CO; Project Manager
Working with Fort Collins to identify a core set of strategic and ultimately actionable strategies for inclusion in a roadmap for Sustainable Materials Management (SMM) for Municipal Industrial Waste (MIW). The roadmap will include recommendations for implementation, triple-bottom-line impact estimations, as well as metrics and internal communications strategies.

Diversion Infrastructure Analysis, Boulder County, CO; Project Manager
Conducting due diligence and fatal flaw analysis to help the county improve the long-term financial and environmental sustainability of site locations for compost and construction and demolition materials. The study includes stakeholder engagement and greenhouse gas emission modeling.

Solid Waste Study and MRF Feasibility Study, Pueblo County, CO; Project Team
Conducted two seasonal waste characterizations of disposed waste utilizing ASTM Standard #5231. The results were analyzed and an MSW composition report was provided to the county. Used waste composition and community survey results to find opportunities for improvements to diversion and associated economic development.

Evaluation of Solid Waste Fees and Taxes, Metro Portland, OR; Project Team
Conducted a detailed review of the policies surrounding the Regional Service Fee and Excise Tax assessments policies, procedures, and impacts for Metro, Oregon. This included a comparison of the Metro fees and taxes to those in surrounding states, comprehensive interviews with landfills, generators, and regulators, and an evaluation of the environmental benefits of the policies. The final report provided Metro with recommendations for future policy decisions.

Recycling Solutions, High Country Conservation Center, Frisco, CO; Project Manager
Conducted a detailed review of the statutory and regulatory authority afforded to the county and local municipalities by the State of Colorado. RRS identified which funding mechanisms have already been used in Colorado as well as which ones may potentially need to be vetted through a legal process. Created a flexible long-term model of the disposed of, recycled, and composted materials tonnages for a 15-year horizon, specifically designed to evaluate the impact of changing demographics,
material types, generation and disposal, and various programmatic scenarios on the overall tons managed in the County.

Recycling End Use Market Analysis and Recycling Market Development, Michigan Department of Environmental Quality (MDEQ); Project Team
Conducted an in-depth analysis of the end-use markets for recycled commodities and developed a strategy for future activities, including a material flow analysis and market survey for specific commodities as well as a macro-level economic analysis of recycling's impact in the state and estimated the degree of economic benefits of recycling to local economies including direct, indirect, and induced impacts on jobs and economic output. Concluded with recommendations on demand/supply processing balance, activities for additional market development, and a strategy for improving markets in the state.

Experience Prior to RRS

Zero Waste Modeling, Boulder County, CO; Project Manager
Evaluated over 80 separate options to help the county reach their zero waste goal which included detailed modeling to understand the impacts of the various programmatic options as well as developed recommendations and timelines for implementation.

Hunt Briggs

Organics/Composting | St. Louis, MO

15
Years of Experience

Hunt Briggs is a Senior Consultant at RRS bringing over 15 years of experience in work focused on environment, sustainability, and the circular economy. Leading the firm's organics practice, Hunt advises brands and retailers in the private sector on issues of packaging and organics recovery, helps build organics processing infrastructure including assisting project developers in the design and implementation of organics recycling technologies such as composting and anaerobic digestion, and works with states and municipalities to achieve ambitious diversion goals. He led the RRS project team in developing the ReFED *Roadmap to Reduce U.S. Food Waste* report, identifying the economic potential, feasibility, and key insights associated with the most promising solutions for this waste stream. In the public sector, Hunt has conducted performance and measurement initiatives such as recycling rates and the economic impacts related to material recovery. An understanding of biology and industrial ecology paired with technical proficiencies related to policy, finance, and strategy enable Hunt to address complexities related to transitioning to a circular economy. Before joining RRS, Hunt developed small-scale anaerobic digestion systems for commercial organic waste streams. Hunt earned a Master of Business Administration and a Master of Environmental Science from the University of Michigan.

EDUCATION

MBA, Strategy, Finance
MES, Industrial Ecology, Sustainable Systems, University of Michigan

Master of Entrepreneurship, Western Carolina University

BS, Environmental Studies, Montreat College

RELEVANT EXPERIENCE

- ✓ Solid Waste Disposal and Recycling Processes and Resources Evaluation
- ✓ Feasibility Analysis
- ✓ Financial Studies
- ✓ Future Needs Assessment
- ✓ Waste Generation Estimates
- ✓ Recycling Needs Analysis
- ✓ Recycling Legislative Trends
- ✓ Recycling Benchmarking

Relevant Experience

10+
Solid Waste Facilities Permitting, Reporting, Compliance Audits

10+
Engineering/ Planning Studies

5+
Public Engagement Projects

Energy Carbon Neutrality Plan, NYC Department of Environmental Protection, New York, NY; Project Manager
Researching generation of clean and/or renewable energy on-site including co-digestion of high-strength organic waste and food waste to vet the viability of co-digestion of high-strength organics and/or food waste given they are dependent upon the sources of such waste streams, transportation concerns, and policy requirements.

Roadmap to Reduce U.S. Food Waste, Rethink Food Waste Through Economics and Data (ReFED), New York, NY; Project Manager
Steered the project team that evaluated gaps and opportunities in current national infrastructure that could unlock the potential to recycle 30% of food waste at commercial, institutional, and residential levels in the United States. Informed the development of a cost curve that may be used by decision-makers, impact investors, philanthropists, NGOs, as well as public and private sectors for prioritization of food waste recovery investments. Developed a cost-benefit analysis of organics recycling at the national level.

Beyond 34: Recycling and Recovery for a New Economy, U.S. Chamber of Commerce Foundation, Washington D.C.; Lead Analyst
Researched recycling best practices across commercial and residential streams to achieve increased recycling rates in a southeast U.S. city-region. Included a national recycling hot spot analysis to identify candidate communities, materials mapping of recyclable stream quantities and economics in the selected city-region, plus facilitation of the regional recycling planning process and stakeholder outreach to produce a local, circular economy model that can be applied to other regions.

Michigan Recycling Index, Michigan Recycling Coalition & Michigan Department of Environmental Quality; Project Manager
Led the project team that designed data collection protocols, identified residential and commercial materials streams, and researched and measured levels of household recycling access and participation across Michigan to inform the state's official baseline municipal solid waste (MSW) recycling rate and the Michigan Recycling Index.

Experience Prior to RRS

Regenerate Solutions
Co-Founder and Director of Marketing and Finance
Created and propelled award-winning commercial waste-to-energy business model & technologies, designing an innovative business model, brand, and product marketing strategies. Additionally, engaged customers, directed personnel, built a strategic advisory board, led marketing and finance responsibility for the company, authored provisional patents, and raised financing through grants and investment capital.

Samantha Kappalman

Education, Outreach, and Public Workshops | Asheville, NC

26
Years of Experience

Samantha began at RRS in 2023 as a Senior Consultant. She has expertise in public affairs, tackling challenging issues, distilling complex topics, meeting tight deadlines, taking an inclusive, global-first, human approach, and consistently delivering superior products on deadline while establishing strong relationships and engaging stakeholders. With more than 25 years of experience, Samantha, a Broward County native, is highly qualified in developing and implementing education and community outreach strategies, behavior change campaigns and focus groups, project management of large projects (state trained in project management), policy analysis and advocacy, and supplying senior management with key messages, analytics, and trends.

EDUCATION

MA, Public Affairs Reporting, University of Maryland

BS, Journalism, University of Florida

RELEVANT EXPERIENCE

- ✓ Project Management
- ✓ Solid Waste Disposal and Recycling Processes and Resources Evaluation
- ✓ Future Needs Assessment
- ✓ Recycling Needs Analysis
- ✓ Recycling Legislative Trends
- ✓ Regional Processing Facilities
- ✓ Education & Outreach

Relevant Experience

3+
Solid Waste Facilities Permitting, Reporting, Compliance Audits

1+
Engineering/ Planning Studies

20+
Public Engagement Projects

Policy Analysis, The Signalfire Group (RRS Subsidiary); Project Team
The Signalfire Group is the policy division of RRS. Analyzes state bills that have waste-diversion-related impacts. Monitors, tracks, and updates clients who have subscribed to the service. Serves as public manager for long-term projects.

Industry Collaboration, Poly Coated Paper Alliance; Project Manager
Leads and project manages a 24-month collaboration with stakeholders in the poly coated paper space on a plan focused on closing data gaps through research and field work, developing a collaboration strategy, implementing a universal design guide for packaging, broadening acceptance at end markets, and working to upgrade ISRI (Institute of Scrap Recycling Industries) specifications.

New York Pre-Needs Assessment, State University of New York; Project Manager
Project manages and conducts stakeholder engagement and validation for a gap analysis of New York's residential recycling and reuse system data as a precursor to a statewide needs assessment. This ongoing project is focused on planning for the upcoming needs assessment and collecting, validating, and analyzing existing operations data relating to the State's recycling system. This pre-needs assessment is intended to identify the capacity, costs, access, and needs associated with the collection, transportation, and processing of residential, commercial, and institutional recyclables in New York State.

Experience Prior to RRS

Public Policy and Government Affairs, The Recycling Partnership
2021 – 2022: Senior Director
2018 – 2021: VP, Strategic Marketing and Communications
Worked with legislators to draft and pass IN HB 1226, which brought $4 million to Indiana's recycling system. Supported the passage of extended producer responsibility bills in CO and CA with stakeholder engagement, written testimony, and policymaker outreach. Developed and implemented state policy strategies to pass effective, well-designed recycling collection policies in states nationwide. Monitored and provided analysis for key policies impacting recycling in all 50 states. Built and maintained relationships and provided subject matter expertise to strategic NGOs, policymakers, and CPG and corporate partners in targeted states, nationally, and

globally. Identified and implemented thought leadership and brand awareness opportunities on recycling policies. Developed and executed integrated public affairs strategies to reach multiple audiences across the environmental, recycling industry, and governmental landscape. Drafted content for local, state, and federal policy workstreams including elected official letters, issue one-pagers, message houses, op-eds, blogs, academic papers, and other assets as needed. Increased web traffic year over year by 200%; Increased social media engagement by 96%; Grew LinkedIn by 170%; Grew community audience to 88M; Expanded team from 4 to 10. Created and executed strategic communications planning for external initiatives to drive the circular economy including all owned, earned, and paid workstreams as well as media relations and brand awareness. Directed focus groups and nationwide surveys to change key recycling behaviors in targeted communities. Directly managed a staff (social media, community communications, design, digital, events, behavior change research) of 4 to 10 along with a $3 million annual Communications and Marketing budget. Created and executed internal communications channel strategy, processes, and planning for a rapidly growing national non-profit.

Mission Health; Senior Communications Consultant (2016 – 2018)
Brought high-value media attention to the opening of the new hospital tower and produced effective digital campaigns on behalf of business units. Created and implemented strategic internal and external communications plans as project lead for internal clients. Directed staff on design and strategy for promotional collateral on channels owned, earned, and paid. Project managed extensive communications campaigns.

Communications, The Hatcher Group; Senior Director (2014-2016)
Created and implemented strategic communications, media, marketing, legislative and outreach plans for clients based on analytics and metrics, including Climate Change Maryland, the Mental Health Association of MD, the Chesapeake Bay Program, and the Abell Foundation. Worked with NGOs on legislative strategy and drafting legislation. Led messaging sessions and media trainings.

Maryland Department of the Environment
2013 – 2014: Director of Legislative & Public Affairs
2011 – 2014: Director of Communications
Developed, maintained relationships with, and routinely interacted with the Maryland General Assembly. Strategically planned policy and legislation for General Assembly Session. Managed Community Outreach statewide on Climate Change and Chesapeake Bay issues. Managed a team of ten and budgets for legislative, community relations, and communications offices. Designed and launched the Department's social media channels. Created and implemented strategic communications plans, messaging, speeches, op-eds, letters to the editor, and press releases. Served as a media spokesperson for department and governor, State PIO in time of nuclear disaster; led crisis communications efforts. Recommended, utilized, and implemented innovative communication technologies to deliver consistent, branded messages to members and the public through traditional, social, and multimedia platforms. Aggregated media and marketing reports/analyzed metrics for ROI.

National Education Association; Senior Public Relations Specialist (2008 – 2011)
Formulated and administered media and message training as well as served as communications consultant for state affiliate presidents, executive directors, and national leadership. Devised and implemented strategic communications plans including state policy and advocacy issues. Drafted messaging, speeches, op-eds, newsletters, and press releases for various projects at the state and national level. Developed and assisted with the implementation of crisis communication plans for state affiliates.

Maryland Lt. Governor Anthony Brown; Press Secretary (2007)
Served as point of contact to the media. Researched, drafted, and successfully placed press releases, op-eds, and letters to the editor. Successfully planned and implemented media events. Prepared, coordinated, and executed a strategic communications plan.

JD Lindeberg, PE, LEED AP

Innovative and Future Technologies | Ann Arbor, MI

38
Years of Experience

JD is a Principal and President of RRS bringing over 38 years of experience developing corporate sustainability systems, material recovery and processing systems, biomass energy and organics recovery, business planning and plan development, project due diligence and risk management, capital project planning, and project financing. His training and experience as a professional engineer give an added dimension to his business background and provide insight into the development of award-winning projects. Recently his efforts have focused on increasing recovery through the innovative development and application of recovery technologies to increase overall recovery in response to both public and private demand for higher recycling rates. He is a well-known speaker on the national level, where he has delivered numerous speeches on the topic. He has also had the opportunity to pursue the development of environmental and sustainable technology through his involvement in the non-profit Environmental Capital Network and his own ventures into "green" home and resort construction.

Relevant Experience

100+
Solid Waste Facilities Permitting, Reporting, Compliance Audits

75+
Engineering/ Planning Studies

50+
Public Engagement Projects

Recycling and Diversion Plan, Hillsborough County, Florida; Project Team
Assisted in the development of an organics plan as part of the larger diversion plan for Hillsborough County, Florida. Developed a hierarchy of practical methods of implementation, the potential of new technology, and long-term options to minimize risk to the County, used for consideration through their RFQ/RFP process.

State of Michigan Materials Management Infrastructure Project, Michigan Department of Environment, Great Lakes, and Energy; Project Team
Large, statewide project to collect information on the current status of materials management systems in all municipalities within Michigan's 83 counties. Researching existing infrastructure and capacity, materials collection, waste diversion, hauling, processing, education programs, access and availability, and end-use markets as well as complete details on local ordinances, related host community agreements, data collection efforts, and local funding mechanisms.

State of Michigan Materials Management Infrastructure Project, Michigan Department of Environment, Great Lakes, and Energy; Project Team
Supporting state-wide, multi-year contract to create a platform to establish partnerships to grow recycling in Michigan and develop a challenge competition to overcome barriers associated with the use of recycled materials. Work will attract investment in Michigan recycling and grow local programs and businesses by building partnerships, collecting and interpreting data, innovating through economic development, relationship management, materials marketing, and best management practices dissemination.

EDUCATION

MS, Public Affairs, Concentration in Domestic Policy Analysis with Environmental Certificate, Princeton University

MS, Civil Engineering, Concentration in Geotechnical Engineering, Stanford University

BA, Engineering Sciences, Dartmouth College

PROFESSIONAL LICENSES

Professional Engineer (PE)

Leadership in Energy and Environmental Design Accredited Professional (LEED AP)

RELEVANT EXPERIENCE

- ✓ Solid Waste Disposal and Recycling Processes and Resources Evaluation
- ✓ Feasibility Analysis
- ✓ Financial Studies
- ✓ Future Needs Assessment
- ✓ Waste Generation Estimates
- ✓ Recycling Needs Analysis
- ✓ Recycling Legislative Trends
- ✓ Regional Processing Facilities
- ✓ Recycling Benchmarking

C&D/Compost Site Analysis & Comparison Study, Boulder County, Colorado; Project Manager
Conducting due diligence and fatal flaw analysis to help the county improve the long term financial and environmental sustainability of site locations for compost and construction and demolition materials. Study includes stakeholder engagement and greenhouse gas emission modeling.

Solid Waste Management Plan Amendment, Washtenaw County, Michigan; Project Team
Facilitated the county's solid waste management plan amendment process over a two-year period including data analysis, stakeholder engagement, goal setting, and drafting of the plan document while conducting monthly meetings with the planning committee, and every other week meetings with County staff.

Solid Waste Master Plan Update, City of Nashville (Sub to CDM Smith); Project Team
Reviewed solid waste systems and programs options and evaluation. Conducted triple bottom line cost studies.

Roadmap to Reduce U.S. Food Waste, Rethink Food Waste Through Economics and Data (ReFED), New York, New York; Project Manager
Guided the team on the technical consulting services portion of this project, worked specifically on the infrastructure development portion of the report, and contributed to the soil amendment end market portion of the study. ReFED was formed to highlight food waste prevention as an untapped strategy that can save resources, create jobs, alleviate hunger, save water, and limit greenhouse gas emissions – all while stimulating a new billion-dollar growth sector.

Energy from Organics Waste Feasibility Study, City of Dearborn, Michigan; Project Director
Directed the project team efforts including developing cost models, using proprietary mapping and database information, developing GIS-based organics waste maps, and compiling a detailed study on the economic justification of water and wastewater services that was utilized to develop a viable option for the city to reduce the organic waste stream and generate a local source of energy and revenue.

Co-Digestion Feasibility Study, District of Columbia; Project Team
Evaluated the feasibility of diverting commercially and industrially derived food waste generated in the District of Columbia to the District Water's Blue Plains Advanced Wastewater Treatment Plant (WWTP) for anaerobic digestion. Developed capital improvement requirements, provided options for capital construction of a new organics receiving facility, and discussed transportation costs and constraints of low solids food waste. Provided detailed economic analysis demonstrating the feasibility of the plan in comparison with other disposal and recovery options.

Organics Advisory Services, District of Columbia; Project Team
Provided advisory services on the implementation of the Compost Feasibility Report's project recommendations; development of cost estimates for building a compost site; compost site layout recommendations and identification of beneficial attributes; facilitation of DPW leadership and multi-agency meetings related to the siting and development of an in-District compost facility. Analyzed considerations for curbside compost collections and commercial drop-off program, developed models to determine program viability, and provided strategic recommendations for management of potential programs.

Mercury. **Resume**

RIGHT
Team ● Schedule ● Solution

SCS ENGINEERS

Eric Johnson

Education, Outreach, and Public Workshops Task Lead
Fort Lauderdale, FL

30+
Years of Experience

Eric Johnson is a highly experienced political strategist and government relations expert based in Florida. With over three decades of experience at various levels of government, including local, state, and federal, Eric brings extensive knowledge and expertise to his role as Managing Director at Mercury's Fort Lauderdale office.

Relevant Experience

30+
Public Affairs Campaigns

30+
Strategic Communications and Message Development

30+
Government Relations

RELEVANT EXPERIENCE

- ✓ Education & Community Outreach
- ✓ Public Affairs Campaigns
- ✓ Strategic Communications
- ✓ Digital Ad Programs
- ✓ Direct Mail Initiatives
- ✓ Community Outreach

Community Outreach for Special Election Campaign, Congressman Ted Deutch
Broward County & Palm Beach County, Florida; General Consultant
Spearheaded community outreach initiatives for Congressman Ted Deutch, the former U.S. representative from Florida's 22nd district. The initiative incorporated organizing and producing telephone town halls with 10's of 1000's of constituents; Via these extremely well-attended town halls, attendees were able to hear directly from Congressman Deutch and dial in questions and concerns for their communities.

Luxury Shopping Mall Expansion Referendum, Commercial Developer Client
Bal Harbour, Florida; General Consultant
Worked with a commercial developer client aiming to expand a luxury shopping mall complex by 344,000 additional square feet. Implemented a community outreach strategy to garner support for the massive expansion of luxury shops. The strategy encompassed conducting focus groups to gather information on the community's interests, hopes, and concerns regarding the project as well as organizing community meetings, spearheading large-scale media outreach, and developing digital ads and direct mail to engage the public and increase support for the project.

Hillsborough County Transportation Tax, Hillsborough County
Hillsborough County, Florida; General Consultant
Designed and implemented a strategic communications strategy to gain support for a countywide transportation tax. The strategy included drafting materials, developing persuasive messaging, and designing digital ads that were employed during county meetings, leading to voter approval of the 1% sales tax.

Section 2

Project Approach

RIGHT
Team ● Schedule ● Solution

SCS ENGINEERS

2 | Project Approach

We understand the history of solid waste management in Broward County and we will apply our expertise and best industry practices to deliver an environmentally sustainable and economically efficient Regional Solid Waste and Recycling Master Plan.

The SCS Team commends the Authority's comprehensive and inclusive scope of work for developing the Master Plan to achieve the following goals:

- **Encourage** reduction, reuse, recycling, and diversion to maximize beneficial reuse in order to minimize waste requiring disposal, while seeking to achieve and measuring progress towards zero waste;
- **Support** the most efficient regional solutions with other counties with priority being given to the needs and goals of the Stakeholders;
- **Conduct** comprehensive public education campaigns to receive feedback from stakeholders and to achieve real behavioral change and sustain program performance; and
- **Engage** in and/or support research and development into disposal reuse, reduction, recycling, responsible energy recovery alternatives, and utilization of commercially proven technologies to create a sustainable and resilient Solid Waste Disposal and Recyclable Materials processing system.

The SCS Team is confident that we are the **Right Team** to achieve the Authority's objectives with the **Right Schedule** and present the **Right Solutions** for the Authority.

The SCS Team is comprised of local, regional, national, and global industry experts who are passionate about solid waste management and are committed to engaging the Authority's stakeholders to fulfill the purpose of the Master Plan, to provide detailed recommendations concerning operations, facilities, and funding needed to create a regional solid waste and recycling system (System) that is environmentally sustainable, transparent, innovative, and economically efficient in its approach to disposal, reduction, reuse, and recycling of the waste generated across the County.

The SCS Team will apply our expertise, which is informed by decades of experience and our past and current engagements with the County, Solid Waste Working Group, and the Authority, to provide the technical basis and recommendations for policy decisions that will result in a sustainable and integrated System that exceeds Florida's 75% recycling goal.

Our approach includes buttressing our specific knowledge of the history of solid waste management in the County and the experience of national and international solid waste experts with the ability to tailor innovative zero waste strategies to best meet the future needs of the Authority. Our history working with the County, combined with the project successes and lessons learned on similar projects, supports our confidence that we can complete the project within the Authority's aggressive schedule. Further, we recognize that transparency is a critical success factor and we know that the best solid waste and recycling plan cannot be effective without a targeted, progressive communications and marketing plan. The following sections detail our project approach to fulfill the Authority's Purpose and achieve the Authority's Scope of Work.

RIGHT
Team ● Schedule ● Solution

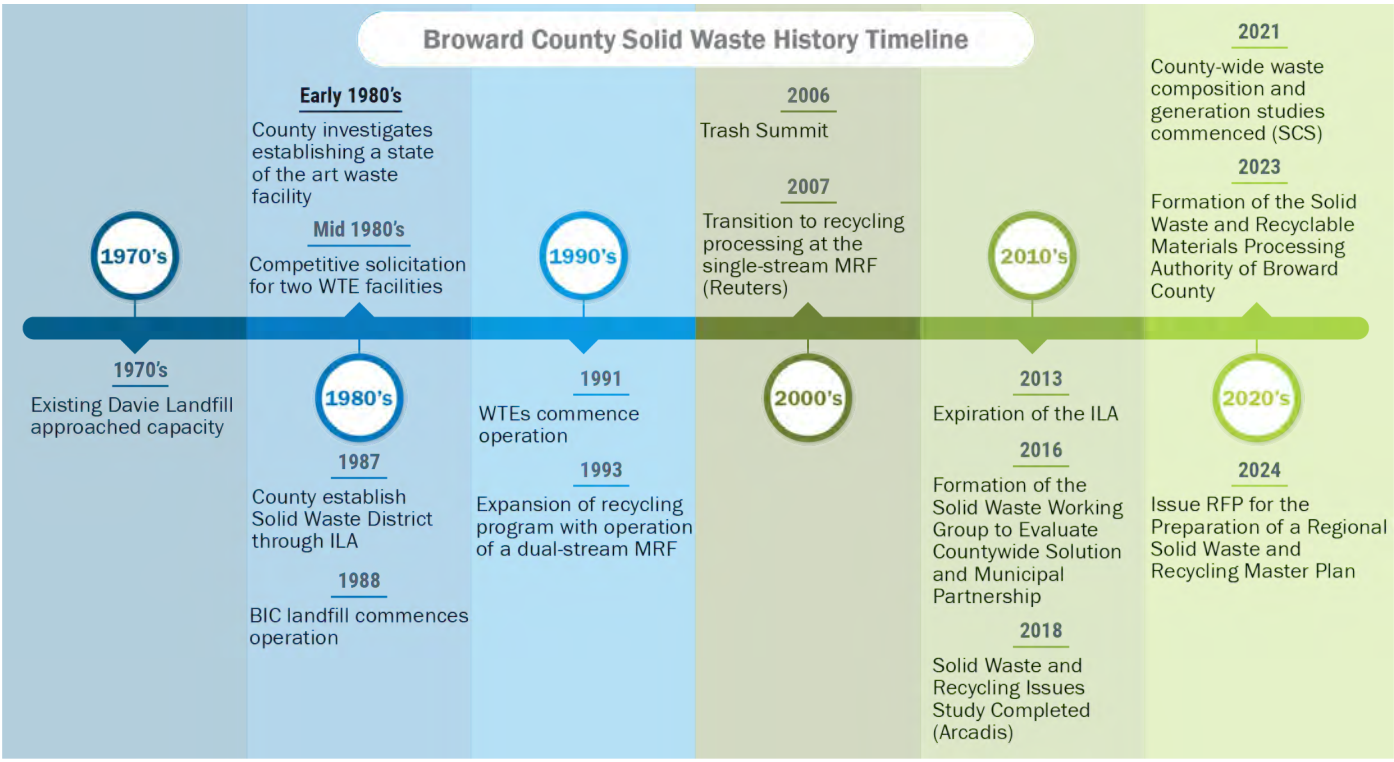
A. PROJECT APPROACH AND UNDERSTANDING INCLUDING WILLINGNESS AND ABILITY TO COMPLETE THE PROJECT ON TIME

The creation of the Authority in late 2023 is a testament to the hard work and fortitude of the County, and the twenty-eight municipalities that have signed the new Interlocal Agreements (ILAs). The SCS Team is thoroughly familiar with the culmination of events that have led to the Authority's formation as key SCS Team members **have been involved with many of the historical events** over the last three decades of solid waste management activities in the County. **Figure 2-1** below presents an overview timeline of the activities that led up to and initiated the SCS Team's experience and history with the County's solid waste system from inception to current day.

We Are Ready to Hit the Ground Running!

With volumes of historical materials, documents and data/statistics we are ready to go on Day 1.

Figure 2-1. Broward County Solid Waste History Timeline



Our detailed history includes:

The SCS Team Has Deep History With You!

Key members of the SCS Team served as Consulting Engineer to the County during the formation of the system and for the subsequent 20 + years of operation.

- The formation of the original partnership in the 1980s between the County, most of the municipalities in the County, and the Private Sector to develop a state-of-the-art solid waste management system in a positive, sustainable, environmentally safe industry that resulted in the production of thousands of megawatts of electricity and thousands of tons of valuable recovered metals and other materials.

- The expiration of the original ILA between the Cities and the County, and the retirement of the Industrial Development Bonds cosigned by the County and used to develop the two modern, waste-to-energy facilities by the private sector, together required policy direction consensus on whether to continue using the solid waste management system or to allow it to expire.

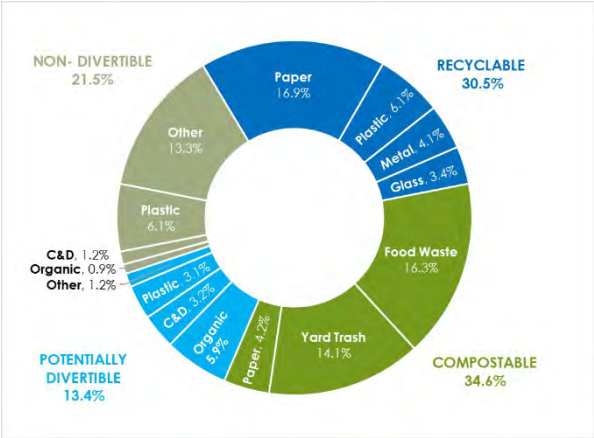
- The County convened a Solid Waste Visioning Summit (aka the Trash Summit) in 2009 with the purpose of developing a policy framework to manage uncertainty and to begin considering the best value solution for the County stakeholders based on the following considerations: value and cost; governance and implementation, flexibility; control; and environmental stewardship. **Key members of the SCS Team supported and facilitated the Trash Summit.**

- Following the Trash Summit, the ILA Cities and the County parted ways following different paths toward the disposal of solid waste. Some of the infrastructure constructed and acquired during the active ILA period was sold or dismantled. New companies filled the solid waste disposal vacuum with claims of improved recycling and reduced disposal costs.

- As the disposal contracts for the first full term of service following the expiration of the ILA reached renewal or expiration date, economic competition and concerns increased among several Cities about the lack of long-term solid waste disposal alternatives and the risk of one or two large companies monopolizing solid waste disposal in the County and potentially leveraging that control into a collection monopoly as well.

- Due to the uncertainty of solid waste disposal in Broward, several Cities and the County re-opened dialogue to establish a scientific foundation for the identification and evaluation of facts, options, and alternatives available to help guide the Cities and County decision-makers as they develop a vision for the future of Broward Solid Waste Management and to identify a means including a roadmap to achieve that vision. In June 2016, the Cities and the County agreed to delay the sale of the Alpha 250 site, which was acquired during the ILA term, to allow sufficient time for an independent consultant to answer specific questions or issues identified in the First Amendment to the Settlement Agreement.

These events led to the County and several municipalities commissioning a Solid Waste and Recycling Issues Study (Arcadis Study), prepared by an SCS Team member, Arcadis. The Arcadis Study provided recommendations on various matters, including reaching a 75% countywide recycling goal by 2020, retaining ownership of public land for the construction of solid waste or recycling facilities, and other supplemental approaches to solid waste management. In response to recommendations provided in the Study, a Solid Waste Working Group (SWWG) was established, consisting of eight municipal members and one County member, to develop a regional approach to managing solid waste and recycling.

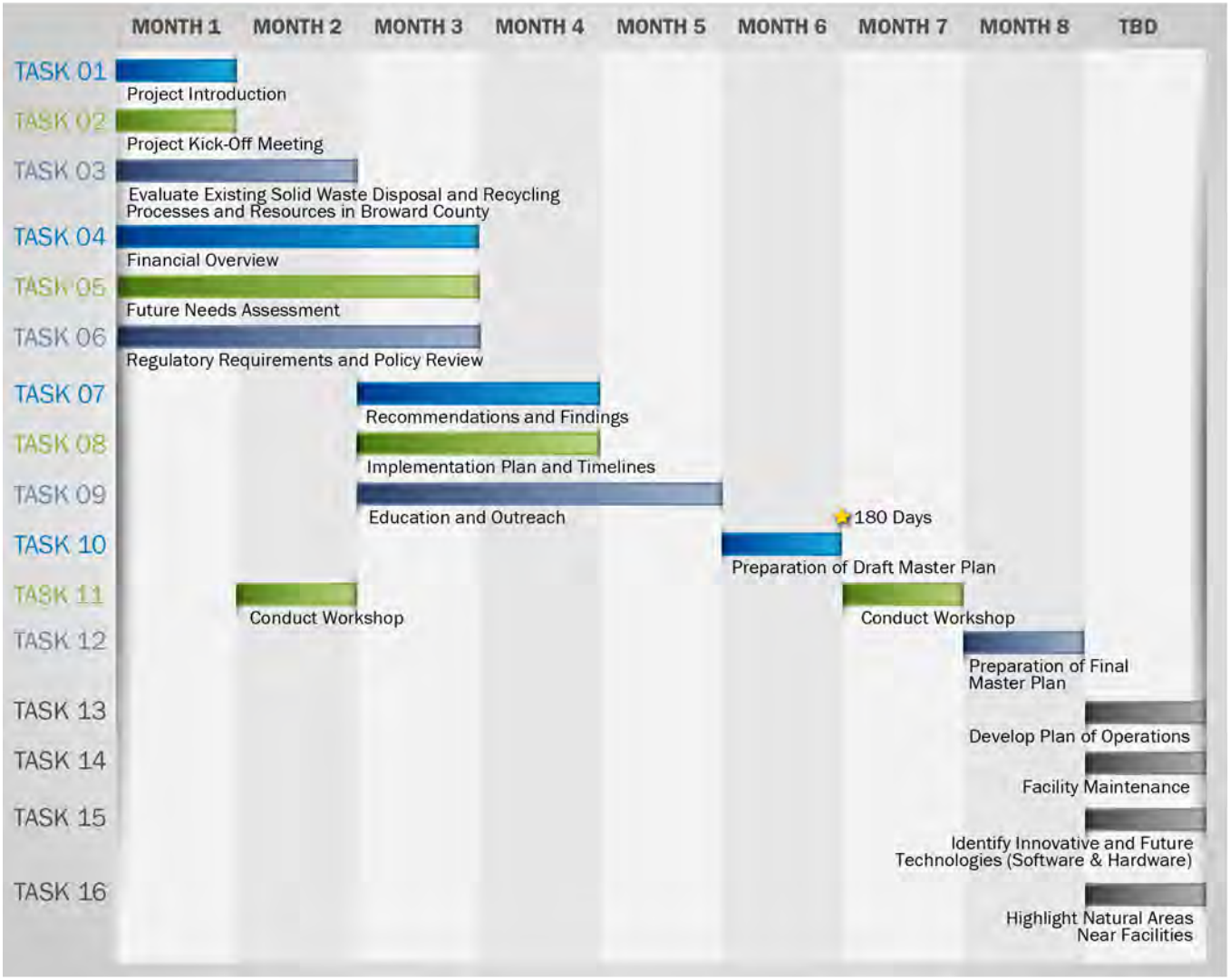


Through the SWWG, the County and municipalities commissioned SCS Engineers to conduct waste generation and waste composition studies to gather important baseline data to supplement the Arcadis Study (Studies), which are in their final stages of completion. To further this work and the Authority's mission, the SCS Team presents our approach to support the Authority with the preparation of a Regional Solid Waste and Recycling Master Plan (Master Plan) as detailed in the proposed scope of work below.

The SCS Team is thoroughly familiar with and ahead of the curve compared to any other competing team with the data from the Studies and will aptly consider such information and recommendations in the Master Plan preparation, together with any other studies or information from the County and municipalities, that are made available.

The SCS Team understands that the purpose of this Master Plan is to provide the Authority with detailed recommendations concerning operations and facilities (including facility type, size, placement, etc.) needed to create a System that is environmentally sustainable, transparent, innovative, and economically efficient in its approach to disposal, reduction, reuse, and recycling of the waste generated across the County. **The SCS Team recognizes that time is of the essence for this project.** We are prepared and staffed to achieve the project deadlines as presented below in **Figure 2-2**.

Figure 2-2. Project Schedule



While in our experience, the development of a Master Plan often requires a longer schedule than presented by the Authority, **the SCS Team is confident in our ability to complete the project within the time period detailed in the Scope of Work** based on:

- Our **robust historical knowledge** of the County's solid waste management system;
- **Involvement** as the authors in preparing the most recent Studies;
- Our **understanding** of the project and the proposed approach;
- Our **project management plan** demonstrates the ability and availability of the appropriate staff with the required subject matter expertise; and
- **Regular attendance** and participation in SWWG and Authority Meetings by staff located within the County and surrounding Counties as part of our ongoing work for the County and as part of our due diligence for this opportunity.

Before beginning work, the SCS Team will discuss the Authority's work preferences with the Executive Committee or its designee (s) using our **Client Service Planner** to confirm the Authority's expectations with regard to communications, meetings, decisions, and involvement, information and data, deliverable standards, invoicing and payment, change management, and feedback. We have found that quickly achieving consensus on our working relationship results in clarity that streamlines the performance of our professional services. Our understanding of the project approach and the recommended activities and deliverables are summarized below and follows the scope outlined in the RFP.

Expectations Define the Experience

Client Success Client Service Planner

Use this tool to document client expectations of the working relationship with you and our firm, and to outline the specific steps needed to meet those expectation. The questions are not intended to define a script but to guide the conversation with the client on this important topic. It's advised that you share the completed form with the client to confirm its accuracy

Client

Name | Date | Project No.
Client Representative(s) | Project
Client Advocate | Project Manager

Communications

How often should we routinely update you?

What are the best means and times to reach you?

The best way to reach us is...

Describe your phone, email & text preferences

Who are the points of contact in your organization and what issues will they handle?

Our primary contacts are...

Do you want any written or verbal status reports? (If yes, at what intervals?)

You can expect us to return your calls within...

Do you have any other preferences or concerns regarding communications?

SCS ENGINEERS

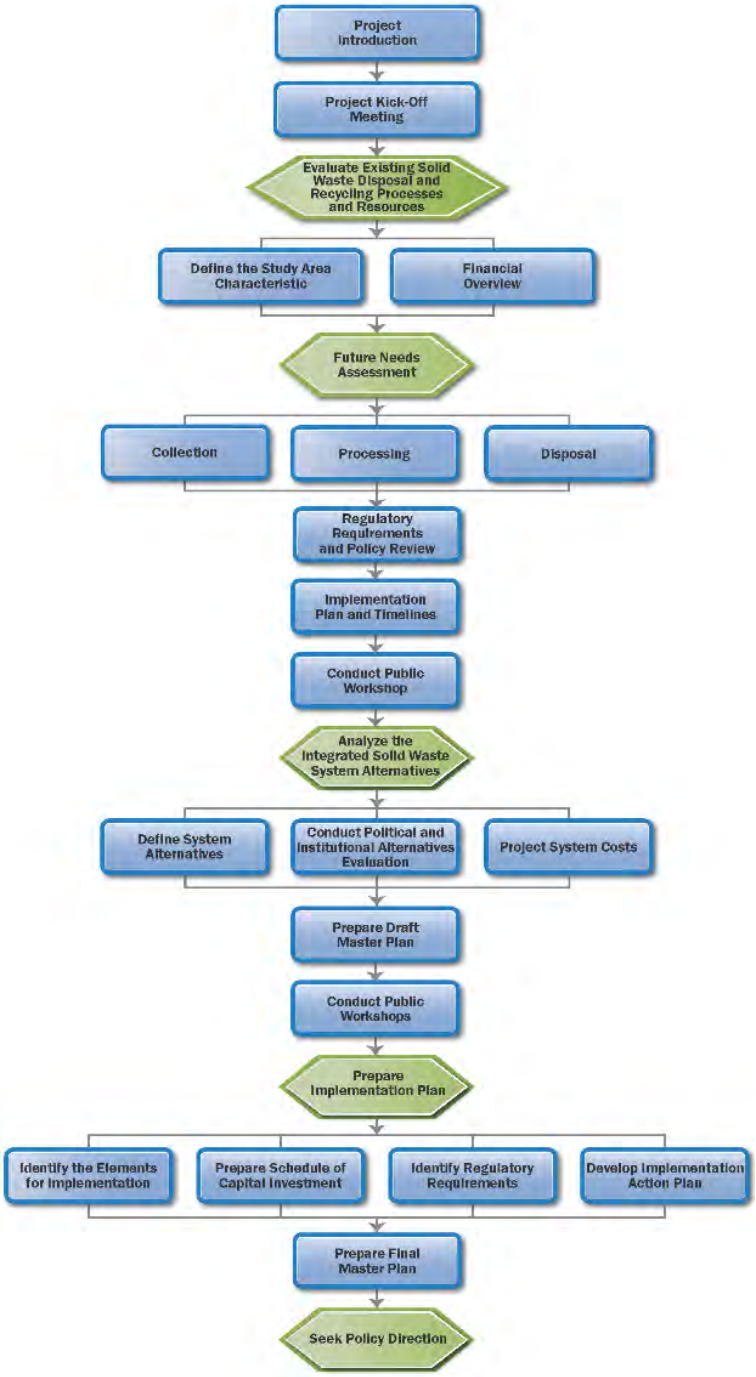
B. PLANNING DOCUMENT APPROACH WITH RECOMMENDATIONS FOR SOLID WASTE AND RECYCLING IMPROVEMENTS FOR THE CURRENT CONDITION AND FOR THE FUTURE YEARS 5, 10, AND 20-YEAR INTERVALS

The SCS Team's solid waste planning approach uses a zero waste lens to identify and evaluate options to maximize the beneficial use of waste stream components while minimizing the waste stream components that have no beneficial use. The objective is to develop a clear pathway to implement an integrated and sustainable System that enables the Solid Waste Disposal and Recyclable Materials Processing Authority (Authority) to meet or exceed the State's 75% recycling goal. This requires creating alignment amongst the Authority members as the current fragmented solid waste programs are unified under the Authority and the recommended System is implemented over a 20-year planning horizon and beyond. Our planning methodology not only focuses on the necessary and needed facilities, efficiencies, acquired technologies, and services for the collection, treatment, and final disposal of waste, but also focuses on aligning the behaviors of those generating wastes, public policies, and plans time horizons to produce lasting solutions.

Transparency is at the forefront of our approach. This is accomplished through continuous engagement with the Authority's Executive Committee (or its designee) to serve as the sounding board for the options identified in the Regional Solid Waste and Recycling Plan (Plan). While the decisions remain the responsibility of the Authority, we have found that by employing the use of a working group selected by the Authority can help foster engagement and transparency in the planning process. This is especially important for providing a local lens to understand and appreciate the trade-offs between the choices made for services and facilities that will be recommended to achieve the implementation and goals of the Plan, but also ensuring those choices are affordable to County citizens, and provide de-risked, lasting solutions that fit the community and geographic uniqueness of the Authority and the County at large.

Figure 2-3 presents a high-level overview of the key elements of the planning process.

Figure 2-3. Planning Process



SCOPE OF WORK TASKS

TASK 1 – PROJECT INTRODUCTION

The SCS Team will provide a summary outlining our understanding of the topics necessary for inclusion in the Initial Master Plan and Other Task Topics as listed to the right to align the project activities and expectations.

The Authority will either approve or return this summary, with clarifications, for further revision by the SCS Team.

Task 1 DELIVERABLES

Draft and Final "Summary of Topics Required for the Master Plan or Completion of Other Project Tasks."

Initial Master Plan and Other Task Topics

a) Overview;
b) Outcome of the Studies;
c) Consultant's approach to developing the Master Plan;
d) Sources of data Consultant intends to utilize;
e) Authority's intended use for the Master Plan;
f) Resources necessary to operate the System;
g) Regulatory requirements for managing and reducing waste across the County; and
h) Public engagement process.

TASK 2 – PROJECT KICK-OFF MEETING

Immediately following the Notice-to-Proceed, our Project Manager, Daniel, will coordinate and schedule a properly noticed kick-off meeting with the Authority to be held within two weeks following the issuance of the Notice-to-Proceed. The public kick-off meeting attendees are assumed to include the Executive Director and members of the Executive Committee and Technical Advisory Committee (TAC), and the public. We understand that no quorum of the Executive Committee nor the TAC need to be present for such a meeting. The SCS Team will prepare an agenda to include the items to be discussed, including, but not limited to:

- Roles and expectations of the Authority and the SCS Team;
- Confirm the Authority's mission and objective to create an integrated and sustainable System that is environmentally sustainable, transparent, innovative, and economically efficient;
- Confirm the Master Planning time horizon (i.e., 20 years);
- Identify if the Authority has any limitations that should be considered (e.g., waste export/import); and
- Project Schedule, including status briefings.

Within five working days after the project kick-off meeting, the SCS Team will prepare a schedule for the completion of this scope of work within the agreed-upon schedule.

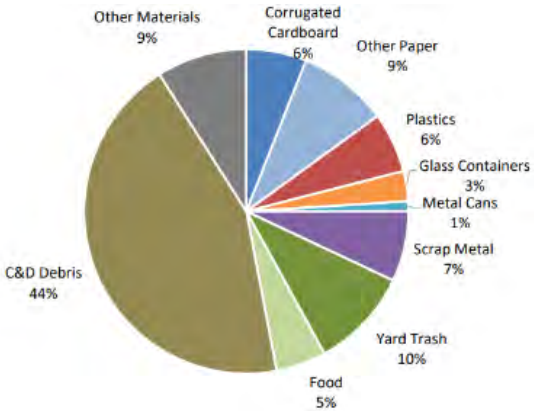
Task 2 DELIVERABLES

The Project Kick-off Meeting will generate a number of documents which will be provided electronically to the Authority following the meeting including meeting minutes and project schedule.

TASK 3 – EVALUATE EXISTING SOLID WASTE DISPOSAL AND RECYCLING PROCESSES AND RESOURCES IN BROWARD COUNTY

The SCS Team will prepare a planning baseline that starts with evaluating the existing collection, solid waste disposal, and recycling processes and resources in the County and region, including the modes of collection, transport, and processing, disposal, and developing a policy and institutional framework that are aligned with the goals of the Authority. Initially, the SCS Team will build upon the Arcadis Study and the recent Broward Waste Composition and Generation Studies performed by our team members to:

- Identify the applicable solid waste management regulations.
- Examine current services and facilities utilized for collecting, transporting, recycling, and disposal of solid waste generated in the County and identify any facilities that should be excluded from further consideration.
- Provide synopsis on various services and facilities currently utilized by the County and its municipalities, including provisions for member cities to direct solid waste and recyclable materials to specific facilities for processing.



- Draw from key sources including, without limitation, the Studies, other studies, or information provided to municipalities and County, surveys, information submitted by the County to the Florida Department of Environmental Protection for its annual reporting, and other sources of data identified or approved by Contract Administrator.
- Summarize how solid waste and recyclable materials are managed and flow through various infrastructures from generation point to final disposition. Information will be categorized by composition including municipal solid waste, household hazardous waste, electronics, compositable materials, disaster debris, recovered materials, construction and demolition debris, bulky waste, and by sectors where possible. This information will include key findings from the current waste composition and waste generation studies.
- Work with and obtain the Contract Administrator's prior written approval regarding the specific categories of waste to be considered.
- Document historic and future population and the associated quantities of municipal solid waste over the planning horizon.
- Evaluate existing solid waste infrastructure and current estimated volumes, including, without limitation, current collection methodologies, public and private waste landfills, processing facilities, incinerators, transfer stations, and recycling facilities utilized to process Broward waste.

As Bond Engineer for Miami Dade County Department of Solid Waste Management for nearly 20 years, one of the members of the SCS Team routinely provide an overall evaluation and review of the entirety of the County solid waste infrastructure, including transfer stations, recycling centers, landfills, waste to energy facility, and fleet facilities.

- Describe the study area in terms of:
  - Topography;
  - Physical and climatological;
  - Geology and hydrogeology;
  - Climate;
  - Wildlife and vegetation;
  - Land use characteristics;
  - Major transportation networks;
  - Environmental sensitivities and trends, and
  - Economic/demographic characteristics and Community concerns and priorities.
- Identify potential impediments to addressing solid waste and recycling efforts including, among other things, facility capacity, limitation in processing throughput, funding, availability of suitable land, commercial recycling flow control, and transportation logistics, and their likely affordability and risk assessment, all of which are further described in **Section C** below.

Existing Solid Waste Infrastructure Evaluation

a) Facility location, size and materials accepted;

b) Facility capacity and throughput;

c) Existing Facility agreements limiting use and capacity;

d) Remaining permitted life;

e) Land Ownership and uses; and

f) Participating entities (Public, private, NPOs, and roles, market share, competitiveness for the services required, etc.).

Task 3 DELIVERABLES

A white paper will be prepared to evaluate, summarize, and present the existing solid waste recycling, diversion, and disposal processes, facilities, and resources in the County and impediments to addressing solid waste and recycling.

Capital Region Council of Governments | Municipal Solid Waste Consulting Services

In 2021 the Capital Region Council of Governments and its members were facing a waste management emergency as their waste disposal system, MIRA, was closing and the region had no long-term plan. One of the SCS Team members provided:

- **System Assessment** – Developed a strategic plan that included an inventory and evaluation of the efficiency and effectiveness of current operations. RRS reviewed current and historic data and information regarding the performance of solid waste, recycling, and yard waste management programs and assessed the performance of programs using key metrics.
- **Short-Term Disposal Solutions and Waste Diversion Continuous Improvement Options** – Jurisdiction members of the Council of Governments were faced with difficult choices regarding short- and long-term solutions to resource recovery and waste management. The Team assisted by evaluating their current disposal options, reviewing procurement policies and guidelines, and assessing short-term waste diversion increases and timelines that could alleviate some waste disposal pressure.

TASK 4 – FINANCIAL OVERVIEW

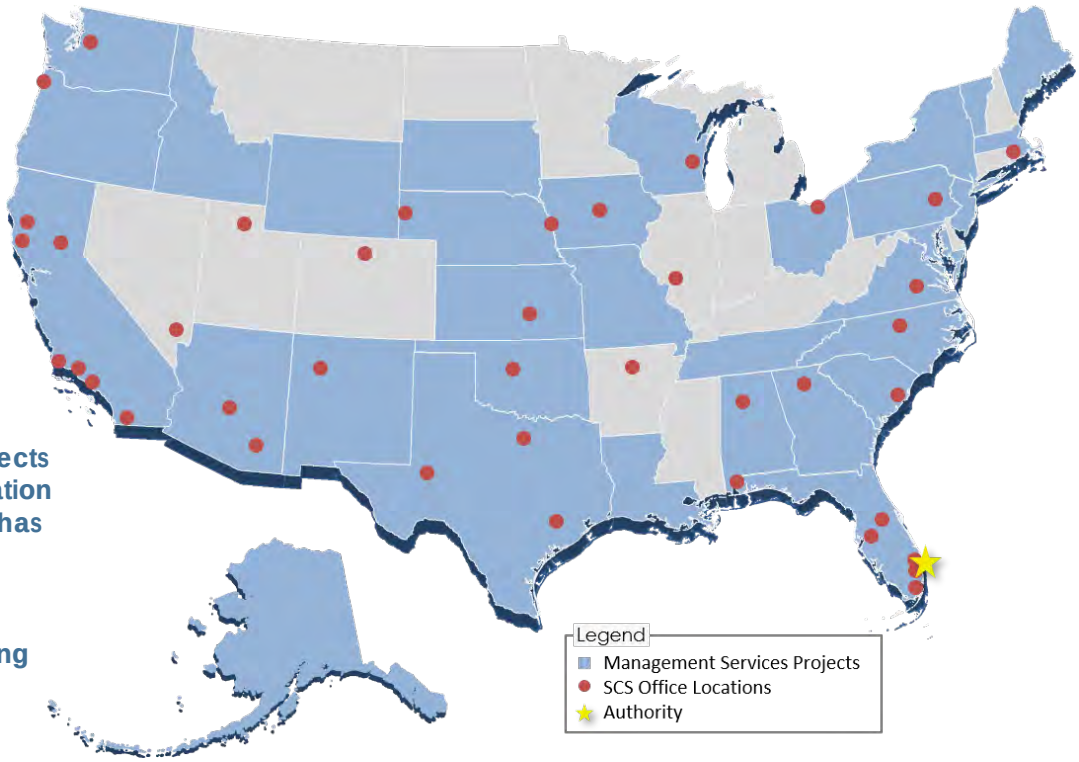
Utilizing existing information from the Studies, other studies, information, and data from the County and municipalities, the SCS Team will provide an overview of the local economic environment affecting solid waste disposal and recycling. The overview will include current financial obligations to provide waste processing and disposal by the County and municipalities, including franchise agreements, funds needed to set up the System, annual operation and staffing costs, and any other relevant cost figures. We will work with the Contract Administrator to define the specific research question(s) to be answered in this subtask. Additional elements of this task will include the following:

- Comparison of local tipping fees, processing fees, market prices for recovered materials, and additional pertinent information in relation to the overall economic landscape;
- System mass balance, including estimated tonnages and market shares;
- Matrix of regional pricing against other counties of similar size;
- Review of budgets attributed to solid waste and recycling; and
- Examination of opportunities for economies of scale and collaboration to minimize processing, transportation, disposal, and other pricing equivalences.

Task 4 DELIVERABLES

A white paper will be prepared summarizing the financial review performed and providing the elements noted above for this task.

Figure 2-4. Management Services Projects



SCS has completed many management services projects in Florida and across the nation (Figure 2-4). The SCS Team has already completed an evaluation of the financial obligations and developed annual operation and staffing costs for the newly formed Authority.

TASK 5 - FUTURE NEEDS ASSESSMENT

The SCS Team recently conducted population and waste generation estimates and projections for Florida communities such as Broward County, Collier County, Palm Beach County, and St. Lucie County, offering us real time insight into the anticipated growth and per capita waste streams in the nearby region.

The SCS Team will examine the projected growth of the County population and waste generation to provide population and solid waste material generation estimates at 5, 10, 20, 30, 40, and 50-year intervals. Based on this information, we will offer up to five scenarios that effectively provide for future solid waste and recovered materials processing capacity and needs. Each scenario will identify the number and types of facilities needed to effectively process future waste volumes, including recycling and diversion processing facilities (e.g., public drop-off locations, MRFs, composting, and organic anaerobic digestions), transfer stations, landfills, and thermal, mechanical, and biological conversion. Each will be fully vetted to ensure state-of-the-art best practices and technologies are considered and included, with flexibility to manage the evolving waste stream. The SCS Team will also assess the future needs through an environmental justice lens to assess the potential impacts associated with each solid waste management technology. Other elements of this subtask include:

- Developing recommendations for each of the following:
  - Number of transfer stations (or other facilities) needed to ensure the most efficient long-term transportation of materials for each waste treatment and disposal option; and ensure other costs are comparable across Broward County;
  - Where such facilities are best located relative to various population and commercial centers to ensure transportation and other costs are optimized across Broward County; and
  - Strategies to ensure all waste stream components are either reduced, reused, recycled, recovered, composted, processed to capture useable transformed offtake, or incinerated.
- Comparing Single Stream and Dual Stream Recycling, taking into consideration the constraints of nearby recycling and materials processing facilities vs. the impact to collection system truck usage and other efficiencies, and whether there will be impacts to diversion rates from less participation. The SCS Team will also screen current acceptable recyclable by community and emerging technologies for residential and commercial mixed stream recycling programs for all affected communities and engineer choices to consider harmonization for best scalability of process in options and ensuring the flexibility to accommodate the greatest quantity of materials are recycled through this service as the waste streams continue to evolve.
- Examining the feasibility and costs including and without limitation of replacement carts, specialized collection trucks, and educational programs if being considered.
- Providing conceptual-level construction costs, cost per ton, and implementation timeline estimates based on the various scenarios to effectuate future solid waste and recovered materials processing.
- Include estimated timelines to fund, construct, and make operational. Include options that integrate technologies that align with recycling and sustainability goals. Facility evaluation will include, but not be limited to the following:
  - Single Stream Recycling Facility;
  - Dual Stream Recycling Facility;
  - Public Drop-off Recycling Facility;
  - Mixed Bulky Waste/Yard Trash/Construction, Household hazardous materials, electronics, and Demolition Debris;
  - Yard Trash Mixed Waste Processing Facility;
  - Organics Processing Facility, including and excluding Yard Trash components;
  - Transfer Stations (short and long haul, and related technologies); and

  - New Thermal, Biological, and Mechanical Recovery and/or Conversion Facility Options (e.g., mass-burn, pre-disposal treatment recovery systems (shredding, sorting, densifying), large-scale waste and separated food waste anaerobic digestion, pyrolysis, gasification, plasma arc).
- Projecting costs and the revenues necessary to operate the System, including the amount of, and methodology to calculate, reserve funds to cover any and all applicable costs for closure, long-term care, perpetual maintenance, and potential remediation related to all facilities.
- Providing policies and strategies reuse and reduction, diversion, composting, and true recycling of waste materials to enhance sustainability efforts. Strategies may include educational uniformity and materials harmonization, recommendations for acceptable local community enforcement and community-based social marketing and advertising campaigns to ensure better material compliance and less contamination of recyclables and compostables, scaled public zero-waste strategies, composting, anaerobic digestion and utilization of alternative technologies.
- Research and identification opportunities, strategies, and available resources to increase recycling, organic recovery, and landfill diversion for commercial, industrial, construction, and multifamily sectors and yard waste.
- Reviewing existing and emerging waste diversion programs for proof points, track records, and proven results, and recommending procurement strategies for available alternatives, options, or improvements to meet the State of Florida's 75% recycling goal.
- Developing financial evaluations for future capacity needs including information on current available resources as well as providing:
  - Financial forecasts of future rates needed to fund the System;
  - Implementation timelines for special assessments, rates, or charges;
  - Debt service;
  - Available grants or federal funding; and
  - Return on Investment projections.
- Comparing costs and revenue projections with Miami-Dade and Palm Beach counties, highlighting differences from owning assets, public/private partnerships, or through contracted arrangements. Land acquisition, facility construction, and operational costs must be included in this projection.
- Providing a risk assessment matrix of both current and plan-prioritized infrastructure strategies and their likely long-term impacts and success potential. This will include identifying cost, cultural, political or geographic barriers and an opinion on likelihood of success or failure.

Arcadis prepared a report for DSWM in June 2022 providing the latest and greatest in the state of the waste processing industry worldwide, so that the County considers all viable and proven technologies capable to handle the Miami-Dade County waste stream.

Members of the SCS Team have been working with Miami-Dade and the Solid Waste Authority of Palm Beach County for more than two decades and are well versed on all aspects of their solid waste management systems, operations, finances, and contractual arrangements.

Task 5 DELIVERABLES

A white paper will be prepared summarizing the future needs assessment and providing the elements noted above for this task.

In terms of developing different solid waste management system options, the SCS Team will work collaboratively with the Authority to identify the universe of technology

alternatives, develop non-monetary screening criteria to create a shortlist of technologies for further consideration. Then capital and operating costs will be considered as well as ongoing maintenance costs, which comprise the life-cycle costs for each scenario.

TASK 6 – REGULATORY REQUIREMENTS AND POLICY REVIEW

Based on the existing system evaluation, financial review, and future needs assessments performed above, the SCS Team will review regulatory requirements and policies by performing the following activities:

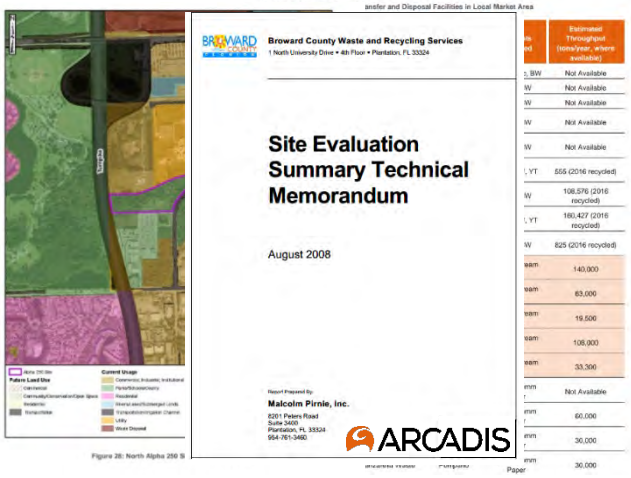
- General review local, state and national solid waste, zero waste, recycling and organic regulatory trends for best practices, growth in popularity and adoption, and provide a current and future opinion on the likelihood of application in Broward County.
- Specific review of current ordinances, statutes, rules, regulations, and goals at the federal, state, and local levels related to the implementation of solid waste processing and recycling efforts. Identify any regulatory actions or expected regulatory changes affecting the manner in which the System will need to dispose, process, or divert particular waste types.
- Review and provide impacts of implementing economic or regulatory flow control. Compare and contrast the two options including, without limitation, the benefits with implementing either one or both in view of constructing, operating, and funding specific facility types.
- Provide an overview of effectively siting new facilities to meet future processing and disposal needs. Examine and identify possible community, political, logistical, or regulatory constraints based on size and type of proposed facility.

Task 6 DELIVERABLES

A white paper will be prepared summarizing the regulatory requirements and policy review by providing the elements noted above for this task.

TASK 7 – RECOMMENDATIONS AND FINDINGS

One of the fundamental questions associated with this project will be the siting and location of the existing and future facilities and determining if the Alpha 250 site can be used for these facilities. Building from the work conducted by key members of the SCS Team in the Studies, this task will perform the following to summarize the recommendations and findings for the effort:


Broward County Waste and Recycling Services
1 North University Drive • 4th Floor • Plantation, FL 33324

Site Evaluation Summary Technical Memorandum

August 2008

Report Prepared By:
Malcolm Pirnie, Inc.
6201 Peters Road
Suite 3400
Plantation, FL 33324
954-761-3460

ARCADIS

- Review feasibility of potential sites for future solid waste, recycling and diversion facilities that provide sufficient capacity and are economically located for all County stakeholders.
- Include utilization options for the Alpha 250 parcel of land. We will work with the Contract Administrator to obtain any additional materials containing the history of the Alpha 250 parcel of land beyond what our team is already intimately familiar with from prior studies and evaluations.
- Provide recommendations for maintaining and optimizing existing infrastructure, expanding operations to support a countywide System, and examine potential collaboration with neighboring counties.
- Provide recommendations on future materials to be managed or harvested from the waste stream for further landfill reduction, including more accepted curbside materials, textiles, food waste, batteries and

other electronic waste which enters the System, storm debris flows, land clearing, and shore waste flows (e.g., sargassum, fish kills).

- Rank scenarios developed in Task 5 based on the factors such as cost impacts on goals such as recycling, reuse, diversion from landfills, zero-waste strategies, market risks, environmental impacts, safety, and most efficient processing of solid waste and increasing recycling.
- Examine opportunities for regional partnerships to realize economies of scale advantages.
- Review feasibility, advantages, and disadvantages of expanding the WIN Waste Innovations/Wheelabrator South Broward facility to include a 4th boiler. Compare and contrast findings against the lifetime costs and benefits of constructing a new waste-to- energy facility at the same location or other reasonable alternatives.

Task 7 DELIVERABLES

White papers will be prepared summarizing the recommendations and findings of this task.

TASK 8 – IMPLEMENTATION PLAN AND TIMELINES

The SCS Team will issue the proposed contents of an implementation plan and after obtaining written approval from the Contract Administrator regarding the proposed contents proceed with the following subtasks:

- Establish a timeline of available solid waste facilities and the phasing in of various municipal waste streams based on the termination dates of franchise agreements.
- Review potential opportunities to include spot market waste as part of the phasing schedule relative to capacity until all System waste is available.
- Provide recommendations for the flow of municipal waste to various solid waste facilities and transfer station locations.

Task 8 DELIVERABLES

A proposed implementation plan contents will be prepared followed by a white paper summarizing the timelines and other elements of this task.

TASK 9 – EDUCATION AND OUTREACH

In order for this Master Plan to work effectively by all Authority participants, education and outreach that affects user behavior will be critical. This task will include the following efforts related to education and outreach:

- Provide best practices for encouraging recycling, waste reduction, and waste diversion. Outline objectives that support the U.S. Environmental Protection Agency's waste management hierarchy (reduce, reuse, recycle/compost, recover/energy from waste, dispose/landfill). This subtask shall include recommendations for strategies, services, and programs to address waste reduction as well as recyclable materials and recovered materials processing, and appropriate public education regarding same.
- Identify best practices for use of multi-lingual communications delivering unified message to the public on sustainability, recycling best practices, and the System.

Department of Sanitation of New York Commercial Waste Zone Program

To design the New York City Commercial Waste Zone system, Arcadis implemented a year-long, aggressive stakeholder engagement plan with over 150 unique stakeholder groups and used predictive analytics on route and customer data of approximately 90 haulers and 100,000 customers to inform policies.

Task 9 DELIVERABLES

The deliverables include the preparation of an education and outreach plan, and planning for and facilitating public workshops.

- Explore opportunities to partner with all schools located in Broward County to provide unified messages on the importance of waste hierarchy behaviors (reduce, reuse, recycle) that will drive conscious decisions to use the System and maximize it outputs before disposal.
- Explore and prioritize the best practice opportunities to effectively communicate, encourage, and increase access for recycling and organics recovery for commercial businesses and multifamily residences, using multi-lingual communication.

TASK 10 – PREPARATION OF DRAFT MASTER PLAN

Based on the results of the previous subtasks, the SCS Team will prepare and issue an initial draft of the Master Plan to the Authority and TAC for review that incorporates the analyses and white papers developed under prior tasks. A meeting will be scheduled with the Authority and TAC to review the findings and provide direction to the SCS Team regarding the incorporation of comments from the Authority and TAC into a Draft Master Plan. The Draft Master Plan will be made available electronically to the Authority to be posted on a public website to enable the public to digitally provide comments.

Task 10 DELIVERABLES

The Draft Master Plan will be prepared utilizing the deliverables prepared for all prior tasks and issued electronically for posting by the Authority.

TASK 11 – CONDUCT WORKSHOPS

The SCS Team will prepare for a minimum of five (5) workshop public meetings. An initial public workshop is recommended as part of assessing the future needs. This approach is intended to foster transparency in the master planning process. By engaging the public early in the process and prior to developing the draft master plan provides an opportunity to share the history of solid waste and recyclable materials management in the County, present options and practical considerations related to collection, processing, and disposal. Hearing from the "voice of the customer" can provide valuable insights into public preferences and allow for a conversation around trade-off's of different options that will be addressed in the Draft Master Plan.

Following the preparation of the Draft Master Plan, the first workshop will be held with members of the Authority, TAC, and relevant County and municipal staff, at which a quorum is not necessary. A second workshop will be held with the Broward League of Cities, consisting of all municipal elected officials in Broward County, at which a quorum of elected official is not required. The last two workshops with the general public, the date, time, and location of that will be determined by the Chair, with at least one such workshop being held in the evening, with the availability of the public to participate virtually and with multi-lingual capabilities, if requested.

Task 11 DELIVERABLES

The presentations for the workshop will be reviewed with the Contract Administrator in advance of the workshops.

TASK 12 – PREPARATION OF FINAL MASTER PLAN

The SCS Team will review and discuss the comments from the public workshops with the Authority, which will be incorporated into the final Master Plan, as appropriate. The final Master Plan will include an outline of implementation steps for the recommended alternative(s). The Master Plan will be finalized within 30 working days after the final workshop.

This response to Evaluation criteria 2e represents several of the additional services tasks noted in the RFP and therefore those tasks and our understanding of those tasks will be described further below. For the additional services on this project, the SCS Team will only undertake the following tasks only after the issuance of a Work Authorization by the Authority. Each such Work Authorization will contain a specific scope, budget, and deadline(s) for the relevant services.

Task 12 DELIVERABLES

The Master Plan will be finalized and submitted electronically after the workshops as noted within this task.

TASK 13 – DEVELOP PLAN OF OPERATIONS

To develop the plan of operations the SCS Team will identify participants for the System, including the operation and roles including for municipal partners, private industry, and specific facilities. Activities under this task include:

- Provide the latest safety procedures for the operation and maintenance of equipment for each proposed facility.
- Identify the most effective and efficient hours of operations for the facilities, downtime, maintenance periods, and flow of traffic.
- Establish a billing structure for all participants (including haulers). Provide a uniform method for all participants to be identified and recorded at all disposal facilities.
- Provide a basis for regularly scheduled inspection of solid waste and recycling facilities to ensure compliance and efficiency.

Task 13 DELIVERABLES

The SCS Team will develop a draft Operations Plan for review and comment by the Authority and then a final Operations Plan under this task, if requested, covering the topics above and other topics identified during scoping.

TASK 14 – FACILITY MAINTENANCE

The SCS Team will identify the cost and time associated with maintaining proposed facilities, including, among other things, purchase costs for land, equipment, and rolling stock for ongoing maintenance and closure of potential facilities to be included in the System as publicly owned assets. Many solid waste facilities, with the proper operations and maintenance and revenue and financing streams, are capable of extending operations well past initial equipment life through a maintain, repair, replace maintenance philosophy.

Task 14 DELIVERABLES

The SCS Team will develop a draft and final Facility Maintenance Plan for review and comment by the Authority for the assets described above covering the topics within this task.

TASK 15 – IDENTIFY INNOVATIVE AND FUTURE TECHNOLOGIES (Software & Hardware)

System operators and equipment and recycling system suppliers constantly are enhancing and optimizing performance to recover more recyclable material or energy from mixed and separated solid waste components (e.g., the use of artificial intelligence combined with materials sorting technologies), reducing or identifying new and emerging beneficial reuse opportunities for process residue, new and emerging battery management practices and e-waste recovery, textile recovery optimization, advanced recovery systems for gasses, ash output, biological digestion, etc. The SCS Team is thoroughly familiar with existing state-of-the-art equipment on both the software and hardware for these facilities. We will identify each the latest supply chain technologies for methods of collection and sorting required, recycling facility and disposal options, footprints required, CAPEX and cost/per ton processed ranges, and include details required for consideration and prioritization. A risk assessment of each will include existing proof points on each scalable choice for meeting Authority requirements, recovery output and emissions ranges. reporting required, automation potential, and staffing need, and job creation. From these assessments of the local conditions and options, the Plan will provide stakeholders prioritized, alternative options for collection, processing, recovery, and disposal.

Task 15 DELIVERABLES

The SCS Team will work with the Authority to identify the specific facilities and operations and tailor the scope to identify those innovative and future technologies. Alternatively, the SCS Team could develop a request for information from the vendor community to identify and provide information related to such technologies.

TASK 16 – HIGHLIGHT NATURAL AREAS NEAR FACILITIES

Frequent and consistent public education and outreach is critical for reducing, reusing, and recycling or composting waste prior to the need for disposal at a waste-to-energy facility for energy recovery or landfill. Under this task, the SCS Team will identify natural areas in proximity to proposed facilities to expand on educational opportunities. The SCS Team will utilize geographic information system (GIS) to initially conduct a desktop review of potential sites using exclusionary criteria (e.g., conservation areas, distance to airports, natural resource protection areas, distance to Class 1 surface water, existing land use, distance to community water system, Areas of Critical State Concern, Historical/Archaeological/Cultural areas). The identification of such areas will also include an overview on how wetlands, trails, and parks can be integrated with solid waste and recycling facilities as passive learning centers.

Task 16 DELIVERABLES

The SCS Team will develop a Natural Areas Educational Opportunities Report for the proposed facilities with description of how these facilities could be integrated as passive learning centers.

Palm Beach County set aside 300 acres of natural area during the development of its landfill and waste-to-energy facility to serve as a conservation area, which includes walking trails, and a large rookery, including many endangered species of birds. Boardwalks and benches along the trails are made from recycled plastic. Trail paths are made from recycled crushed concrete. Source: www.swa.org

C. POTENTIAL IMPEDIMENTS TO ADDRESSING SOLID WASTE AND RECYCLING EFFORTS INCLUDING, AMONG OTHER THINGS, FACILITY CAPACITY, LIMITATION IN PROCESSING THROUGHPUT, FUNDING, AVAILABILITY OF SUITABLE LAND, AND TRANSPORTATION LOGISTICS

The SCS Team will leverage our past engagements and apply the information and lessons learned to our approach to this work for the Authority. The SCS Team has a very strong and well-respected foundation of work it has already done for in and around the County, which is directly applicable to the Master Plan from local and state solid waste, recycling, and recovery professionals, including, for example, the Arcadis Study referred to in the RFP. In addition, the SCS Team has multiple projects currently being executed in Florida and elsewhere having to do with similar issues like new infrastructure, program management, and sustainable rates, and are familiar with solid waste rate structures, collection, processing, disposal infrastructure, economics, the public contracts that support their development, public-private partnerships, finance and funding, rate studies, regulations, and the most pressing solid waste issues in the local region, Florida, and nationwide.

The SCS Team will first verify with the Authority its priorities in a detailed workshop environment and then produce a lens to rationalize choices. This particular task will provide a risk assessment framework for that lens, which will weave some of the more general impediments through a matrix at the end of the description for each major Option in the plan for improving the current solid waste management system. The matrix will assess the likely outcomes for each Option in 5, 10, and 20-year timeframes as part of this process:

1. An analysis of the cost/benefit of the proposed plan element for meeting prioritized County goals. This will include a financial assessment of the option choice, and its costs, and the outputs from deploying the choice (volumes, revenues, landfill savings, etc.).

2. An analysis of the positive and negative major non-cost impacts, for instance, the positive long-term impacts on the current solid waste management system will be compared for re-use and reduction, landfill diversion, sustainable disposal, and the decarbonization value (Life Cycle assessment positive or negative) of a given Option choice, and include any positive impacts on climate inputs, storm-ready sustainability, ability to meet the growth needs in the County, efficiency impacts on the current routing and physical proximity to existing and proposed facilities.

3. A Risk Summary Matrix table will be presented for each major plan element toward reaching intended County goals by milestone dates. In section 3.4, the SCS Consulting Team will identify the high-level trade-offs, risks, and likely impediments for each element the County has prioritized from available plan element Options. Covered here will be the political risks from the highly organized and staffed solid waste provider sector, which has very high pricing power due to limited options in the County and south Florida, the "NIMBY" public response expected when new waste infrastructure/capacity is proposed, the risks to surrounding environmentally sensitive areas, including water tables, waterways, wildlife sanctuaries, recreation and preservation areas, and culturally significant sites, etc.

Background and General Impediments

In less than sixty years, the County's diverse and multicultural population has grown by 250% and is in the top quartile of municipalities in the U.S. in both GDP and population, it is also growing at an impressive +3% per year.

General geographic impediments for an effective System have grown with the growth of the County population in particular, and south Florida in general, and are natural impediments to a Master Plan for Solid Waste. They include:

- **Regional Gridlock.** An overworked and geographically limited transportation grid system with the highest average Annual daily Traffic in the state, congested throughways and arteries, and high accident rates, that serves nearly six million people in the region every day, and much more during tourist seasons, implies the need for efficient service areas and shortest transportation routes for existing and future solid waste infrastructure to reduce route costs and deliveries of waste for further processing and disposal.
- **Rapid Urbanization and Rising Tensions.** The need to expand solid waste infrastructure capacity to meet the long-term high demand for housing and employment for new residents has not slowed. Environmental values decline from rapid urbanization of wild areas. This causes conflict between protected environmentally-sensitive zones like waterways and protected ecosystems and new solid waste management facilities. Given the limit to available land for properly zoned construction of landfill assets, conflict is inevitable, and the placement of solid waste infrastructure will be hampered by public and environmental opposition and must be identified early for collaborative mitigation leading to successful projects.
- **Stronger storms.** Broward County is in a prone position from increasingly strong storms, and the long-term garbage and debris flows in their aftermath. and consequent impacts on disposal and disposal capacity those causes must be accounted for.
- **Oligarchy of Private Service Providers and the Potential Need for Public Solid Waste Facility provision and operation**. Competition between solid waste/recycling/organic integrated service providers is less than desirable in South Florida, due to, among other things. the swift acquisition and merger roll-up of smaller private firms into the five largest public companies, with three being dominant in S. Florida. In addition, the age, availability, and condition of existing collection, disposal, and recovery assets are low quality and strained, and the development of modern, higher technology-based, new assets in collection, disposal, and recovery has failed to be provided through procurement exercises in the previous planning period due to the low competitive environment. Though a new "state of the art" private recycling facility is being built in west Broward County to replace its 30-year-old predecessor, between Broward and Miami/Dade County, two waste-to-energy facilities have closed (one in Doral and one in North Broward), and no new recycling, disposal, or advance organics facilities have been added to manage the additional tons. Finally, the few companies dominating the solid waste business in S. Florida have strong public representation with elected officials, staff, and state regulators, and use it to ward off enabling regulation and policy choices for public options not provided currently. These conditions have also led to very high price increases and few choices for services from private suppliers, some far above the state or national average. Additionally, low competition is one of the conditions that has led to the failure of the private sector to provide fair rates for additionally needed services from the major solid waste service providers. It has also hindered the ability of Broward municipalities to offer a suite of desired services to meet regulatory and policy goals (for instance, the ability to recycle glass because the service providers don't want to process it), the low collection rates of commercial recyclables from small businesses, and the slow development of advanced organic options. A careful look at how the County and Authority could augment the existing supply (collection through disposal/recovery) by acquiring and managing more public assets and/or capacity, or stimulating more competition, will be considered in the Master Plan.

- **Rising Environmental Concerns**. The SCS Team has been involved in interregional planning groups, DEP planning and research organizations, and other state associations (SWANA, Hinkley Center, South Florida Regional Planning Council, Recycle Florida, Florida Waste to Energy Coalition, South Florida Climate Compact) in the state. From these, the Team has become very cognizant of the state's and the County's present concerns on other growing impacts that need to be considered, including decarbonization measures without major economic disruption or cost, loss of Ocean biodiversity and marine resources, preserving and protection native flora and fauna species population, sea level rise, and, pollution from solid waste sources, including atmospheric, water and migration of foreign and potentially harmful chemicals now found pervasively in County environments and communities. Recent research has also revealed a menu of important vectors emanating from solid waste practices that also must be mitigated including PFAS, higher than previously thought methane release, microplastic migration, heavy metal concentration in fisheries, lithium batteries causing solid waste and recycling fires, etc. Each must be accounted for, and prioritized and the plan has appropriate task recommendations to ward off their impacts.

Though by no means inclusive, the SCS Team will signpost and prioritize these larger issues so they can be woven into the Master Plan, along with their mitigation measures, especially in the longer ten- and twenty-year time frames. In a clear and objective lens, with a statement of each issue, potential remedies, and tactical best practices for implementing 5,10, and 20-year optimized solutions, and the financial implications of each by recommendation will be made. Stronger "red flag" impediments will be signposted and discussed. Use of summary matrices will be added for each major element for comparison.

Specific Local Impediments the SCS Team will Consider in the Solid Waste Plan

Specific local County issues in the existing solid waste system will be considered after a review of County priorities and the current solid waste system. Our approach to these is broken down by supply chain component and listed below. Each will be further clarified and the risk of the impediment slowing the development of needed solutions assessed. For instance, but not exclusively:

Table 2-1. Specific Local Impediments

Supply Chain Component	Consideration
Collection Systems	• Lack of meaningful competition leads to unacceptable pricing power by existing facilities for services and has even resulted in the cancellation of programs. • Gridlock, low scalability, local variation, and lower than optimum local competition, is causing swiftly rising costs. • Optimization of current collection periodicity (right mix of solid waste, food waste, recycling, vegetative, and special collections) pared with the right collection technologies (automated vs. manual). • Collection as close as possible to available facilities (e.g., solid waste, recycling, organics) for cost optimization. Challenging to permit new urban sites. • High recyclable material contamination. • Labor shortages. • Seasonality of collection volumes (i.e., winter population influx, summer vacation, etc.).

Supply Chain Component	Consideration
Recyclable Material Quality	• Lack of continuous education and enforcement of recycling programs at the community and curbside level, which was part of every recycling program twenty years ago, leading to unacceptable contamination of recyclable materials, and higher rejection of recycling deliveries to private vendors. • Battery risk, microplastics, PFAS, and other vectors which will make operations more costly on-going. • Infrastructure Development (e.g., siting, capital costs, fluctuating commodity markets). • Disharmonization of side-by-side municipal programs for materials accepted, contract types, terms, and conditions increase the cost. Harmonization would improve outcomes and costs and allow for efficient scaling of the right processing equipment. • Current collection route zones and transfer vehicle/Transfer station use would need to be modified and probably changed due to placement in acceptable areas outside increasingly urbanized centers. • Insurance costs and property losses due to increasing battery and compressed gas fires.
Conventional Organics and Food Waste Options	• Offsite Odor. Household container odor. • Seasonality of flows. • Markets for processed yard waste and debris during peak season and storms become saturated. Alternatives will be reviewed. Not well integrated with other county/Authority local departments for re-use, i.e., parks, paths, land applications of lowlands and soils with poor water retention at public facilities (ports, airports, beaches, roadsides, etc.). • Contamination from curbside collection making offtake unavailable for certification to use in agriculture. • Very controversial LCA findings for pyrolysis, gasification, plasma arc, and other advanced methods in the utilization of energy. • Odor control, maintenance, and toxic gas management of advanced Anaerobic digestion.
Solid Waste Facilities	• End of Life Management Sites (e.g., locations, costs, financial and other risks). • Public "NIMBY" opposition. • Environmental group opposition. • Political opposition from private solid waste firms to public participation in the solid waste system for infrastructure, capacity, and needed flow control and other regulatory structures. • Trend of new regulations concerning PFAS, batteries, microplastics, and other vectors which make permitting more expensive and operations more costly on-going. • Current collection route zones and transfer vehicle/Transfer station use would need to be modified and probably need re-routing due to placement in acceptable areas outside increasingly urbanized centers. • Insurance costs due to increasing fires. • Political opposition from private solid waste firms to public participation in the recycling system for infrastructure, capacity, and regulatory backpinning.

Supply Chain Component	Consideration
Emerging Advanced Waste and Organics Technologies	• Expensive relative to conventional options for solid waste management. • Will have the same impediments that the landfill/WTE options have. • Lack of convincing proof points anywhere in the U.S. or Europe for sustained operations (all but a handful outside of California's specialized fleet have remained open) that meet recycling and diversion guarantees. • High Failure Rate- In the last eighteen months, four mixed waste sorting plants have closed in Alabama, West Virginia, Massachusetts, and Maine; the major provider of advanced AD has faltered to no value on the stock market, and the full-scale Nevada County waste to jet fuel facility had bonding default issues. • Very controversial LCA findings for pyrolysis, gasification, plasma arc, and other advanced methods in the utilization of energy. • Odor control, maintenance, and toxic gas management for advanced Anaerobic digestion.

In addition, the SCS Team will identify impediments and present mitigation strategies related to reuse and reduction programs, separate collection for harmful household hazardous waste (e.g., batteries, gas containers), and the current drop-off infrastructure and future capacity needs will also undergo a risk and impediment assessment.

D. APPROACH TO USING LOCAL TIPPING FEES, PROCESSING FEES, MARKET PRICES FOR RECOVERED MATERIALS, AND ADDITIONAL FUNDING SOURCES THAT COULD BE UTILIZED TO FUND THE CONSTRUCTION, OPERATION, AND MAINTENANCE OF THE SYSTEM

The SCS Team has vast financial experience supporting similar authorities and public entities to develop best-value approaches to recommend tipping fees, processing fees, recovered materials revenue, and other sources to fund the construction, operation, and maintenance of the facilities associated with integrated solid waste management systems.

Rate and Fee Structures and Billing Considerations

While the Authority knows that it wishes to charge for solid waste and recycling services, there are questions regarding the best alternative or combination of alternatives for funding sources and billing.

There are a **few options for revenue generation that will be available to and explored with the Authority.** While some may be in place in various communities throughout the United States, they may be less advisable or common due to issues such as revenue collection, ease and frequency of billing, or the ability to incentivize customer behavior. Some utilities use a combination of approaches, based on the services provided and who is served in the community.

Each of the possible methods that the Authority may wish to consider has **benefits and drawbacks**. Below are a few common billing methods and considerations, which will be further explored as part of our professional services.

System User Fee – Utility Bill

Authority user fee billed as a standalone utility bill or combined with water and sewer bill. Billing usually occurs monthly and according to service level.

▲ **Pros:** Monthly revenues; rate increases relatively easy to implement; can structure fees based on waste generation.

▼ **Cons:** Monthly billing has increased cost; billing administration is very difficult due to the need to associate utility billing addresses with parcel information and requires annual updates; no guarantee customers will pay and policies regarding the application of payment may be necessary if on shared utility bill.

System User Fee or Special Assessment – Tax Bill

Customers are charged according to waste generation or benefit but billed annually on tax bill as a user fee or non-ad valorem special assessment. Often used to fund debt service on capital projects but can also fund the maintenance and operations of the System and its facilities.

▲ **Pros:** Revenues may be guaranteed by property lien; annual billing; high rate of collection; billing administration relatively easy if based on waste generation according to parcel use. Otherwise, non-taxable entities are included in the assessment unless exempted by a policy decision.

▼ **Cons:** Revenues received generally 2x per year; cannot account for mid-year changes to property use or development; not easy to encourage diversion.

Tax Rate

Dedicated tax rate for the purpose of providing solid waste services. Best for certain common good services often provided by solid waste utilities such as right of way mowing, street sweeping, illegal dumping, etc.

▲ **Pros:** Revenues guaranteed by property lien; annual billing; no billing updates required except for tax rate changes; can be useful for Authority-wide programs provided for the general benefit of all residents.

▼ **Cons:** Revenues received generally 2x per year; property value not a good metric for services provided; may be political or require a referendum to raise tax rates; does not encourage diversion. Non-taxable entities do not pay.

Tipping Fees

Fee per ton for solid waste disposal at the disposal facility. The fee per ton will vary by waste type. There can also be a charge per unit for the disposal of large or environmentally challenged items (mobile homes, tires, appliances with freon, etc.).

▲ **Pros:** Most revenues received at time of disposal; regular monthly billing only for negotiated contracts; charge per ton can be calculated to represent the unit cost of service.

▼ **Cons:** The true cost of accepting certain hazardous waste streams may not be feasible to charge without incentivizing illegal dumping; requires scales, scalehouse, and attendant.

Recycling Processing Fees

Fee per ton for recyclables brought to materials reclamation facility (MRF). The fee per ton may vary by material type. May involve revenue sharing of material sales.

▲ **Pros:** Some revenues received at the time of drop off, remainder upon sale of recyclables; charge per ton can be calculated to represent the unit cost of service.

▼ **Cons:** Contamination needs to be monitored or extra cost to process/dispose of waste; requires scales, scalehouse, and attendant. Material sales markets can fluctuate dramatically, hampering the predictability of revenues.

Tipping Fee Surcharge

Fee per transaction or per ton in addition to the tipping fee paid for solid waste disposal at the disposal facility. Could serve as a temporary or long-term revenue mechanism to recover general/administrative System costs.

▲ **Pros:** Most revenues received at the time of disposal.

▼ **Cons:** Unclear to residents what surcharge is funding. May not approximate the cost of services. The Authority will need to determine if it has the authority to impose a surcharge on all facilities in the County.

The SCS Team understands that the Authority will not be collecting the waste from its residents, which does not allow for billing customers according to service levels, as these are only known to the individual municipalities and/or franchised haulers. The County is currently completing a waste generation study, which is being performed by a member of the SCS Team, and the results will provide a basis for charging residents and businesses on their tax bills. However, the facilities that the Authority will construct can avail themselves of additional revenue streams in the form of tipping fees and recycling processing fees or disposal surcharges. For recycling processing, there is additional revenue available in material sales of recyclables. The Authority will need to consider the appropriate mix of revenue streams to recover costs equitably and sustainably. The SCS Team will leverage our past and current assignments with the County to inform the discussion with and recommendations to the Authority presented in the Master Plan.

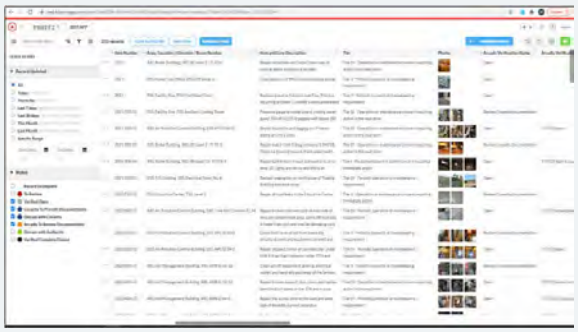
E. APPROACH TO DEVELOPING A COMPREHENSIVE CAPITAL IMPROVEMENT PLAN (CIP) THAT WILL IDENTIFY THE NEEDS FOR INSPECTIONS, UPGRADES, AND REPLACEMENT OF EXISTING ASSETS

The Authority demonstrates an excellent and appropriate long-term strategy for planning by expressing the concern of protecting the existing and future developed solid waste management and recycling facilities and their assets, which is a key component of a CIP. The purpose of the CIP is to identify the needs for inspections, upgrades, and replacement of assets. The ability to require and develop a CIP will vary depending on the owner and operator entities for each solid waste management facility and whether or not the facility exists with existing assets or is to be developed in the future.

For instance, new or existing publicly owned and operated facilities will typically be required by State or County statute, Authority or public entity ordinances or by-laws, and/or bond financing covenant (if not already retired) to develop and maintain a CIP for a certain period of time (i.e., 1, 3, 5+ years) to inform public financing and bonding needs. The longer the duration of the CIP the more informed the Authority and bond trustees and holders will be to the needs of the publicly owned facilities.

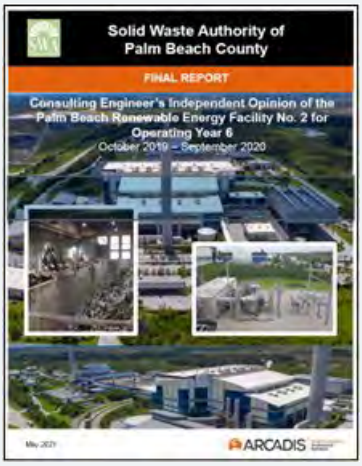
To develop a CIP for existing publicly-owned assets, the SCS Team approach is as follows:

- Identify the entities that own and operate the facilities that require the CIP.
- Review governing statutes, rules, regulations, or bond covenants to determine CIP requirements and other requirements for inspections and the ability to amend the contracts upon renewal or when bidding on such services in the future. If no such requirements exist or the facility is publicly-operated, then with agreement from the Authority consider amending governing documents.
- Certain provisions for amendment could include procuring an Independent Engineer knowledgeable of these facilities to support the Authority in completing provisions such as:
  - Conduct an initial condition assessment of existing assets and follow-up with at least annual inspections and potential more frequent such as monthly, quarterly, and/or during major equipment/facility scheduled outages to understand capital projects required for long-term maintenance.
  - Evaluate Facility operations performance against initial Facility acceptance test or operations contract Performance Guarantees.
  - Benchmark Facility performance against other similar types of facilities and/or against previous operating years to identify best-in-class



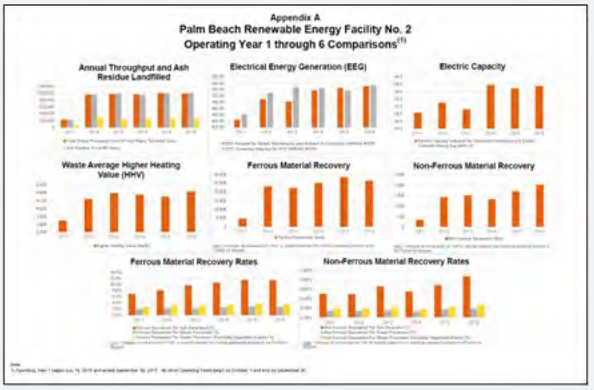
The SCS Team typically tracks initial and annual condition assessments and operations punchlists using digital tools to manage status of items through completion.

The SCS Team provides annual reconciliation services and reports for clients to compare actual facility operations data to contract Performance Guarantees.



performance status or any observable performance degradation (i.e., reduced unit or Facility availability, power, or recoverable material output reductions, etc.).

- Develop an annual punch list that the contract operator is required to address in a contractually required cure time as mutually agreed to by the Parties of the agreement.
- Review monthly invoicing and recommend withholding portions of monthly operations fee payments by certain contractually identified amounts if the contract operator is not completing identified punch list items.
- Evaluate Facility environmental compliance and identify any potential environmental capital needs.
- Report on draft and upcoming rules and regulations that may affect the Facility's long-term performance.
- Consider the performance of acceptance testing upon Facility completion (for future facilities assets) or performance testing on existing facilities assets on an as-requested basis in the event of identification of performance concerns during contract term.
- Develop initial planning level capital costs and operation and maintenance cost impacts, estimated schedule, and other considerations.
- Evaluate potential funding sources for capital projects.
- Develop and issue an annual Report and update/review CIP annually with the Authority.



Facility performance is compared against other facilities and / or previous Facility operating years to determine best-in-class performance or any observable performance degradation over time.

Table 3-1. PBREF No. 2 OYS Annual Air Emissions Compliance Test Reported Results

Sample Type	Limit	Units (1)	Test Result			In Compliance?
			Unit #3	Unit #4	Unit #5	
Ammonia Slip (NH_3)	10	ppmvd (3)	5.48	5.14	3.56	YES
	2.76	lb / hr	1.60	1.62	1.01	
Particulate Matter (PM) (filterable)	12	mg / DSCM (2)	<0.128	0.71	1.16	YES
	4.7	lb / hr	<0.0524	0.308	0.478	
Hydrogen Chloride (HCl)	20	ppmvd (3)	4.15	4.34	3.00	YES
	11.9	lb / hr	2.51	2.89	1.85	
Volatile Organic Compounds (VOC) (as propane)	7	ppmvd (3)	0.009	0.000	0.007	YES
	5.0	lb / hr	0.007	0.000	0.006	
Lead (Pb)	0.125	mg / DSCM (2)	0.00158	0.00518	0.00362	YES
	4.90E-02	lb / hr	6.39E-04	2.27E-03	1.49E-03	
Cadmium (Cd)	0.01	mg / DSCM (2)	<0.000128	0.00064	0.00044	YES
	3.91E-03	lb / hr	<5.27E-05	2.82E-04	1.79E-04	
Mercury (Hg)	0.025	mg / DSCM (2)	<0.000773	0.000555	<0.000423	YES
	9.80E-03	lb / hr	<3.23E-04	2.44E-04	<1.74E-04	
Outlet Dioxins / Furans (6,7)	4.2	ng / DSCM (4)	-	-	0.376	YES
Visible Emission	10%	% of observation period	0.0	0.0	0.0	YES
Carbon Monoxide	100	ppmvd (3)	10.0	21.3	17.2	YES
	45.5	lb / hr	4.56	5.91	8.05	
Nitrogen Oxides	50	ppmvd (3)	35.3	39.0	35.8	YES
	37.4	lb / hr	24.5	28.4	24.4	
Sulfur Dioxide	24	ppmvd (3)	21.3	20.6	21.7	YES
	25.0	lb / hr	20.5	22.3	20.5	
Opacity	10%	%	1.6	3.5	0.6	YES

In January 2024, the USEPA issued proposed Standards of Performance for New Stationary Sources and Emission Guidelines for Existing Sources: Large Municipal Waste Combustors to govern existing and new waste-to-energy facility emissions. The proposed standards are under review currently through March 2024. The SCS Team is working with clients in the review of the rules to determine ability of existing facilities to achieve proposed standards and identifying potential capital and operational needs and costs.

- Consider amending other contract provisions for existing assets at privately-operated facilities to require items such as:
  - Require the private operator to identify CIP for discussion with the Authority and Independent Engineer to understand if the CIP item is Contractor or Owner responsibility due to Change-in-Law or other Uncontrollable Circumstances.
  - Require private-operator to develop an annual update of an Operations, Maintenance, and Management plan that explains the Facility operation, maintenance, and management philosophy including the maintenance approach for repair, maintain, or replace/refurbish assets.
  - Inserting ability to request proposal for private-operator to perform CIP items on behalf of Authority as appropriate.

Section 3

Past Performance

RIGHT
Team ● Schedule ● Solution

SCS ENGINEERS

3 | Past Performance

The SCS Team brings successful experience from a wide range of clients providing us unique insights into what works in solid waste planning. It will help us craft a comprehensive, integrated, and sustainable Master Plan tailored to your needs.

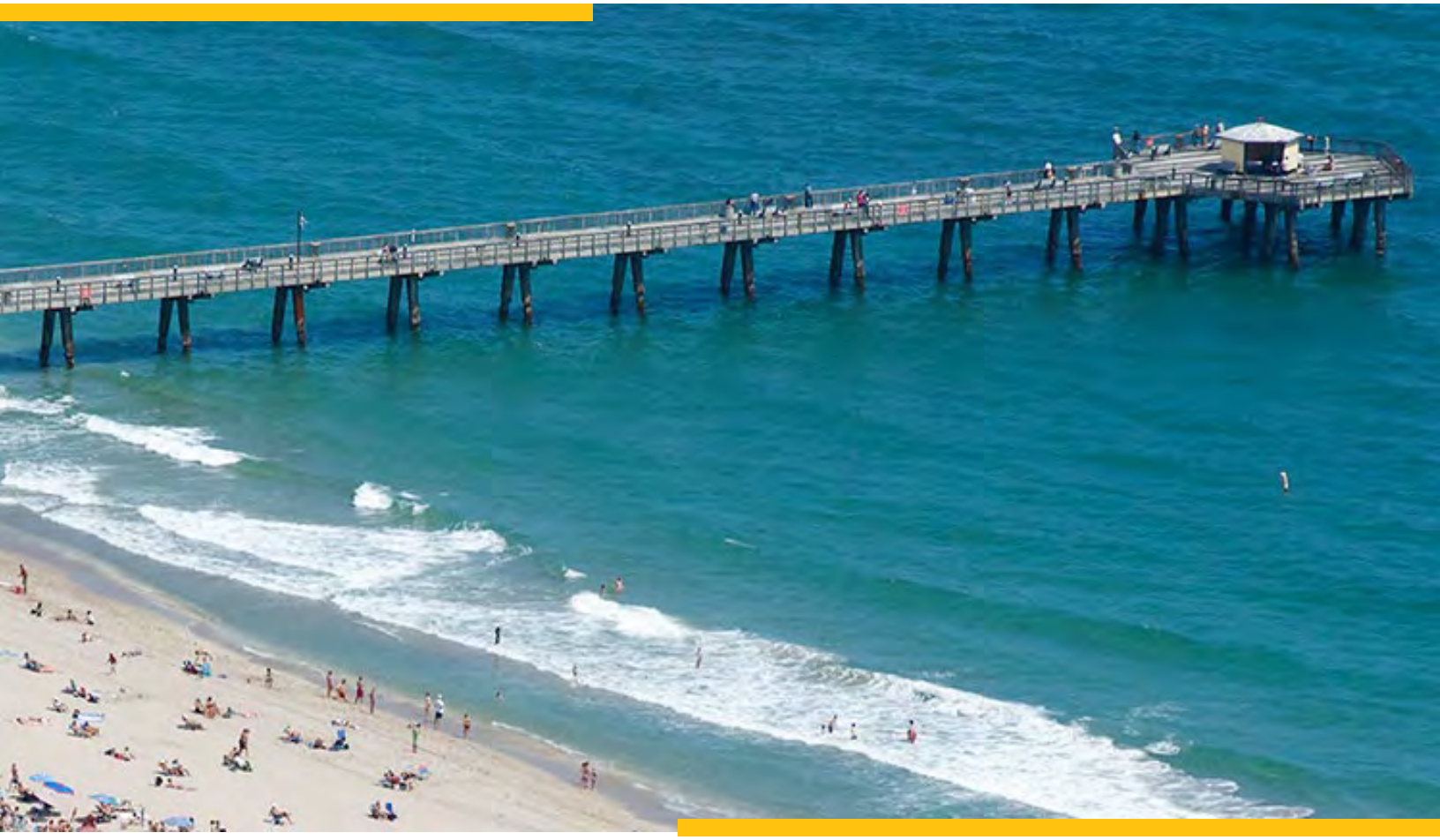
The SCS Team has collectively served 38 Florida Counties with various solid waste consulting services from master planning to capital improvement projects design and construction similar to the services identified in your RFP. The following are examples of successful projects the SCS Team have completed with direct relevance to the needs laid out in your RFP. Project Profiles and Reference Forms can be found at the end of this section.

Table 3-1. Project Experience

Project/Client/Firm	Solid Waste Disposal and Recycling Processes and Resources Evaluation	Feasibility Analysis	Financial Studies	Future Needs Assessment	Waste Generation Estimates	Recycling Needs Analysis	Recycling Legislative Trends	Regional Processing Facilities	Recycling Benchmarking	Education & Outreach
SCS										
Professional Solid and Hazardous Waste Management Engineering Services, Collier County	■	■	■	■	■	■	■	■	■	■
Solid Waste Disposal Options Analysis, Manatee County	■	■	■	■	■	■				
Rate Study as part of Solid Waste Management Plan, Yakima County	■	■	■	■	■	■				■
Neal Road Recycling and Waste Facility Master Plan, Butte County	■	■	■	■	■	■	■	■		■
Professional Solid Waste Management Engineering Services, Southeastern Public Service Authority	■	■	■	■	■	■	■	■	■	
Transitioning to a Sustainable Materials State, Iowa Department of Natural Resources	■	■	■	■	■	■	■	■	■	■
Recycling Technical Assistance Training Program, PA DEP	■	■	■	■	■	■	■	■	■	■

Table 3-1. Project Experience

Project/Client/Firm	Solid Waste Disposal and Recycling Processes and Resources Evaluation	Feasibility Analysis	Financial Studies	Future Needs Assessment	Waste Generation Estimates	Recycling Needs Analysis	Recycling Legislative Trends	Regional Processing Facilities	Recycling Benchmarking	Education & Outreach
SCS										
Zero Waste Plan and Solid Waste Management Plan, Prince George's County	■	■		■	■	■	■	■		■
Zero Waste Plan and Solid Waste Management Plan, Arlington County	■	■	■	■	■	■	■	■		■
Arcadis										
Solid Waste Management Program, Broward County	■	■	■	■	■	■	■	■	■	■
Solid Waste Bond Engineer Services & Zero Waste Facilities Siting Alternatives, Miami-Dade County	■	■	■	■	■	■	■	■	■	■
Solid Waste Consulting Services, Solid Waste Authority of Palm Beach County	■	■	■	■	■	■	■	■	■	■
Ten Year Solid Waste Master Plan Update & Solid Waste Consulting Services, Prince George's County	■		■	■	■	■	■	■		■
Zero Waste Municipal Solid Waste Management System Analysis and Facility Condition Assessment, Montgomery County	■	■	■	■	■	■		■		■
RRS										
Technical Support, Hillsborough County	■	■	■	■	■	■	■	■	■	
Zero Waste Plan, Hennepin County	■	■	■	■	■	■	■	■	■	■
Mercury										
Parks and Recreation City Bond Referendums, City of Fort Lauderdale										■
Poseidon Water Public Affairs Campaign, Poseiden Water										■



SCS Project Profiles

RIGHT
Team ● Schedule ● Solution

SCS ENGINEERS

Professional Solid and Hazardous Waste Management Engineering Services

Collier County | Naples, FL

Client Reference: Kari Ann Hodgson, (239) 252-2504, kari.hodgson@colliercountyfl.gov

Role: Prime **Project Timeline:** 2020-Ongoing

SCS, through our Professional Services Agreement for Solid and Hazardous Waste Management Engineering, is providing a variety of professional consulting engineering services to the County. All of the professional services are consistent with the components of the Board of County Commissioner's approved Integrated Solid Waste Management Strategy: source reduction, materials reuse, and recycling; diversion; optimizing existing assets and resources; and obtaining additional facilities.

- **Sustainable Solid Waste Planning.** SCS prepared an update to the County's Integrated Solid Waste Management Strategy. As part of this work, SCS performed benchmarking and case studies to identify trends, opportunities, and best practices to inform the analysis and recommendations. SCS is currently supporting the County as it determines whether to recompete its current solid waste and recycling collection contracts or issue a new solicitation, which includes conducting a GIS and financial analysis of impacts associated with changing its current collection districts. SCS also assisted the County to develop and issue a request for information for innovative solid waste management technologies and is currently serving as a technical expert assisting the peer review committee to complete their evaluation. Over the past several years, SCS has supported the County by assisting with the preparation and presentation of level of service requirements for compliance with its growth management plan.
- **Site Planning and Development.** SCS developed and analyzed various options to expand their active landfill. SCS also developed a site master plan at the County's closed landfill including conducting siting analysis to identify constraints that would impact the development of a residential recycling and education center, a new transfer station, and white goods, yard trash, and tires management. SCS supported the County's development of its resource recovery business park adjacent to its active landfill that is envisioned to include a renewable natural gas facility, a deep injection well for landfill leachate, recycling and reuse areas for tires, construction and demolition debris, Styrofoam, bulky waste, and yard trash, and disaster debris management. In addition, SCS led the development of renderings and a visualization for the activation of a land buffer between the County's active landfill and an adjacent high-profile sports complex.

PROJECT PERFORMANCE

Completed on Time: Yes

Completed on Budget: Yes

PROJECT SCOPE PERFORMED

- ✓ Solid Waste Disposal and Recycling Processes and Resources Evaluation
- ✓ Feasibility Analysis
- ✓ Financial Studies
- ✓ Future Needs Assessment
- ✓ Waste Generation Estimates
- ✓ Recycling Needs Analysis
- ✓ Recycling Legislative Trends
- ✓ Regional Processing Facilities
- ✓ Recycling Benchmarking

PROJECT OUTCOME

SCS has supported the County in achieving a 78% recycling rate (2022), developing a proactive Odor Incident and Response Plan to manage onsite and offsite landfill odors, developing procurement documents to secure best-value service providers, conducting GIS and financial analysis to support the realignment of current solid waste and recycling collection districts to reduce costs and greenhouse gas emissions, and impacts on roads while preserving landfill airspace and conducting a survey and benchmarking analysis and preparing a decision framework to support the policy recommendation to renegotiate and extend the current solid waste and recycling collection agreements.

Solid Waste Disposal Options Analysis

Manatee County | Bradenton, FL

Client Reference: Christian Collins, (941) 792-88-11, chris.collins@mymanatee.org

Role: Prime **Project Timeline:** 2023

Manatee County engaged SCS Engineers to evaluate options to analyze solid waste disposal options to manage municipal solid waste (MSW) generated within the County with a planning horizon that extends 50 years beyond the life of the Lena Road Landfill (Landfill). Based on the Remaining Disposal Capacity and Site Life – Reporting Year 2023 submittal to the Florida Department of Environmental Protection, the remaining landfill capacity is estimated to be exhausted in approximately 18 years. However, with the accelerated growth the County is currently facing, we can foresee the projected life of the Landfill presented as of January 27, 2023 to be reduced to potentially 15 years of remaining capacity by the end of this year.

Initially, SCS projected the County's population over the planning period. Specifically, SCS used the relationship between the actual tonnage of MSW disposed in the Landfill, population projections, and assumed density based on annual LiDAR Topographic Surveys to derive annual tonnage requiring disposal over the planning period. It should be noted that SCS uses the project population and the 5-year average values for, historical tonnage disposed, volume consumed, and apparent density to derive a per capita waste disposal value used to project disposal needs over the planning horizon.

PROJECT PERFORMANCE

Completed on Time: Yes

Completed on Budget: Yes

PROJECT SCOPE PERFORMED

- ✓ Solid Waste Disposal and Recycling Processes and Resources Evaluation
- ✓ Feasibility Analysis
- ✓ Financial Studies
- ✓ Future Needs Assessment
- ✓ Waste Generation Estimates
- ✓ Regional Processing Facilities

PROJECT OUTCOME

We met the Client's schedule and the work was used to brief the County Commissioners prior to the Workshop, which contributed to clear policy direction for a best value approach (i.e., optimize the Landfill) to secure 21 years of additional disposal capacity.

Following our analysis of the various data sources (e.g., University of Florida Bureau of Economic and Business Research, ESRI, Southwest Florida Water Management District, Manatee County Solid Waste Master Plan Table 3-1, 2023 SCS Engineers Lena Road Landfill Site Life Calculation). SCS concluded that the approach used for the 2023 Lena Road Landfill Site Life Calculation demonstrated a reasonable basis to project population growth over the planning horizon. As there is a correlation between population growth and MSW generation, SCS then applied the annual population growth rate to the quantity of MSW requiring disposal to project the amount of MSW requiring disposal in 2091.

- **Thermal Conversion Technology Assessment.** SCS evaluated thermal conversion technologies that could be developed in lieu of developing a new landfill. SCS found that a central challenge with managing MSW is that it is heterogeneous in terms of composition and particle size. Accordingly, any thermal conversion technology must be operationally robust to effectively and efficiently process MSW as it is delivered. Accordingly, SCS evaluated thermal conversion technologies that could compliment or replace the current Landfill and are summarized in this memorandum. For each solid waste processing technology, the following data was compiled: technology; system; status; location; typical cost or tipping fee range; general description; pros and cons; and processing capacity. SCS also categorized each technology in terms its market maturity (e.g., commercially proven, emerging, or developing). At this time, the only commercially proven thermal conversion technologies that can process Class I municipal solid waste at the scale and reliability to meet the current and future solid waste management needs of Manatee

County includes mass-burn waste-to-energy and refuse derived fuel facilities. A financial analysis was not part of this scope of work, however; the estimated capital costs for this type of system may exceed one Billion dollars.

- **Transferring Waste out of County.** SCS evaluated the option of developing and operating the infrastructure to transfer waste out-of-County in lieu of developing a new landfill. The accomplish the task, SCS evaluated the cost of current landfill operations, cost of transfer station construction and operations including capital investments for equipment and labor costs, distance to alternative disposal sites and associated tipping fees, and alternative project delivery options to reduce the cost and risks to the County. The analysis considered the future disposal needs over the planning horizon. SCS concluded that transferring waste out-of-County is a practical alternative if the County's Landfill is closed. However, due to the costs associated with developing and operating a transfer station and hauling and disposing of the solid waste at an out-of-County landfill, transitioning to a transfer operation would be more costly than continuing to operate the Landfill.
- **County Owned/Partner for Out-Of-County Waste Disposal.** The original scope of work focused on reviewing the option of Manatee County (County) purchasing land outside of the County for waste disposal and/or forming a partnership with its neighboring counties (e.g., Hillsborough, Polk, Hardee, De Soto, Sarasota). Subsequent to authorization, the County directed SCS not to contact any potential counties and instead to perform a qualitative analysis of the County's options. Accordingly, SCS conducted a desktop review of out-of-county disposal scenarios that may be advantageous to the County and identified examples of regional municipal and municipal/private solid waste disposal partnerships in Florida. Consistent with County direction, SCS advises the County that any inquiries with neighboring counties should be carefully considered and coordinated, preferably with policy direction from the County Commission. With such policy direction, additional analysis and potential discussions with representatives of candidate counties and/or private landfills may be further evaluated to assess the viability of some form of partnership.

SCS prepared technical memoranda for each task and provided technical input to the presentation developed by the Client that was presented at a BCC Workshop on August 1, 2023.

Solid Waste and Moderate Risk Waste Management Plan Update

Yakima County | Yakima, WA

Client Reference: Karma Suchan, (509) 574-2455, karma.suchan@co.yakima.wa.us

Role: Prime **Project Timeline:** 2021-2022

SCS was contracted by the County of Yakima (County), Washington to update their Solid Waste and Moderate Risk Waste Management Plan (Plan) and develop recommended solid waste and MRW management strategies for the period years 2022 through 2027. The Plan also looks forward to confirm that sufficient processing and disposal capacity will be available for at least the next twenty years, or through year 2042. This Solid Waste and Moderate Risk Waste Management Plan (Plan) recommends strategies to manage solid waste and moderate risk waste (MRW) generated in Yakima County, Washington. Solid waste handling includes management, storage, collection, diversion, transportation, treatment, use, processing, and final disposal. This Plan addresses the following solid waste streams: municipal solid waste (MSW), construction and demolition (C&D) debris, organic materials, special wastes; and MRW. The planning area included the incorporated and unincorporated areas of Yakima County. This includes the cities and towns of Grandview, Granger, Harrah, Mabton, Moxee, Naches, Selah, Sunnyside, Tieton, Toppenish, Union Gap, Wapato, Yakima, and Zillah. Specific objectives include the following solid waste and MRW materials:

- Ensure convenient and reliable services for management.
- Promote the use of innovative and economical handling methods.
- Emphasize waste reduction as a fundamental management strategy.
- Support public-private partnerships for landfill diversion programs.
- Encourage the recovery of marketable resources from solid waste and MRW.
- Reduce environmental impacts to air, water and land that are associated with solid waste and MRW generation, transportation, handling, landfill diversion and disposal.
- Reduce the occurrence and environmental impacts associated with illegal dumping.
- Ensure compliance with State and local solid waste and MRW regulations.
- Manage waste in a manner that promotes Washington State's waste management priorities

PROJECT PERFORMANCE

Completed on Time: Yes

Completed on Budget: Yes

PROJECT SCOPE PERFORMED

- ✓ Solid Waste Disposal and Recycling Processes and Resources Evaluation
- ✓ Feasibility Analysis
- ✓ Financial Studies
- ✓ Future Needs Assessment
- ✓ Waste Generation Estimates
- ✓ Recycling Needs Analysis
- ✓ Recycling Legislative Trends
- ✓ Education & Outreach

PROJECT OUTCOME

This document was developed with guidance from the Yakima County Solid Waste Advisory Committee (SWAC). Yakima County Commissioners passed Resolution 102-2016 which re-established the SWAC and adopted committee bylaws and Resolution 103-2016 that appointed members to the SWAC. This Plan supersedes all previous solid waste and MRW management plans, including the Yakima County Solid Waste and Moderate Risk Plan, June 2017 (2017 Plan), Yakima County Solid and Moderate Risk Waste Management Plan, June 2010 (the 2010 Plan), Yakima County Solid Waste Management Plan, July 2003 (the 2003 Plan), and Yakima County Hazardous Waste Management Plan, March 1991.

Neal Road Recycling and Waste Facility (NRRWF) Master Plan

Butte County| Paradise, CA

Client Reference: Craig Cissell, (530) 879-2350, ccissell@buttecounty.net

Role: Prime **Project Timeline:** 2021-2022

The County of Butte (County) awarded SCS a contract to develop a Master Plan for the NRRWF. The NRRWF was operating without an updated Strategic Plan or Capital Improvement Plan since 2017. SCS developed a master plan with the following components:

- **A Summary of Current and Future Operations** that included estimates for waste generation and remaining site life; estimate of operating costs and long-term closure and post-closure care costs; regulatory requirements affecting the facility and its operations; an overview of technologies that may be deployed to address new regulatory requirements relative to organic waste reduction or other diversion requirements; and future opportunities and challenges.
- **Strategic Plan (SP)** that included strategies to 1) address regulatory requirements; 2) implement and fund the CIP; 3) adjust rates to achieve the financial objectives of the County's solid waste operations; 4) deploy new technologies to address new regulatory requirements for management of organics or other residuals from septage, landfill gas, leachate, recycling, and household hazardous waste; 5) improve operational efficiencies; and 6) achieve waste diversion requirements.
- **Site Development Plan (SDP)** included site plans to show the sequencing of potential site improvements to fulfill the Strategic Plan, including new facilities, infrastructure needs, cell development, landfill expansion, and traffic patterns. The Strategic Plan also included a narrative to explain the benefits achieved by implementing the Master Plan, including operational efficiencies, cost savings, improved safety, improved public interfacing, or other benefits that were identified.
- **Capital Improvement Plan (CIP)** included the short-term and long-term capital improvement schedule and costs based on the SP Initiatives.
- **Rate Analysis Plan (RAP)** incorporated input from the SP, CIP, and Residuals Management Plan (RMP) and presented a rate plan to provide the necessary revenues to support the NRRWF operations and suitable reserves to support future capital expenses, including closure and post-closure care liabilities. The RAP is to address current and future landfill operations, equipment replacement schedules, compares proposed rates against comparable facilities, and presented a rate schedule for commercial haulers and other facility users.
- **RMP** included approaches that the County should take to address the organics recycling and diversion requirements of SB 1383 and how residuals from the County's septage facility, recycling facilities, leachate management, and other operations will be managed to optimize diversion from disposal. The RMP considered future regulations that may require the construction of new facilities, employing new, emerging technologies.

PROJECT PERFORMANCE

Completed on Time: Yes

Completed on Budget: Yes

PROJECT SCOPE PERFORMED

- ✓ Solid Waste Disposal and Recycling Processes and Resources Evaluation
- ✓ Feasibility Analysis
- ✓ Financial Studies
- ✓ Future Needs Assessment
- ✓ Waste Generation Estimates
- ✓ Recycling Needs Analysis
- ✓ Recycling Legislative Trends
- ✓ Regional Processing Facilities
- ✓ Education & Outreach

PROJECT OUTCOME

With the ongoing changes to regulations on recycling, monitoring, reporting, and material diversion, the SCS Team utilized past experience with Butte County to assess the strengths and weaknesses of the current system in order to identify innovative, but practical, and implementable strategies to optimize the performance of County specific programs and facilities.

Professional Solid Waste Management Engineering Services

Southeastern Public Service Authority | Chesapeake, VA

Client Reference: Dennis Bagley, Deputy Executive Director
Direct: (757) 961-3487, Cell: (757) 295-6990, dbagley@spsa.com

Role: Prime **Project Timeline:** 2022-2026

SCS provides the SPSA a variety of engineering design, permitting (solid waste, stormwater, and air permitting), compliance monitoring and reporting, and solid waste studies support. The Authority operates nine transfer stations, a 151-acre regional landfill, manages contracts for other disposal options for the Authority's member communities (Waste to Energy and offsite contracted disposal).

- **Engineering Design and Permitting.** SCS is providing engineering design and permitting services to modify the designs of its current permitted cells (Cells V, VI, and VII) to optimize the remaining disposal capacity of the landfill. SCS also is providing engineering services to support the expansion of its landfill (Cells XIII and IX) to provide long-term disposal capacity for region through separate Environmental Impact Statement (EIS) contract, modify its Title V air permit to include a leachate evaporator, and assess SPSA remaining disposal capacity on an annual basis.
- **Compliance Monitoring and Reporting.** SCS provides routine groundwater, surface water, and air permitting compliance monitoring and reporting, including periodic regulatory submissions.
- **Solid Waste Planning.** SPSA's contract with Wheelabrator to provide resource recovery services terminates at the end of June 2024. SCS is assisting SPSA to select one or more entities to provide innovative technologies to process municipal solid waste and maximize diversion of waste from its landfill. In addition, SCS recently completed a waste characterization study to assess the characteristics of the municipal solid waste generated from two member Cities, one with a curbside recycling program and the other without.

PROJECT PERFORMANCE

Completed on Time: Yes

Completed on Budget: Yes

PROJECT SCOPE PERFORMED

- ✓ Engineering Design/Permitting
- ✓ Compliance Monitoring and Reporting
- ✓ Solid Waste Disposal and Recycling Processes and Resources Evaluation
- ✓ Feasibility Analysis
- ✓ Financial Studies
- ✓ Future Needs Assessment
- ✓ Waste Generation Estimates
- ✓ Regional Processing Facilities
- ✓ Recycling Benchmarking

PROJECT OUTCOME

SCS is assisting SPSA maximize the remaining capacity of its existing permitted cells and expand its landfill to provide long-term disposal capacity for the next 40 years, and in the process keep its operation in compliance with its municipal solid waste, stormwater, groundwater, and air permits. SCS also is assisting SPSA develop and implement innovative solid waste processing and disposal approaches.

Sustainable Materials Management - Vision for Iowa Planning

Iowa Department of Natural Resources

Client Reference: Tom Anderson, (515) 240-6059, Tom. Anderson@dnr.iowa.govjnantz@pa.gov

Role: Prime **Project Timeline:** 2021-2023

The Iowa Department of Natural Resources (DNR) retained the services of SCS to identify potential strategies to help transition Iowa from its historical focus on end-of-life material management practices (i.e., existing solid waste management policies) towards a more comprehensive SMM approach that seeks to conserve resources, reduce waste, slow climate change, and minimize the environmental impacts of the material we use.

- **Materials and Research.** The SCS team facilitated 30 subcommittee meetings and four stakeholder meetings, as well as monthly project update/strategic planning meetings. During the meetings, the SCS team led meetings, presented research results, and directed strategic planning discussions. The results of these efforts identified four priority material categories (organics and fibers, plastics, construction and demolition, and renewable energy equipment) and developed possible short-, medium-, and long-term strategies for potential implementation.
- **Stakeholders.** Over 100 stakeholders representing a variety of industries, businesses, and material management facilities were identified and recruited to participate in the project.
- **Final Strategies.** The project identified 35 short-term strategies (0-3 years), 27 medium-term strategies (4-10 years), and 9 long-term strategies (11+ years) for consideration. The SCS team prepared and reviewed with the DNR a short-term implementation plan for the four material categories. A key factor of this process was working towards actionable goals to move Iowa closer to an SMM model.

  The final report presented the results of research, subcommittee meetings, input, and discussions of stakeholders representing a diverse cross-section of the State, including local and state government, industry, academics, solid waste/recycling, and non-profit organizations and agencies. The final report incorporated images, graphics, and charts to help convey information and to help make the report an engaging document for readers.

PROJECT PERFORMANCE

Completed on Time: Yes

Completed on Budget: Yes

PROJECT SCOPE PERFORMED

- ✓ Solid Waste Disposal and Recycling Processes and Resources Evaluation
- ✓ Feasibility Analysis
- ✓ Financial Studies
- ✓ Future Needs Assessment
- ✓ Waste Generation Estimates
- ✓ Recycling Needs Analysis
- ✓ Recycling Legislative Trends
- ✓ Regional Processing Facilities
- ✓ Recycling Benchmarking
- ✓ Education & Outreach

PROJECT OUTCOME

The DNR contracted with SCS to establish a clear path to continually develop and build an SMM system over the next 20 years. The SCS Team helped DNR achieve this goal through research and a series of facilitated stakeholder and subcommittee meetings that established SMM priorities, conducted life cycle analyses on select materials, and recommended implementation strategies.

Recycling Technical Assistance

Pennsylvania Department of Environmental Protection

Client Reference: John Nantz, (717) 787-0120, jnantz@pa.gov

Role: Prime **Project Timeline:** 2017-2021

Since 2017, SCS has administered and completed recycling technical assistance projects under the guidance of PA DEP. We assisted 40 local governments during our first contract (2017-2021) improve their recycling and composting programs. Projects include evaluating curbside and drop-off recycling programs; studying the feasibility of collecting and processing food scraps, yard waste, and agricultural wastes; and updating existing recycling policies, contracts, and ordinances to improve their effectiveness.

Communities receiving technical assistance include the following:

- **Armstrong County** – Recycling Center Equipment and Operational Improvements
- **Borough of Bridgeport** – Recycling Ordinance and Education
- **Clinton County Solid Waste Authority** – Review of Public and Education Materials
- **East Lampeter Township** – Yard Waste Management Options Education
- **Franklin Park Borough** – Mitigating Recycling Contamination
- **Greenville** – Commercial and Residential Recycling Improvements
- **Montgomery County Recycling Consortium** – MRF Evaluation, Recycling Market Assessment, Public Education, Procurement Considerations, Single to Dual Stream Collection Analysis, Transfer Station Design
- **North Coventry Township** – Recycling Site Opportunity Study
- **City of Pittsburgh** – Conceptual Design for a Compost and Mulch Facility
- **City of Reading** – Recycling Program Improvements
- **Springfield Township** – Dual Stream Recycling Considerations
- **Upper Dublin Township** – Curbside Food Scraps Collection Program
- **West Grove Borough** – Automating Recyclable Materials Collection
- **Willstown Township** – Solid Waste and Recycling Ordinance

SCS is currently in its second contract with PA DEP and is currently assisting over ten local governments.

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

PROJECT PERFORMANCE

Completed on Time: Yes

Completed on Budget: Yes

PROJECT SCOPE PERFORMED

- ✓ Solid Waste Disposal and Recycling Processes and Resources Evaluation
- ✓ Feasibility Analysis
- ✓ Financial Studies
- ✓ Future Needs Assessment
- ✓ Waste Generation Estimates
- ✓ Recycling Needs Analysis
- ✓ Recycling Legislative Trends
- ✓ Regional Processing Facilities
- ✓ Recycling Benchmarking
- ✓ Education & Outreach

PROJECT OUTCOME

SCS helps the Pennsylvania Department of Environmental recommend best practices for waste diversion programs to local governments throughout the state. SCS provides tailored recommendations for updating recycling ordinances, evaluating and expanding recycling programs, implementing organics management programs, and ways to make existing programs more efficient, both operationally and financially.

Zero Waste Plan and Solid Waste Management Plan

Department of Environmental Services | Arlington County, VA

Client Reference: Bruce M. O'Dell, Jr, Disposal Section Manager, Resource Recover Division, 301.952.7644, bmodell@co.pg.md.us

Role: Prime **Project Timeline:** 2014-2017

Prince George's County partnered with SCS to develop Zero Waste Initiatives the county could pursue to reduce the quantity of waste going to their landfill. To encourage collaboration, county staff and the SCS team identified various groups and individuals interested in the county's actions on zero waste. These stakeholder groups were contacted and interviewed by the SCS team to obtain their input on the programs and policies the county should pursue to achieve zero waste.

- **Waste Characterization.** Over half of MSW and C&D waste generated in the County is recycled; however, the most recent waste characterization study found that about 75 percent of landfilled waste would have been diverted for reuse, recycling, and/or composting.
- **Statewide Goals.** The Maryland Department of the Environment (MDE) established zero waste goals as part of its legislatively mandated Green House Gas Reduction Plan. These goals are to divert 85 percent of the waste stream by 2040.
- **Stakeholder Input.** Using the feedback from groups and input from the County, SCS identified program options for increasing the diversion of materials from key waste generator sectors, including commercial, residential (both single-family and multi-family), and institutional. Opportunities to improve existing programs were identified, as well as new options for increasing diversion and reducing the toxicity of waste in the county.

  Input was gathered from multiple stakeholder groups including the Building Materials Reuse Association, City of Greenbelt, Community Forklift, Community Research, Energy Justice Network, Institute of Local Self-Reliance, Prince George's Sierra Club Group, Town of University Park, Waste Zero, and Zero Waste Prince George's.
- **Environmental Benefits.** Using EPA's Waste Reduction Model (WARM), SCS calculated over 66,000 metric tons of carbon equivalents (MTCE) would be reduced by recycling and/or composting paper, bottles and cans, yard trimmings, and food scraps currently disposed at the landfill.

PROJECT PERFORMANCE

Completed on Time: Yes

Completed on Budget: Yes

PROJECT SCOPE PERFORMED

- ✓ Solid Waste Disposal and Recycling Processes and Resources Evaluation
- ✓ Feasibility Analysis
- ✓ Future Needs Assessment
- ✓ Waste Generation Estimates
- ✓ Recycling Needs Analysis
- ✓ Recycling Legislative Trends
- ✓ Regional Processing Facilities
- ✓ Education & Outreach

PROJECT OUTCOME

SCS worked with Prince George's County staff and stakeholder groups to identify and prioritize initiatives that can reduce the quantity of waste generated and divert waste away from landfill disposal. The final deliverable is the first step to achieving zero waste in the county and identifies opportunities for increased reuse, recycling, and composting. The policies, programs, and services selected by the County for implementation were included in the County's Resource Recovery Plan.

Zero Waste Plan and Solid Waste Management Plan

Department of Environmental Services | Arlington County, VA

Client Reference: Douglas Krietemeyer, Environmental Sustainability Planner, 703.228.0449, Cell: 571.587.4855, dkrietemeyer@arlingtonva.us

Role: Prime **Project Timeline:** 2022-2023

Arlington County has a mature solid waste management system that has exceeded the state's mandatory recycling rate for many years, most recently reporting a waste diversion rate of 52.4 percent. Even so, the County wanted to pursue zero waste strategies to divert 90 percent of its waste stream from landfill and incineration by 2044.

The 2024 solid waste management plan not only details the County's programs and policies to maintain the state mandated diversion rate, but it also includes voluntary program enhancements based on zero waste principles to serve as a roadmap for waste reduction, recycling, and overall solid waste programming activities in Arlington through June 2044.

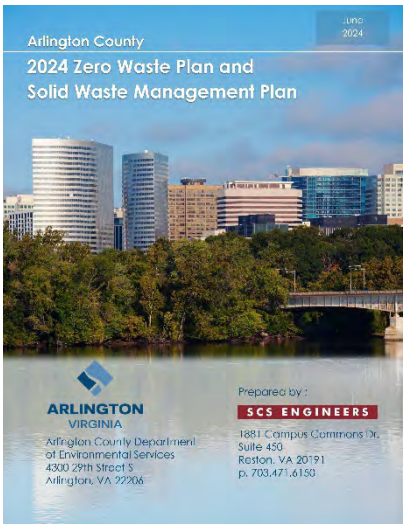
Impacts of the zero waste strategies were assessed as follows:

- **Cost** – The cost impacts are planning level estimates (2022 dollars) using actual cost information provided by the County or estimated cost data based on research or experience from similar types of initiatives.

- **Greenhouse Gas Emission (GHG) Reductions** – GHG reduction estimates were quantified using the U.S. EPA Waste Reduction Model (WARM). Emission reductions (or increases) were calculated and compared to baseline and alternative processing scenarios. This analysis only considers the GHG emissions of managing solid waste as it enters the MSW system. It does not consider the GHG embedded in the production and manufacture of the products.

- **Waste Diversion** – Waste diversion impacts were estimated using recent (2021/2022) waste characterization data. Each strategy was assigned a capture rate based on experiences of other communities that have initiated a similar strategy. Where data was unavailable, waste diversion tonnage estimates reflected outcomes of similar programs implemented by the County to divert waste materials.

SCS presented the zero waste strategies to the Solid Waste Advisory Committee and outlined associated impacts on program cost, greenhouse gas emission reductions, and waste diversion tonnage.



PROJECT PERFORMANCE

Completed on Time: Yes

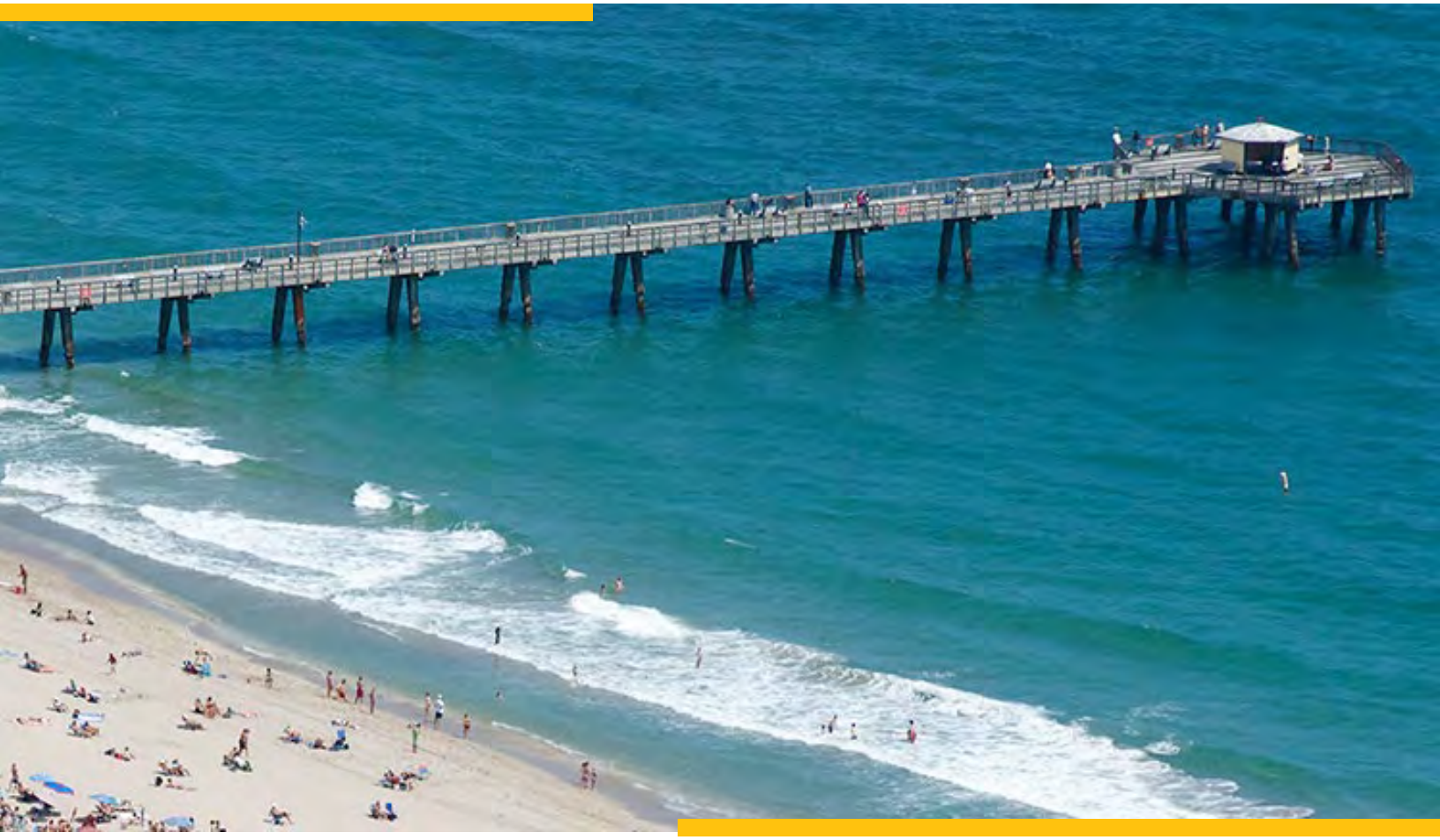
Completed on Budget: Yes

PROJECT SCOPE PERFORMED

- ✓ Solid Waste Disposal and Recycling Processes and Resources Evaluation
- ✓ Feasibility Analysis
- ✓ Financial Studies
- ✓ Future Needs Assessment
- ✓ Waste Generation Estimates
- ✓ Recycling Needs Analysis
- ✓ Recycling Legislative Trends
- ✓ Regional Processing Facilities
- ✓ Education & Outreach

PROJECT OUTCOME

SCS assisted Arlington County meet the requirements of the solid waste planning regulations promulgated by the Virginia DEQ. Concurrently, SCS developed a voluntary zero waste strategic plan in response to the County Board's adopted Zero Waste Resolution. Zero waste strategies and estimated impacts on cost, greenhouse gas emission reductions, and waste diversion were estimated and presented to the Solid Waste Advisory Committee (SWAC) to establish priorities. The final plan incorporated SWAC and public comments and outlined programs.



SCS References

RIGHT
Team ● Schedule ● Solution

SCS ENGINEERS

VENDOR REFERENCE VERIFICATION FORM FOR RFP

[Insert Solicitation No. and Title] Solicitation No. 5942001 Consulting Svs - Preparation of Solid Waste & Recycling Master Plan			
Reference For (hereinafter, "Vendor"):	SCS Engineers		
Reference Date:			
Organization/Firm Providing Reference:	Collier County Solid and Hazardous Waste Management Division		
Contact Name:	Kari Ann Hodgson, P.E.		
Contact Title:	Division Director		
Contact Email:	Kari.Hodgson@colliercountyfl.gov		
Contact Phone:	(239) 252-2504		
Name of Referenced Project:	Long-Term Sustainable Solid Waste Plan		
Contract Number:	18-7432-SW		
Date Range of Services Provided:	Start Date: May 6, 2020	End Date: September 29, 2023	
Project Amount:	$165,247		
Vendor's Role in Project:	☑ Prime	☐ Subconsultant/Subcontractor	
Would you use this Vendor again?	☑ Yes	☐ No	
If you answered no to the question above, please specify below: (attach additional sheet if needed)			
Description of services provided by Vendor, please specify below: (attach additional sheet if needed)			
See attached.			

Please rate your experience with the referenced Vendor via checkbox:	Needs Improvement	Satisfactory	Excellent	Not Applicable
Vendor's Quality of Service:				
Responsive:	☐	☐	☑	☐
Accuracy:	☐	☐	☑	☐
Deliverables:	☐	☐	☑	☐
Vendor's Organization:				
Staff Expertise:	☐	☐	☑	☐
Professionalism:	☐	☐	☑	☐
Turnover:	☐	☐	☑	☐
Timeliness of:				
Project:	☐	☐	☑	☐
Deliverables:	☐	☐	☑	☐
Project completed within budget:	☐	☐	☑	☐
Cooperation with:				
Your Firm:	☐	☐	☑	☐
Subcontractor(s)/Subconsultant(s):	☐	☐	☑	☐
Regulatory Agency(ies):	☐	☐	☑	☐

All information provided to the Authority is subject to verification. Vendor acknowledges that inaccurate, untruthful, or incorrect statements made in support of this response may be used by the Authority as a basis for rejection, rescission of the award, or termination of the contract.

*****THE SECTION BELOW IS FOR AUTHORITY USE ONLY*****

Verified via: ☐ Email ☐ Verbal	Verified by:		Division:	
			Date:	

Long-Term Sustainable Solid Waste Plan (LTSSWP)

The Collier County (County) Solid and Hazardous Waste Management Division (Division) engaged SCS Engineers (SCS) to prepare a Long-Term Sustainable Solid Waste Plan as an update to their Integrated Solid Waste Strategy that was unanimously adopted by the Board of County Commissioners in 2006. The work included:

1. Summarizing the County's current core solid waste management facilities and programs;
2. Documenting the success of the initiatives identified during the last BCC Workshop;
3. Reaffirming the Enduring Guiding Principles that will provide the framework for evaluating future development of the LTSSWP;
4. Identifying and evaluating potential solid waste initiatives and options to meet or exceed the statewide recycling goal based on the following components:
   - Source Reduction, Materials Reuse and Recycling;
   - Diversion;
   - Optimization of Existing Assets and Resources;
   - Partnerships; and
   - Acquisition of Additional Facilities.
5. Benchmarking and preparing fact sheets that reflect potential solid waste initiatives, programs, and facilities that may serve as enhancements to the LTSSWP; and
6. Preparing a presentation identifying the key elements of the recommended Long-Term Sustainable Solid Waste Plan.

Activities included preparing for and facilitating an Integrated Solid Waste Management Strategy Status Update workshop with the County's Project Delivery Team (PDT) to review the activity and principal results since the 2006 Integrated Solid Waste Management Strategy Workshop. Following the workshop, SCS prepared a status summary memorandum that documented progress since 2006 related to the identified solid waste management initiatives, programs, and facilities. In addition, SCS conducted a survey of comparable Florida counties and prepared a "State of Solid Waste Management in Florida" memorandum that captured information including new public and private landfills, landfill capacity, new collection agreements, and new recycling facilities.

SCS also facilitated a solid waste management brainstorming session with the PDT that identified the following strategies:

- Regional Cooperation Opportunities with Public and Private Parties;
- Reconsideration of the Solid Waste Facilities Master Plan;
- Optimization of the Eustis Landfill, Immokalee Landfill, Collier County Landfill, and Resource Recovery Business Park; and
- Operational Structures (e.g., Independent District, Dependent District, Authority, etc.).

Following the brainstorming session, SCS prepared fact sheets that analyzed the technical, financial, and operational feasibility as well a potential landfill capacity (i.e., airspace) savings, estimated carbon emission reductions, and estimated fiscal impacts for each option. While the project has been completed, SCS will be engaged under a separate authorization to support the PDT and lead a workshop with the Board of County Commissioners.

VENDOR REFERENCE VERIFICATION FORM FOR RFP

[Insert Solicitation No. and Title] Solicitation No. 5942001 Consulting Svs - Preparation of Solid Waste & Recycling Master Plan			
Reference For (hereinafter, "Vendor"):	SCS Engineers		
Reference Date:	February 14, 2024		
Organization/Firm Providing Reference:	Manatee County, FL		
Contact Name:	Christian Collins		
Contact Title:	Deputy Director Utilities		
Contact Email:	chris.collins@mymanatee.org		
Contact Phone:	(941) 792-8811, ext. 5275		
Name of Referenced Project:	Solid Waste Disposal Options Analysis		
Contract Number:	21-TA003767SAM		
Date Range of Services Provided:	Start Date: April 5, 2023	End Date: August 14, 2023	
Project Amount:	$72,363		
Vendor's Role in Project:	☑ Prime	☐ Subconsultant/Subcontractor	
Would you use this Vendor again?	☑ Yes	☐ No	
If you answered no to the question above, please specify below: (attach additional sheet if needed)			
Description of services provided by Vendor, please specify below: (attach additional sheet if needed)			
See attached.			

Please rate your experience with the referenced Vendor via checkbox:	Needs Improvement	Satisfactory	Excellent	Not Applicable
Vendor's Quality of Service:				
Responsive:	☐	☐	☑	☐
Accuracy:	☐	☐	☑	☐
Deliverables:	☐	☐	☑	☐
Vendor's Organization:				
Staff Expertise:	☐	☐	☑	☐
Professionalism:	☐	☐	☑	☐
Turnover:	☐	☐	☑	☐
Timeliness of:				
Project:	☐	☐	☑	☐
Deliverables:	☐	☐	☑	☐
Project completed within budget:	☐	☐	☑	☐
Cooperation with:				
Your Firm:	☐	☐	☑	☐
Subcontractor(s)/Subconsultant(s):	☐	☐	☑	☐
Regulatory Agency(ies):	☐	☐	☑	☐

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Verified via: ☐ Email ☐ Verbal	Verified by:		Division:	
			Date:	

Solid Waste Disposal Options Analysis

The Manatee County Solid Waste Division (County) operates the Class I Lena Road Landfill (Landfill), which is estimated to have less than 20 years of remaining disposal capacity. SCS Engineers (SCS) was engaged to evaluate solid waste disposal options, prepare technical memoranda for each option, and support the presentation of options to the County's Board of County Commissioners (Board). This reference relates to the evaluation of solid waste management alternatives to landfilling within the County. These options include conversion technology (transforming waste materials to useable energy), transferring waste out-of-county to a non-County owned disposal facility, or for the County to purchase or partner, and develop a landfill or enter into a disposal partnership outside of the County boundaries.

Initially, SCS analyzed the future disposal needs of the County for the next 50 years beyond the life of the Landfill. SCS evaluated the County's future waste streams using current waste generation rates, population growth, and economic and development initiatives. Using the current and future disposal needs, SCS conducted a conversion technology assessment that assessed the universe of available technologies, which were characterized as commercially proven, emerging, or developing and included a discussion of the benefits and challenges of each technology, footprint needed, capital expenditures for development, and an estimated timeline from siting to start up. SCS prepared a technical memorandum that summarized the data, analysis, findings, and recommendations for County review and policy direction. SCS also explored options dispose of waste out of County. SCS assessed the long-term waste transfer options using a customized model to evaluate the financial feasibility of possible alternatives. SCS' analysis considered factors such as the cost of current operations, the cost of transfer station construction, ongoing costs of onsite transfer station operations and staffing, alternative disposal facility tipping fees, distance to alternative disposal facilities, and the cost to transfer waste to disposal facilities. SCS also considered the impact of potential fees that could be charged before it would result in Landfill customers transporting their waste directly to the alternative disposal facilities. SCS prepared a technical memorandum that summarized the data, analysis, findings, and presented the recommendations for County review and direction. Lastly, SCS conducted a desktop review of out-of-county disposal scenarios that may be advantageous to the County and identified examples of regional municipal and municipal/private solid waste disposal partnerships in Florida. The work was presented to the Board, which resulted in the policy direction to optimize the Landfill for future disposal capacity, which was determined to be the best value alternative.

VENDOR REFERENCE VERIFICATION FORM FOR RFP

[Insert Solicitation No. and Title] Solicitation No. 5942001 Consulting Svs - Preparation of Solid Waste & Recycling Master Plan			
Reference For (hereinafter, "Vendor"):	SCS Engineers		
Reference Date:	February 13, 2024		
Organization/Firm Providing Reference:	Yakima County Solid Waste		
Contact Name:	Karma Suchan		
Contact Title:	Solid Waste Manager		
Contact Email:	karma.suchan@co.yakima.wa.us		
Contact Phone:	509-574-2455		
Name of Referenced Project:	Rate Study as part of Solid Waste Management Plan		
Contract Number:	034-2021		
Date Range of Services Provided:	Start Date: 02/23/2021	End Date: 07/03/2023	
Project Amount:	$68,200 for Rate Study portion		
Vendor's Role in Project:	☑ Prime	☐ Subconsultant/Subcontractor	
Would you use this Vendor again?	☑ Yes	☐ No	
If you answered no to the question above, please specify below: (attach additional sheet if needed)			
Description of services provided by Vendor, please specify below: (attach additional sheet if needed)			
Provided us a complete overview with interactive modeling that identified rates, fees, projected cash flows, impacts from capital projects,			

Please rate your experience with the referenced Vendor via checkbox:	Needs Improvement	Satisfactory	Excellent	Not Applicable
Vendor's Quality of Service:				
Responsive:	☐	☐	☑	☐
Accuracy:	☐	☐	☑	☐
Deliverables:	☐	☐	☑	☐
Vendor's Organization:				
Staff Expertise:	☐	☐	☑	☐
Professionalism:	☐	☐	☑	☐
Turnover:	☐	☐	☑	☐
Timeliness of:				
Project:	☐	☐	☑	☐
Deliverables:	☐	☐	☑	☐
Project completed within budget:	☐	☐	☑	☐
Cooperation with:				
Your Firm:	☐	☐	☑	☐
Subcontractor(s)/Subconsultant(s):	☐	☐	☐	☑
Regulatory Agency(ies):	☐	☐	☑	☐

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			Date:	

VENDOR REFERENCE VERIFICATION FORM FOR RFP

[Insert Solicitation No. and Title] Solicitation No. 5942001 Consulting Svs - Preparation of Solid Waste & Recycling Master Plan			
Reference For (hereinafter, "Vendor"):	SCS Engineers		
Reference Date:	2/13/2024		
Organization/Firm Providing Reference:	Butte County Public Works Neal Road Recycling and Waste Facility		
Contact Name:	Neal Road Recycling and Waste Facility Master Plan		
Contact Title:	Neal Road Recycling and Waste Facility Master Plan		
Contact Email:	ccissell@buttecounty.net		
Contact Phone:	(530) 552-5687		
Name of Referenced Project:	Neal Road Recycling and Waste Facility Master Plan		
Contract Number:	X90685		
Date Range of Services Provided:	Start Date: 01/27/22	End Date: 08/08/24	
Project Amount:	$328,757.00		
Vendor's Role in Project:	☑ Prime	☐ Subconsultant/Subcontractor	
Would you use this Vendor again?	☑ Yes	☐ No	
If you answered no to the question above, please specify below: (attach additional sheet if needed)			
Description of services provided by Vendor, please specify below: (attach additional sheet if needed)			
See Attached			

Please rate your experience with the referenced Vendor via checkbox:	Needs Improvement	Satisfactory	Excellent	Not Applicable
Vendor's Quality of Service:				
Responsive:	☐	☑	☐	☐
Accuracy:	☐	☑	☐	☐
Deliverables:	☐	☐	☑	☐
Vendor's Organization:				
Staff Expertise:	☐	☑	☐	☐
Professionalism:	☐	☑	☐	☐
Turnover:	☐	☐	☐	☐
Timeliness of:				
Project:	☐	☑	☐	☐
Deliverables:	☐	☑	☐	☐
Project completed within budget:	☐	☐	☑	☐
Cooperation with:				
Your Firm:	☐	☑	☐	☐
Subcontractor(s)/Subconsultant(s):	☐	☑	☐	☐
Regulatory Agency(ies):	☐	☑	☐	☐

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			Date:	

ATTACHMENT III
Scope of Work

Unless indicated otherwise herein, the CONTRACTOR shall furnish all labor, materials, transportation, supervision and management and pay all taxes required to complete the project described below:

Duties and obligations of the CONTRACTOR:

The following scope of services addresses the requirements outlined in the County's Request for Qualifications dated August 27, 2021, and in discussions with COUNTY staff to develop a new Master Plan for the Neal Road Recycling and Waste Facility (NRRWF).

TASK 1 – Kickoff Meeting

A virtual kickoff meeting will be held with the CONTRACTOR's project team and COUNTY staff. The kickoff meeting will introduce the key project team members, review and discuss the scope of services and schedule, establish communication and project management protocols, confirm deliverables, and review information needs for the project. CONTRACTOR will prepare a memorandum summarizing the discussions from the meeting.

TASK 2 – Review Background Documents

CONTRACTOR will prepare an initial data/information request and submit this to the COUNTY prior to the kickoff meeting. A preliminary data/information request list is provided below:

a. Previous master plan.
b. Landfill permits (solid waste, air, stormwater, groundwater, etc.).
c. Landfill sequencing plans.
d. Facility information, capacities, throughput for the landfill, resource recovery, vegetation, and septage handling and disposal facilities.
e. Solid waste, recycling, organic waste (vegetative and food waste), and recycling quantities (historical, current, and projected).
f. Historical (last five years) and operational and capital expenditures.
g. Current capital improvement plan.
h. Previous consultant reports, e.g., landfill site investigations (geotechnical, hydrogeological, wetlands, engineering, CEQA, etc.
i. Previous technology evaluations and reports.
j. Historical Board reports relating to solid waste operations (last 10 years).
k. Landfill information, including permitted airspace, consumed airspace, remaining permitted airspace, and deemed expansion airspace.
l. Achieved air space utilization factor (AUF).
m. Soil balance assessment of the site.
n. Cover practices, sources, and costs.
o. Reserve funds and balances.
p. Closure and post-closure care estimates (most recent).
q. Financial assurance mechanism used by Butte County.
r. Most recent topographic map of the site.
s. Operational budget for the NRRWF, including projected capital expenditures.
t. Solid waste asset list.
u. Maintenance data base for equipment.
v. Scale records, with waste types.

CONTRACTOR will compile and review the information provided by the COUNTY, which will serve as the foundation for the development of the Master Plan, which includes Summary Report,

VENDOR REFERENCE VERIFICATION FORM FOR RFP

[Insert Solicitation No. and Title] Solicitation No. 5942001 Consulting Svs - Preparation of Solid Waste & Recycling Master Plan			
Reference For (hereinafter, "Vendor"):	SCS Engineers		
Reference Date:	2/15/2024		
Organization/Firm Providing Reference:	Southeastern Public Service Authority (SPSA)		
Contact Name:	Dennis Bagley		
Contact Title:	Executive Director		
Contact Email:	dbagley@spsa.com		
Contact Phone:	757-295-6990		
Name of Referenced Project:	Solid Waste System Engineering, Permitting, Compliance, and Planning		
Contract Number:			
Date Range of Services Provided:	Start Date: 7/2022	End Date: 12/2026	
Project Amount:	Varies, ongoing consulting services: 2022-$142,000 2023 - $802,000		
Vendor's Role in Project:	☑ Prime	☐ Subconsultant/Subcontractor	
Would you use this Vendor again?	☑ Yes	☐ No	
If you answered no to the question above, please specify below: (attach additional sheet if needed)			
Description of services provided by Vendor, please specify below: (attach additional sheet if needed)			
Engineering design, permitting, compliance monitoring and reporting, construction quality assurance, solid waste studies			

Please rate your experience with the referenced Vendor via checkbox:	Needs Improvement	Satisfactory	Excellent	Not Applicable
Vendor's Quality of Service:				
Responsive:	☐	☐	☑	☐
Accuracy:	☐	☐	☑	☐
Deliverables:	☐	☑	☐	☐
Vendor's Organization:				
Staff Expertise:	☐	☐	☑	☐
Professionalism:	☐	☐	☑	☐
Turnover:	☐	☐	☑	☐
Timeliness of:				
Project:	☐	☑	☐	☐
Deliverables:	☐	☐	☐	☐
Project completed within budget:	☐	☐	☑	☐
Cooperation with:				
Your Firm:	☐	☐	☑	☐
Subcontractor(s)/Subconsultant(s):	☐	☐	☑	☐
Regulatory Agency(ies):	☐	☐	☑	☐

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			Date:	

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[Insert Solicitation No. and Title] Solicitation No. 5942001 Consulting Svs - Preparation of Solid Waste & Recycling Master Plan			
Reference For (hereinafter, "Vendor"):	SCS Engineers		
Reference Date:	February 15, 2024		
Organization/Firm Providing Reference:	Iowa Department of Natural Resourses		
Contact Name:	Tom Anderson		
Contact Title:	Executive Officer II		
Contact Email:	Tom. Anderson@dnr.iowa.gov		
Contact Phone:	515-240-6059		
Name of Referenced Project:	Transitioning to a Sustainable Materials State		
Contract Number:	21ESDLQBTANDE-0001		
Date Range of Services Provided:	Start Date: October 26, 2020	End Date: August 30, 2024	
Project Amount:	$429,750		
Vendor's Role in Project:	☑ Prime	☐ Subconsultant/Subcontractor	
Would you use this Vendor again?	☑ Yes	☐ No	
If you answered no to the question above, please specify below: (attach additional sheet if needed)			
Description of services provided by Vendor, please specify below: (attach additional sheet if needed)			
Research and facilitation of multiple stakeholder subcommittee meetings to establish SMM priorities, conduct life cycle analyses to gauge public health and environmental impacts, and recommend strategies to implement SMM policies, programs, facilities, & funding.			

Please rate your experience with the referenced Vendor via checkbox:	Needs Improvement	Satisfactory	Excellent	Not Applicable
Vendor's Quality of Service:				
Responsive:	☐	☐	☑	☐
Accuracy:	☐	☐	☑	☐
Deliverables:	☐	☐	☑	☐
Vendor's Organization:				
Staff Expertise:	☐	☐	☑	☐
Professionalism:	☐	☐	☑	☐
Turnover:	☐	☐	☐	☑
Timeliness of:				
Project:	☐	☐	☑	☐
Deliverables:	☐	☐	☑	☐
Project completed within budget:	☐	☐	☑	☐
Cooperation with:				
Your Firm:	☐	☐	☑	☐
Subcontractor(s)/Subconsultant(s):	☐	☐	☑	☐
Regulatory Agency(ies):	☐	☐	☑	☐

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[Insert Solicitation No. and Title] Solicitation No. 5942001 Consulting Svs - Preparation of Solid Waste & Recycling Master Plan			
Reference For (hereinafter, "Vendor"):	SCS Engineers		
Reference Date:	February 20, 2024		
Organization/Firm Providing Reference:	PA DEP - Bureau of Waste Management, Waste Minimization		
Contact Name:	John Nantz		
Contact Title:	Program Analyst		
Contact Email:	jnantz@pa.gov		
Contact Phone:	717-787-0120		
Name of Referenced Project:	Recycling Technical Assistance Training Program		
Contract Number:	PO No. 4300754381 (4)1-year renewals remain		
Date Range of Services Provided:	Start Date: 07/01/2023	End Date: 06/30/2024	
Project Amount:	$232,500		
Vendor's Role in Project:	☑ Prime	☐ Subconsultant/Subcontractor	
Would you use this Vendor again?	☑ Yes	☐ No	
If you answered no to the question above, please specify below: (attach additional sheet if needed)			
Description of services provided by Vendor, please specify below: (attach additional sheet if needed)			
Provide recycling technical assistance to county and municpalities in Pennsylvania wishing to start up or enhance recycling programs.			
Each project is limited to $7,500 worth of consulting services.			

Please rate your experience with the referenced Vendor via checkbox:	Needs Improvement	Satisfactory	Excellent	Not Applicable
Vendor's Quality of Service:				
Responsive:	☐	☐	☑	☐
Accuracy:	☐	☐	☑	☐
Deliverables:	☐	☐	☑	☐
Vendor's Organization:				
Staff Expertise:	☐	☐	☑	☐
Professionalism:	☐	☐	☑	☐
Turnover:	☐	☐	☐	☑
Timeliness of:				
Project:	☐	☐	☑	☐
Deliverables:	☐	☐	☑	☐
Project completed within budget:	☐	☐	☑	☐
Cooperation with:				
Your Firm:	☐	☐	☑	☐
Subcontractor(s)/Subconsultant(s):	☐	☐	☑	☐
Regulatory Agency(ies):	☐	☐	☑	☐

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			Date:	

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[Insert Solicitation No. and Title] Solicitation No. 5942001 Consulting Svs - Preparation of Solid Waste & Recycling Master Plan			
Reference For (hereinafter, "Vendor"):	SCS Engineers		
Reference Date:	2/15/2024		
Organization/Firm Providing Reference:	Prince George's County Government, Resource Recovery Division		
Contact Name:	Bruce M. O'Dell, Jr.		
Contact Title:	Disposal Section Manager		
Contact Email:	bmodell@co.pg.md.us		
Contact Phone:	office) 301-952-7644; cell) 240-508-9685		
Name of Referenced Project:	Zero Waste Initiatives Plan, Waste Characterization Study		
Contract Number:	Contract S00-113 - Task Order No. S00-113-SCS121-0916		
Date Range of Services Provided:	Start Date: Sep 2014	End Date: Dec 2017	
Project Amount:	$124,000 for Zero Waste Initiatives Plan		
Vendor's Role in Project:	☑ Prime	☐ Subconsultant/Subcontractor	
Would you use this Vendor again?	☑ Yes	☐ No	

If you answered no to the question above, please specify below: (attach additional sheet if needed)

N/A

Description of services provided by Vendor, please specify below: (attach additional sheet if needed)

Zero Waste Initiatives Plan, Waste Characterization Study, Ongoing Landfill Gas-to-Energy System

Please rate your experience with the referenced Vendor via checkbox:	Needs Improvement	Satisfactory	Excellent	Not Applicable
Vendor's Quality of Service:				
Responsive:	☐	☐	✓	☐
Accuracy:	☐	☐	✓	☐
Deliverables:	☐	☐	✓	☐
Vendor's Organization:				
Staff Expertise:	☐	☐	✓	☐
Professionalism:	☐	☐	✓	☐
Turnover:	☐	☐	✓	☐
Timeliness of:				
Project:	☐	☐	✓	☐
Deliverables:	☐	☐	✓	☐
Project completed within budget:	☐	☐	✓	☐
Cooperation with:				
Your Firm:	☐	☐	✓	☐
Subcontractor(s)/Subconsultant(s):	☐	☐	✓	☐
Regulatory Agency(ies):	☐	☐	✓	☐

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			Date:	

VENDOR REFERENCE VERIFICATION FORM FOR RFP

[Insert Solicitation No. and Title] Solicitation No. 5942001 Consulting Svs - Preparation of Solid Waste & Recycling Master Plan			
Reference For (hereinafter, "Vendor"):	SCS Engineers		
Reference Date:	February 20, 2024		
Organization/Firm Providing Reference:	Arlington County VA Department of Environmental Service		
Contact Name:	Douglas Krietemeyer		
Contact Title:	Environmental Sustainability Planner		
Contact Email:	dkrietemeyer@arlingtonva.us		
Contact Phone:	703-2298-0443		
Name of Referenced Project:	Arlington County Solid Waste Management Plan and Zero Waste Plan		
Contract Number:	22-DES-R-646		
Date Range of Services Provided:	Start Date: 3/14/2022	End Date: 12/31/2023	
Project Amount:	$179,832.50		
Vendor's Role in Project:	☑ Prime	☐ Subconsultant/Subcontractor	
Would you use this Vendor again?	☑ Yes	☐ No	
If you answered no to the question above, please specify below: (attach additional sheet if needed)			
Description of services provided by Vendor, please specify below: (attach additional sheet if needed)			
Identification of zero waste programs and policies with associated implementation cost, greenhouse gas savings, and diversion rate.			
Presentations to SWAC. Development of a Solid Waste Management Plan and Voluntary Zero Waste Programs for 2024-2044.			

Please rate your experience with the referenced Vendor via checkbox:	Needs Improvement	Satisfactory	Excellent	Not Applicable
Vendor's Quality of Service:				
Responsive:	☐	☐	☑	☐
Accuracy:	☐	☑	☐	☐
Deliverables:	☐	☑	☐	☐
Vendor's Organization:				
Staff Expertise:	☐	☑	☐	☐
Professionalism:	☐	☐	☑	☐
Turnover:	☐	☑	☐	☐
Timeliness of:				
Project:	☐	☑	☐	☐
Deliverables:	☐	☑	☐	☐
Project completed within budget:	☐	☐	☑	☐
Cooperation with:				
Your Firm:	☐	☐	☑	☐
Subcontractor(s)/Subconsultant(s):	☐	☐	☐	☑
Regulatory Agency(ies):	☐	☑	☐	☐

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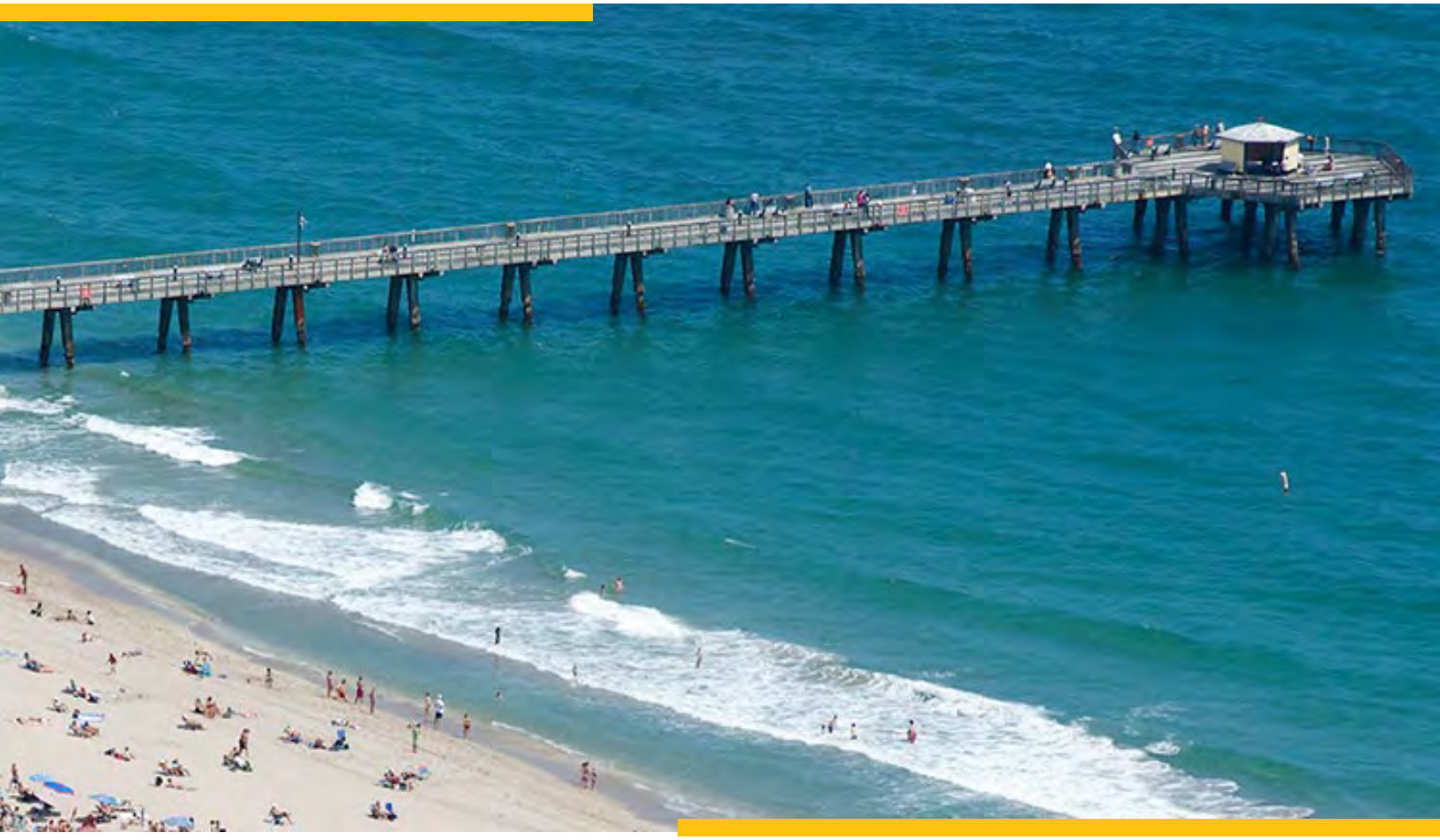
			Date:	



ARCADIS **Projects**

RIGHT

Team ● Schedule ● Solution

SCS ENGINEERS

Solid Waste Management Program

Broward County | FL

Client Reference: Notosha Austin, Interim Director, (954) 474-1880, NAUSTIN@broward.org

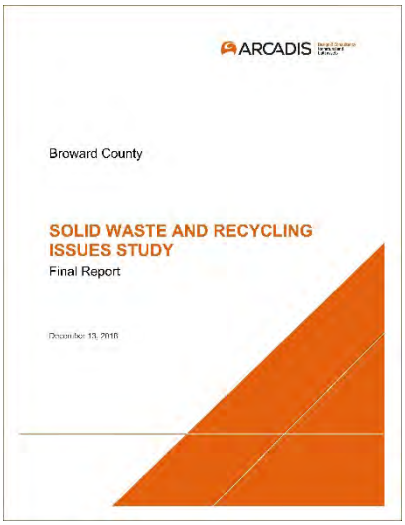
Role: Prime **Project Timeline:** 1990-2019

Solid Waste and Recycling Issues Study. Most recently, Arcadis conducted the Solid Waste and Recycling Issues Study to provide Broward County and the Solid Waste Working Group (Working Group) with the information necessary to make decisions regarding the future of solid waste management. The goal of the study was to determine how Broward County can attain the State-wide 75% recycling goal, confirm if retaining public ownership of a collectively owned land parcel (the Alpha 250 Site) would facilitate meeting the 75% recycling goal, as well as evaluate and recommend potential governance structures that could be implemented to provide for the collaborative management of solid waste within the County.

To answer these questions, Arcadis, along with our subconsultants, estimated the composition of solid waste currently disposed, recycled, and generated in Broward County to identify the types and quantities of materials currently disposed that could potentially be reduced through various waste reduction or recycling programs. Then, population and solid waste quantity projections were developed through 2060 to estimate the quantity of waste generated during the long-term planning period.

Based on this data, it was determined that six solid waste processing and disposal facilities were needed to attain the 75% recycling goal. Conceptual level cost estimates for the construction of the six recommended facilities were developed, as well as an evaluation of the Alpha 250 Site to determine if it should be retained in public ownership. Solid waste flow control options as well as governance, and future facility ownership scenarios were also assessed. Preliminary findings were presented to the County and Working Group and a final study report was prepared to document the findings and recommendations.

Solid Waste Visioning Process (Trash Summit). Broward County, like many communities, reached a critical turning point in which the management of their solid waste – that was handled through a dependent district structure where municipal solid waste was sent to the two 2250 tpd Resource Recovery Facilities – required stakeholder alignment and business/financial analyses to determine the next generation of solid waste management. In support of the County, Arcadis facilitated a "Trash Summit" to bring city managers, mayors, and other key stakeholders together to review the past, present, and potential future scenarios for the District. The program developed a commonality of purpose among stakeholders, and a structure for



PROJECT PERFORMANCE

Completed on Time: Yes

Completed on Budget: Yes

PROJECT SCOPE PERFORMED

- ✓ Solid Waste Disposal and Recycling Processes and Resources Evaluation
- ✓ Feasibility Analysis
- ✓ Financial Studies
- ✓ Future Needs Assessment
- ✓ Waste Generation Estimates
- ✓ Recycling Needs Analysis
- ✓ Regional Processing Facilities
- ✓ Recycling Benchmarking
- ✓ Education & Outreach

PROJECT OUTCOME

Over three decades of planning and engineering services supporting Broward County, Resource Recovery Board, and Solid Waste Working Group, from the planning, development and implementation of the original Resource Recovery System, to preparing for the future of the new Solid Waste Disposal and Recyclable Materials Processing Authority.

communication with scheduled milestones to serve as the ultimate deadlines of existing facility operations and permits.

In order to move forward with the implementation of a new solid waste management program, County staff had to determine what solid waste disposal and management technologies were available in the market place. As such, Arcadis and County staff developed a Request for Expression of Interest (RFEI) that was advertised at the local, national and international level, to determine what solid waste management options were available to the County. At the end of the RFEI process, the County was presented with twenty-seven Expressions of Interest (EOI) and several potential solid waste management options. However, before moving forward with selecting any potential option, County staff needed to confirm if all, some, or none of the ILA Cities would move forward with executing a new ILA for continued solid waste management coordination at the County level.

To assist the County with determining this information, Arcadis staff developed a Needs Assessment Survey that was issued to ILA and non-ILA City Managers or Assistant City Managers in order to gauge their satisfaction with the current solid waste management system, their likes and dislikes, as well as the likelihood that their City would agree to be party to a new ILA, after the expiration of the existing ILA in 2013. Arcadis assisted County staff in the development of Survey questions, coordinated the dissemination of the Survey to the ILA and non-ILA City Managers or their proxy, compiled the collected data and summarized the findings to County staff. The results of the Survey indicated that the majority of ILA Cities would be willing to execute a new ILA; however, changes had to be made to the structure of the document and level of service.

In order to determine what ILA Cities wanted in the new ILA, Arcadis assisted the County with the development and implementation of a Strategic Planning Process, in order to determine the Core Values and Mission of the County's Solid Waste Management System past 2013. The Strategic Planning Process included four facilitated workshops to determine: the form of governance and management for the new ILA; the types of solid waste management services and associated processing and/or disposal technologies that would be provided; how the implementation of the proposed governance, management, and processing/disposal technologies would occur; and overview of the strawman ILA document developed as part of the decisions made in the previous workshops.

Solid Waste Management Program Support. During our two-decade tenure as the County's Consulting Engineer, Arcadis supported the County with a wide range of solid waste initiatives, such as the following:

- Recycling Program Development and Implementation
- Materials Recycling Facility Evaluation
- Materials Recycling Facility Relocation

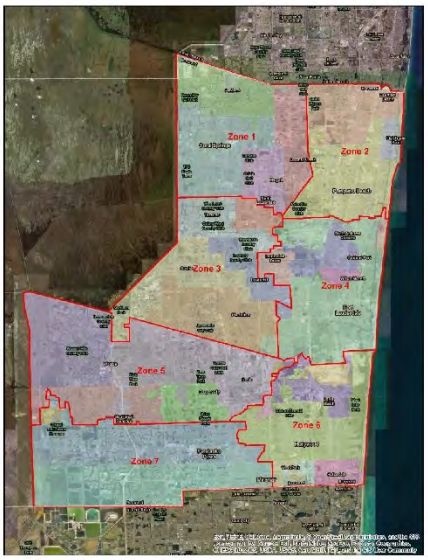
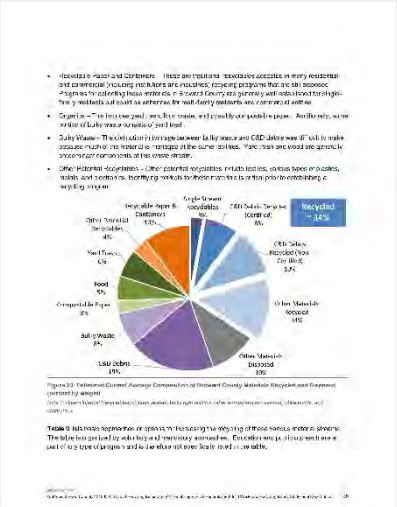
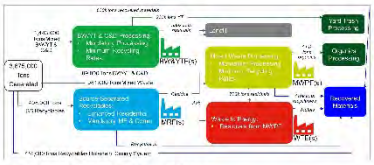
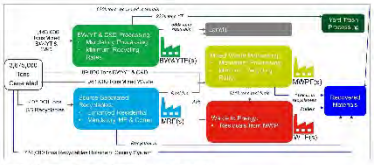


Figure 30: Geographic Zone Boundaries



- Materials Recycling Facility Residue Composition Analysis
- Materials Recycling Facility Paper Composition Analysis
- Metals Processing Facility Feasibility Study
- Recycled Glass/Beach
- Renourishment Demonstration Project
- Waste Composition Study
- Technical Advisory Committee Assistance
- Resource Recovery Board Assistance
- Landfill Gas Evaluation
- Ash Monofill Life Expectancy Evaluation, Expansion Design, and Construction Oversight
- Miscellaneous Landfill Improvements and Leachate





Owners Agent Services. (Feasibility Analysis, Future Needs Assessment, Regional Processing Facilities, Waste Generation Estimates). Arcadis lead a project team in a ten-year program to develop a solid waste management program for Broward County. This complex project – which was awarded the Grand Conceptor Award for Engineering Excellence by the Florida Institute of Consulting Engineers – includes the world's largest resource recovery project: two mass burn resource recovery facilities, ash residue and contingency landfills, and precedent-setting wetland mitigation efforts. The $700 million project marked the first simultaneous construction of two resource recovery facilities, with a combined capacity of 4,500 tons per day (tpd). The generated electricity – which was enough to power 125,000 area homes – was sold to Florida Power & Light, off setting a portion of the operating costs.

A 20-acre ash monofill and contingency landfill was also constructed. Resource recovery and landfilling were also complemented by recycling programs in the County's 28 municipalities. Tasks included:

- Analyzed/quantified solid waste generation.
- Evaluated/selected resource recovery technologies.
- Evaluated more than 100 potential sites, and implemented the three most appropriate.
- Assisted in obtaining environmental permits, which included preparation of conceptual designs, operating plans, and environmental impacts.
- Evaluated/selected program alternatives, which included energy markets, financing approach, institutional arrangements, and cost/benefit analyses.
- Developed the RFQ/RFP, evaluated respondent proposals, and negotiated vendor contracts, including technical specifications and performance guarantees.
- Assisted with the negotiation of power purchase and water supply needs.
- Developed the Engineer's feasibility report.

- Conducted an environmental analysis, which included air, water, noise, odor, and traffic impacts.
- Conducted technical and economic feasibility studies.
- Assisted with the development of the wetland mitigation plans as well as provided construction management of the wetland mitigation construction effort and monitored wetland mitigation areas quarterly to confirm permitting conditions were being met.
- Provided construction management services as well as monitored the acceptance testing of the facilities.
- Provided operations monitoring services for Broward South and North.

Operations Monitoring. Arcadis served as the Consulting Engineer for the Broward County Solid Waste and Resource Recovery program for nearly 20 years, which consists of an integrated solid waste management program utilizing waste-to-energy, materials recycling and landfilling. During our tenure with the County, Arcadis monitored operations of both resource recovery facilities as well as their materials recycling facility and ash monofill. Services provided included the following:

- Reviewed facility operating data including daily tonnage/ performance reports, scale-house summaries, CEMS data, and outage reports.
- Reviewed environmental testing results including stack testing, groundwater monitoring, and ash analyses.
- Conducted major equipment inspections during outages.
- Prepared operations monitoring reports summarizing observations made during monthly inspections.
- Prepared semi-annual and annual reports documenting the observations made during the previous reporting period with respect to equipment condition, adherence to contractual requirements and industry standards, permit compliance, and general operating trends.
- Attended monthly operations meetings.
- Reviewed and assessed the potential technical impact of changes in federal, state, and local laws and regulations.
- Represented the County with respect to any change orders/ claims and arbitration.
- Reviewed plans and drawings provided by vendors in reference to planned modifications at the facilities or to any County-owned solid waste management facility.

Arcadis also provided a wide variety of other miscellaneous solid waste management program support, including landfill design services, wetland mitigation monitoring, permitting support, and construction phase services.

Recycling Program. Arcadis also assisted in developing and implementing an integrated recycling system to complement the resource recovery program. We provided draft mail and phone surveys to assist in determining material markets, collection data, existing recycling programs, and public opinions.

Metals Processing Facility. Seeking ways to extend the life of the ash monofill, Arcadis assisted the County in evaluating the feasibility of implementing a metals recovery system at the Wheelabrator South Broward Facility. Our efforts included estimating metals recovery rates and associated volume savings for several different processing options, developing a computer spreadsheet model to evaluate the net present value of various options, presented the analyses to various stakeholder groups, drafted metals recovery testing protocol, and ultimate design review and construction management services during installation and startup of the new system.

Waste Composition Study. Arcadis conducted a multi-season waste-sorting composition study at the landfill and waste to-energy facilities in order to develop and implement strategies for managing waste in Broward County. The study characterized over 1.5 million tons of municipal solid waste generated in Broward County. Valid data for residential, industrial, commercial, and institutional generator types were collected.

Miami-Dade County Solid Waste Bond Engineer Services & Zero Waste Facilities Siting Alternatives

Miami-Dade County Department of Solid Waste Management| Miami, FL

Client Reference: Mr. Achaya Kelapanda, P.E., (305) 514-6687, achaya.kelapanda@miamidade.gov

Role: Prime **Project Timeline:** April – August 2023

Since 2007, Arcadis has served as the Bond Engineer for the Miami-Dade County Department of Solid Waste Management (DSWM), providing operational and technical support, financial analyses and many other services to support the County's Solid Waste System. Recent relevant Bond Engineer projects completed for the County include:

Preliminary Solid Waste System Siting Alternatives Report

In 2022, under an expedited timeframe, Arcadis conducted a review of the entire County to identify potential locations for the siting of a new Waste to Energy Facility. As part of this analysis, Arcadis screened the entire County and shortlisted 25 sites for detailed analysis of factors relevant to the siting and permitting of such a facility and ultimately narrowed the options down to four potential sites for further consideration. As part of this effort, Arcadis also prepared a State of the Industry Update letter report to the Department summarizing the latest commercially available processing technologies employed in the solid waste industry which may be suitable for handling the County's municipal solid waste stream.

Subsequently, the BCC requested that additional analysis and information on four sites to include more detailed analysis of environmental, traffic, and public health effects, and additionally considering alternative technologies and facilities that could be developed at the sites that may be needed to implement a Zero Waste management strategy within the County. Such considerations included the following:

- The County's solid waste stream annual tonnage and composition, and existing County Solid Waste System facilities and operations.
- Zero Waste concepts, goals, strategies, and implementation timelines.
- Additional County solid waste programs, operations, and equipment needed for a Zero Waste management strategy.
- Management processing technologies and facilities that are currently in commercial use (minimum of 200 tons per day) and may be needed to implement a Zero Waste management strategy in Miami-Dade County, including high-level cost estimates based on available data from U.S. cities with similar strategies. Facilities and technologies reviewed included the following:

PROJECT PERFORMANCE

Completed on Time: Yes

Completed on Budget: Yes

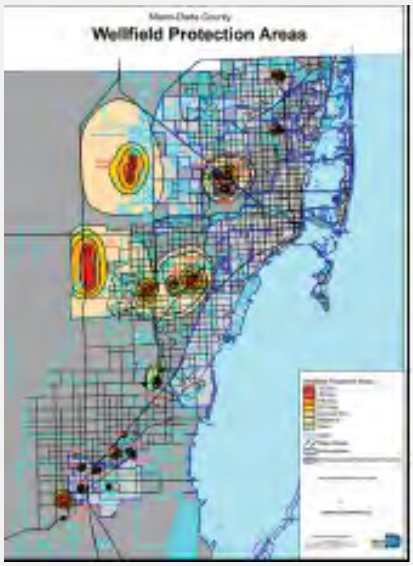
PROJECT SCOPE PERFORMED

- ✓ Solid Waste Disposal and Recycling Processes and Resources Evaluation
- ✓ Feasibility Analysis
- ✓ Financial Studies
- ✓ Future Needs Assessment
- ✓ Waste Generation Estimates
- ✓ Recycling Needs Analysis
- ✓ Recycling Legislative Trends
- ✓ Regional Processing Facilities
- ✓ Recycling Benchmarking
- ✓ Education & Outreach

PROJECT OUTCOME

- Mixed Waste Processing
- Anaerobic Digestion
- Composting (multiple types)
- Gasification
- Mechanical/Biological Treatment
- Material Recovery Facility
- C&D Recycling

In addition, Arcadis has supported the Department with the following projects over our 20+ year history as Bond Engineer.



Appropriateness of Rates and Charges

Arcadis prepares an annual financial assessment of the appropriateness of rates and charges (including the renewal and replacement budget) for each Fiscal Year. The scope of services of the financial assessment of the appropriateness of rates and charges satisfies specific requirements as described within DSWM's Bond Ordinance, Section 508 and, thus, is a vital analysis that the Bond Engineer performs.

Annual Solid Waste System Report

As required by Master Bond Ordinance Sections 05-27 and 96- 168, Arcadis prepares each Fiscal Year's Annual Solid Waste System Report to document the physical and operational condition of system assets and conformance with the terms, conditions, and covenants of the Bonds. As part of this effort, Arcadis conducts inspections of all the Solid Waste System's assets (including five landfills, three Transfer Stations, 13 Trash and Recycling Centers and three Maintenance/Truck Wash Facilities), interviews DSWM staff, evaluates DSWM's finances and capital budgets, and prepares a detailed report for submittal to bondholders.

Annual Landfill Closure Cost and Long-Term Care Cost Estimate

Arcadis prepares updated landfill closure and long-term care cost estimates each year for DSWM, which are required to be submitted to the Florida Department of Environmental Protection (FDEP) for the three active landfill sites owned by the County in compliance with Chapter 62-701.630 of the Florida Administrative Code (F.A.C.).

Annual Utility Service (USF) Fee Reimbursable Cost Allocation Analysis

Arcadis conducts an annual analysis to identify and allocate expenses eligible for reimbursement from USF revenues for the last completed fiscal year as well as project the expenses eligible for reimbursement from USF revenues and the balance of revenues and eligible expenses as of the end of each Fiscal Year for the proceeding five Fiscal Years (consistent with Section 24 of the County Code).

Resources Recovery Facility Operations Monitoring

Arcadis serves as Bond Engineer for the County's 3,000 tpd RRF. The functions of the Bond Engineer include monitoring the Facility's operational efficiency, physical condition, and operation and maintenance practices for conformance to the appropriate Service

Agreement, Bond Covenants, and generally accepted industry standards.

Resources Recovery Facility Annual Report

Arcadis, as the Bond Engineer, is required to conduct an annual inspection of the Miami-Dade County RRF Facility and prepares and submits an annual report to DSWM regarding the physical condition and operational efficiency of the Facility.

Bond Engineer Consulting and Support Services

Arcadis also provides consulting and support services as needed for DSWM, such as the following:

- Analysis of RRF operational changes – Arcadis has reviewed several operational changes proposed at the RRF over the years, including removal of the secondary trommels, installation of screw augers under the traveling grates, and installation of bypass ducting on the shredders.
- Review of applications for solid waste facilities in the County.
- Review of proposed agreements for 3rd party waste collection and disposal.
- Review of proposed 4th and 5th amendments to the Operations and Maintenance Agreement between the County and the Facility Operator to evaluate if the terms are reasonable and consistent with the operational goals of DSWM and general industry practice.
- Assistance in evaluating Montenay- Dade, Inc. and Covanta Energy Corporation Share Purchase Agreement.

Munisport Landfill Closure Construction Oversight

Arcadis assists the County in the administration of a $31 million grant for the construction of the DERM-approved remediation and closure of the Munisport Landfill as stipulated in the Landfill Closure Grant Agreement between Miami- Dade County and the City of North Miami. Project activity involved reviewing, approving, and processing grant draw requests from the City's Developer, conducting site visits to verify construction progress, and coordinating with DSWM, the City, and the Developer to resolve outstanding issues.

Virginia Key Landfill Closure Construction Oversight

Arcadis assists the County in the administration of a $46 million grant for the construction of the DERM-approved remediation and closure of the Virginia Key Landfill as stipulated in the Landfill Closure Grant Agreement between Miami-Dade County and the City of Miami. Project activity involved reviewing, approving, and processing grant draw requests from the City's Contractor, conducting site visits to verify construction progress, and coordinating with DSWM, the City, and the Contractor to resolve outstanding issues.

Solid Waste Consulting Services

Solid Waste Authority of Palm Beach County | West Palm Beach, FL

Client Reference: Raymond Schauer, Director, Engineering & Public Works, (561) 640-4000 x4603, rschauer@swa.org

Role: Prime **Project Timeline:** 1997-Present

Solid Waste Master Plan

Arcadis has served as the Consulting Engineer for the Solid Waste Authority of Palm Beach County (Authority) for over 27-years. During our tenure working with the Authority, Arcadis has assisted with siting studies for their residential and commercial recycling facilities, ferrous processing facilities, and waste-to-energy (WTE) facilities. Due to our historical knowledge of their facilities, site, permits, and integrated solid waste management program, the Authority requested that Arcadis assist in determining the future of the Authority's solid waste management system, with a focus on WTE processing capacity, through the development of a preliminary Master Plan (Plan).

As part of the development of this Plan, Arcadis was tasked with determining the size and implementation schedule of a potential third facility, Palm Beach Renewable Energy Facility No. 3 (PBREF No. 3), and to provide a preliminary planning analysis of the potential options for developing PBREF No. 3 within the boundaries of the Authority's existing 1,300-acre PPSA Certified Site, in consideration of the continued operations and remaining useful life of their two existing WTE facilities. To accomplish this, Arcadis conducted the following:

Waste Processing Capacity Model Development. The waste processing capacity model was developed using the landfill depletion model forecasts to evaluate the impact of the implementation of the REF expansion alternatives. Assumptions were also developed regarding implementation of advanced ash metals and aggregate recovery capacity. The waste processing capacity model used the Authority's landfill depletion model as inputs to further evaluate expansion alternatives and was then used as inputs for the financial model developed in subsequent tasks. The waste processing capacity model included factors such as waste generation, waste processing throughputs, metals recovery, and operating assumptions such as electricity generation, reagent usage, and residue disposal. The waste processing capacity model also included quantifying waste that may need to be transported and disposed at the Authority's landfill and/or off-site to another landfill.

Expansion Alternatives. Arcadis developed five (5) REF expansion alternatives consistent with the MSW generation and disposal projections provided by the Authority for the Master Plan planning period. Arcadis conducted a preliminary investigation into the feasibility of utilizing a portion of the Authority's PPSA Certified Site

PROJECT PERFORMANCE

Completed on Time: Yes

Completed on Budget: Yes

PROJECT SCOPE PERFORMED

- ✓ Solid Waste Disposal and Recycling Processes and Resources Evaluation
- ✓ Feasibility Analysis
- ✓ Financial Studies
- ✓ Future Needs Assessment
- ✓ Waste Generation Estimates
- ✓ Recycling Legislative Trends

PROJECT OUTCOME

Over two decades of planning and engineering services supporting the Authority in successfully implementing and managing their Integrated Solid Waste Management Plan and building and overseeing more than $1B in solid waste and renewable energy infrastructure and operations.

for the construction of REF expansion alternatives, in consideration of the estimated footprint requirements of a 3,000 tpd facility, the same as PBREF No. 2, which has a footprint of approximately 23 acres. Based on relative area requirements and available area, Arcadis developed conceptual site layout options that optimize the site features and maximize the potential processing capacity as well as considered the following factors:

- Facility technology and air pollution control equipment
- Constructability
- Traffic flow
- Road configuration
- Truck queuing
- Scale house location
- Impact to existing facility
- Wetland/wildlife impacts

Based on the 3,000 tpd processing capacity of PBREF No. 3, Arcadis then estimated the quantity of utilities required and other infrastructure considerations related to the usage of potable water, dechlorinated potable water, industrial supply water, stormwater, sanitary, natural gas, in-house electrical, and deep well injection.

Regulatory Review. Another component of the Study was to determine if development of a PBREF No. 3 was possible from a regulatory and permitting standpoint. Therefore, Arcadis conducted a preliminary environmental regulatory review, focusing on specific regulatory programs and processes relevant to the implementation of a PBREF No. 3.

Anticipated Emissions Determination. Arcadis developed a preliminary estimate of the potential air emissions associated with the implementation of a worst-case REF expansion alternative considering alternatives identified. The emissions estimates were used as inputs for the air dispersion modeling analyses. Emission calculations were based upon the anticipated facility sizing, anticipated air pollution control technologies, and current permit limitations for PBREF No. 2 as a benchmark. The resulting emission rates were compared to the applicable PSD Significant Emission Rate (SER) thresholds to determine the pollutants expected to be subject to PSD permitting requirements. Arcadis also reviewed applicable greenhouse gas (GHG) requirements and addressed anticipated impacts on the permitting process. A general overview of the state of the industry related to carbon capture associated with waste-to-energy facilities was included in the Plan.

Air Dispersion Modeling. Air permitting is major component in the regulatory approval and permitting process for any new WTE facility. Therefore, in order to estimate preliminary ambient air impacts associated with the operations of a PBREF No. 3, Arcadis updated the previously developed PBREF No. 2 air model to reflect current additional requirements, modeling guidance and methodologies, meteorological data processing, and model

versions that were published since PBREF No. 2 was permitted in 2010. Once the PBREF No. 2 PSD Model setup was updated, Arcadis conducted an analysis to determine the predicted impacts.

Implementation Schedule and Financial Model Development. Arcadis developed a high-level implementation schedule for all REF expansion alternatives. The implementation schedule of the REF expansion alternatives were based upon and used in conjunction with the waste processing capacity model to develop a financial proforma model. The implementation schedule included tasks for financing, procurement, permitting, design, construction, start-up and commissioning, acceptance testing, and close-out for the REF expansion alternatives. Arcadis developed a financial model built from the waste processing capacity model as well as the implementation schedule.

Preliminary Feasibility Study. The results of the Study were summarized and presented in Report format for Authority review and use in developing their overall Solid Waste Master Plan. Additionally, Arcadis developed a PowerPoint Presentation summarizing the findings of the WTE component of the Solid Waste Master Plan which was presented to the Governing Board. Ultimately, the Board accepted the results of the Study, and next steps for a 3rd facility will commence within the established planning and permitting horizon are expected to commence in 2024.

Food Waste Organics Diversion Program Review

The EPA is proposing food waste diversion programs as a method to reduce Greenhouse Gas (GHG) emissions from landfills. The Authority tasked Arcadis with conducting an investigation regarding existing, large scale, food waste diversion programs currently operating in Florida and nationally, as well as conducting a regulatory review to identify possible constraints to implementing food waste diversion programs at the Authority's site. As part of the food waste study, Arcadis conducted market research to identify existing operational food waste diversion programs, developed a matrix summarizing pertinent information, such as daily capacity, population served, and technology utilized. Arcadis also conducted industry research on food waste processing technologies currently available in the marketplace, developed a narrative summary of the process for each, as well as identified pros/cons, footprint requirements, processing time required, estimated the needed acreage for each technology and feedstock contamination considerations for each. Additionally, Arcadis conducted a review of Federal, State of Florida, and local regulations and/or ordinances regarding potential constraints to implementing a food waste diversion program. The findings from the study were summarized in a memorandum and provided to the Authority for review and consideration of next steps.

Greenhouse Gas Reporting Services

In accordance with 40 CFR Part 98 – Mandatory Greenhouse Gas Reporting, Arcadis serving as the Authority's designated representative, developed the mandatory annual GHG Reports for the Authority's Class I and Class III Landfills, Dyer Landfill, Lantana Landfill, and the Biosolids Processing Facility. Arcadis compiled annual emissions data from the Authority's landfill flares as well as flare downtime, landfill gas (LFG) usage and natural gas usage at the Biosolids Facility and estimated the surface area of closed vs. active landfill cells at their currently active Class I and Class III Landfills. This data was then used to update the USEPA GHG calculation spreadsheets in order to determine total GHG emissions from these facilities. Once the USEPA opens their Electronic Greenhouse Gas Reporting Tool (e-GGRT), Arcadis will input the previously calculated GHG emissions data, for the Authority's submittal in March of each year.

Greenhouse Gas Mandatory Reporting Rule Requirement Support

Arcadis assisted the Authority in developing and reviewing the documentation required to meet 40 CFR Part 98 – Mandatory Greenhouse Gas Reporting for PBREF No. 1.

Enhanced Metals Recovery Facility Consulting Services

Arcadis conducted a technical feasibility evaluation for the development of an enhanced metals recovery facility to be utilized to recover metals in WTE ash generated by the existing PBREF No.'s 1 and 2.

Upon review of survey responses, research into U.S. operating enhanced metal recovery companies, and based on the observations during tours of operating enhanced metals recovery facilities, Arcadis confirmed that the technology and recycling model being utilized in the U.S. is technically sufficient to profitably remove metals from combustion ash streams. Further analysis was performed to estimate the total volume of metals present in PBREF Nos. 1 and 2 ash and perform a mass-balance around several different processing scenarios to estimate a range of potential metal recovery rates.

During the recently completed 2020 Master Planning efforts, the Authority identified their intention to implement an Advanced Metals Recovery Facility (AMRF) to be operational by Fiscal Year 2024 (FY2024). The Authority's intent is for the AMRF to further remove ferrous (Fe) and non-ferrous (NFE) metals from the bottom and fly ash from the PBREF Nos. 1 and 2 to promote ash reuse and extend the landfill useful life. After further review and discussions of such metals recovery and due to recent accomplishments in obtaining regulatory approval for ash aggregate re-use from Authority generated ash streams, the Authority recognized an interim operation should be implemented.

The interim facility will further promote ash reuse and extend the landfill useful life. The interim operation is intended to consist of a

Temporary Ash Metals Recovery Facility (TAMRF) consisting of a mobile metals processing system similar to the system pilot-tested from July 2019 to September 2020 timeframe on the Authority's landfill.

Materials Processing Facility Relocation

Arcadis was tasked by the Authority to provide assistance for the relocation of their existing residential materials processing facility (RMPF) and commercial materials processing facility (CMPF) necessitated by the ultimate build-out plans for the Authority's central landfill. Arcadis conducted a preliminary conceptual design to evaluate the feasibility of locating the facilities to three potential relocation sites. The site evaluations included the evaluation of existing equipment for use in the relocated operations, preparation of a preliminary cost estimate, and a recommendation for site selection. At the conclusion of the preliminary conceptual design, an undeveloped site within the Authority's Renewable Energy Park Campus was selected for the RMPF and CMPF relocation.

Ferrous Processing Facility Relocation

Like the Authority's RMPF and CMPF, the ferrous processing facility (FPF) required relocation because of the ultimate build-out plans for the Authority's central landfill. Arcadis conducted a constraints and limitations analysis in order to evaluate the feasibility of locating the FPF at two potential sites in the Renewable Energy Park Campus. The site evaluations included an environmental (wetland, wildlife, and other) and geotechnical (subsurface soils, proposed structures, and other) assessment as well as a regulatory assessment of the permit requirements for the ultimate relocation and construction of the FPF. At the conclusion of the constraints and limitations analysis, Arcadis provided a recommendation for site selection.

Electrical Distribution Analysis

The Authority requested Arcadis services to evaluate the expansion of their electrical distribution system from PBREF No. 1 and PBREF No. 2 to additional facilities within the Renewable Energy Park Campus and expand their existing electrical distribution infrastructure southeast to meet the future electrical needs of the Combined Commercial and Residential Materials Processing Facility (MPF), Biosolids Processing Facility (BPF), as well as any future facilities that may be constructed within the southernmost portion of the Renewable Energy Park Campus.

Alternative Technologies Review

In conjunction with the initial planning stages for the Authority's new mass burn waste-to-energy facility and to support the Authority's ongoing technology reviews, Arcadis prepared a Request for Information and Capabilities (RFIC) to gauge the interest and capabilities of the vendor community for the processing of municipal solid waste utilizing commercially-viable, financeable volume reduction and energy production technology.

As part of this effort, Arcadis developed the RFIC, coordinated the national and international advertising to target a wide vendor community audience, and conducted a review and summary of the submittals received. Arcadis continues to support the Authority with reviewing and responding to any unsolicited alternative technology proposals, as well as maintaining a general database of the varying technologies presented to the Authority to date to serve as an initial basis for any future consideration.

New Renewable Energy Facility Implementation

For over a decade, beginning in 2005, Arcadis assisted the Authority with the planning and implementation of the county's Integrated Solid Waste Management Plan. After evaluating future solid waste and population growth trends and projections, the Authority's Governing Board authorized moving forward with the development of a new 3,000-tons-per-day (tpd) mass burn renewable energy facility in order to meet the disposal needs of Palm Beach County residents as well as keep the Authority's commitment to waste reduction and resource recovery.

Early in 2008 Arcadis began developing the conceptual design and implementation of their new 3,000-tpd waste-to-energy facility, which was the first of its kind in the U.S. in over 20 years, and will provide the Authority's solid waste disposal needs for the next generation. With its compliment to the Authority's existing 2,000 tpd facility, the new facility provides the Authority with a total expanded disposal capacity of 5,000 tpd generating approximately 150MW of renewable energy.

The project was implemented utilizing a full service design-build-operate approach. Arcadis was responsible for the planning, conceptual design, permitting, financial support, full service vendor procurement, detailed design review, and construction monitoring of the new facility, to be completed on an accelerated schedule in order to address the rapidly depleting disposal capacity of the Authority's existing facility. Completion of the landmark $680M project was completed in the summer of 2015 and the facility is entering its 9th year of operation. Arcadis supported the Authority with the following as part of this program:

- Procurement Services Support
- Regulatory Review
- Power Plant Siting Certification Conditions of Certification Modification
- Petition to Modify the Power Plant Siting Act Conditions of Certification PA 84-20
- Environmental Justice Audit
- Air Quality and Dispersion Modeling
- Human Health and Ecological Risk Assessments
- Prevention of Significant Deterioration Permit Application Development
- FDEP Air Construction Permit Activities

- Air Construction Permit Modifications
- Construction Monitoring Services Support
- Start Up and Acceptance Testing
- Ongoing Operations and Performance Guarantee Monitoring

Palm Beach Renewable Energy Facility No. 1 Services

In addition to the projects presented above, Arcadis has supported the Authority with overseeing the operations and capital improvement projects needed to operate and maintain the PBREF No. 1 in accordance with the terms of their O&M Agreement and all regulatory permits and industry standard. Support provided over the last 20 years has included:

- Refurbishment Planning
- Comprehensive Assessment and O&M Agreement Negotiation
- Financial Modeling /Independent Cost Estimate
- Preliminary Design Review
- Regulatory and Permitting Assistance
- Original Term Close-out Activities
- Refurbishment Procurement Services
- Construction Monitoring Services Support
- Turbine Replacement
- Generator Replacement
- Exterior Facade Enhancements

Ten Year Solid Waste Master Plan Update & Solid Waste Consulting Services

Prince George's County, Resource Recovery Division |
Upper Marlboro, MD

Client Reference: Marilyn Neumann, Associate Director,
(370) 780-6315, meneumann@co.pg.md.us

Role: Prime **Project Timeline:** 1988-On-Going

Arcadis has been providing comprehensive and specialized municipal solid waste (MSW) consulting planning and engineering services to the County's Resource Recovery Division since March 1988. Our efforts have been both programmatic via our providing a range of planning and business advisory services, as well as planning and traditional engineering services in support of MSW operations, regulatory compliance, and capital project delivery.

Ten-Year Solid Waste Master Plan

Most recently, we were engaged by the County to update their Ten-Year Solid Waste Master Plan (TYSWMP) in an expedited timeframe pursuant to Code of Maryland Regulations (COMAR) Title 26 requirements and compressed schedule requirements.

The TYSWMP was updated to reflect both recent developments and future plans of the County in terms of managing MSW, services and solid waste infrastructure, and will be used as a guide/road map to ensure an efficient, effective and environmentally-sound management of the County's recycling, compostable and residual streams, while maximizing balancing cost and level-of-service with waste diversion goals.

Objectives in support of this plan included development of an overall cost-effective approach to updating the current TYSWMP including a detailed methodology to not just collect existing data from a wide range of internal sources; but also facilitating internal Divisions and Departments to enable a coordinated approach to updating necessary documentation.

Specific efforts included the following:

- GIS based approach to data collection and representations of waste characteristics and MSW infrastructure.
- Updated estimates of waste generation characteristics including spatial representations of source generation by type and volume.
- Comparison of MSW management infrastructure capability with anticipated future waste generation patterns.
- Update of TYWSMP documentation to reflect specific COMAR Title 26 reporting requirements.

PROJECT PERFORMANCE

Completed on Time: Yes

Completed on Budget: Yes

PROJECT SCOPE PERFORMED

- ✓ SW Master Planning
- ✓ Materials Recycling
- ✓ Revenue Source Generation
- ✓ Capital Project Delivery
- ✓ Solid Waste Disposal and Recycling Processes and Resources Evaluation
- ✓ Financial Studies
- ✓ Future Needs Assessment
- ✓ Waste Generation Estimates
- ✓ Recycling Needs Analysis
- ✓ Recycling Legislative Trends
- ✓ Regional Processing Facilities
- ✓ Education & Outreach

PROJECT OUTCOME

Expedited delivery of updated TYSWMP pursuant to strict regulatory schedule requirements incorporating GIS-based solutions.

Materials Recycling Facility

Arcadis also completed a comprehensive facility wide condition assessment of building envelope and equipment including structural, mechanical, and electrical components as part of design assessment and transition/demobilization of private sector operator and handoff to the County operations. Our efforts comprised both an initial detailed condition assessment followed by re-inspection subsequent to the contractor demobilization from the site pursuant to a settlement agreement.

Non-Residential System Benefit Charge (SBC)

Arcadis also assisted the County in developing the basic structure and methodology for an SBC to equitably generate necessary revenue from both non-residential and residential property owners located within the County's jurisdictional boundaries; as well as implementation of the SBC until such time as we completed training of County-staff to take over responsibility for administration of the program and collection of revenues. The SBC is a revenue-neutral fee paid by all non-residential property owners and provides an equitable share of responsibility to fund programmatic costs that are not otherwise covered by tipping fees (such as property acquisition and construction of solid waste infrastructure). The accumulated reserves and ongoing funding ensure revenue stability to maintain the County's high-quality credit ratings and associated long-term cost savings for the County.

Zero Waste Municipal Solid Waste Management System Analysis and Facility Condition Assessment

Montgomery County | Derwood, MD

Client Reference: Willie Wainer, (240) 777-6402, Willie.Wainer@montgomerycountymd.gov

Role: Prime **Project Timeline:** 2023-On-going

Arcadis is providing Montgomery County both comprehensive and specialized professional consulting services in support of their progressive environmental agenda and movement toward 'zero waste'. Our efforts included both traditional engineering analyses associated with detailed condition assessment of specific MSW infrastructure, as well as planning and business advisory services used in performing a comprehensive assessment of alternative MSW management technologies and systems to balance cost and level of service with waste diversion goals and objectives.

MCRRF Condition Assessment

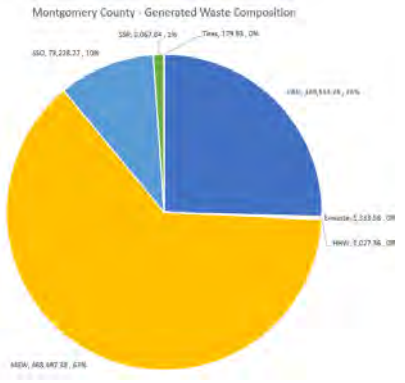
Our services initiated with performance of a comprehensive MSW management facility condition assessment at their primary location used for waste disposal and included mobilizing a team of internal specialty discipline leads comprising structural, mechanical, electrical, plumbing, and architectural subject matter experts. This was followed by a detailed assessment of individual infrastructure components, evaluation of their current condition, and estimated cost to retrofit/rehabilitate and/or repair) over short- and long-term planning horizons. A detailed financial model was developed to provide updated cost-of-service in terms of Net Present Value $/Ton and Equivalent Annual Cost.

Multiple planning horizons were considered including:

- Scenario 1 Short-Term MCRRF Operations through remaining useful operating lifespan in absence of any significant RR&R activities.
- Scenario 2 Long-Term MCRRF Operations extended through 2056 and beyond with enhanced performance objectives. Consideration was given to the extent to which operating system components warrant RR&R to satisfy enhanced performance objectives associated with long-term operations. The long-term performance objectives included improvements to railyard MSW and ash management; air pollution control enhancements; ash handling improvements; enhanced metals recovery; and aesthetics improvements.

Zero Waste MSW Management System Analysis

Follow on efforts included evaluation of various advanced MSW processing and/or treatment technologies to increase diversion and recovery of energy and/or resources from the waste stream, including cost-benefit analysis for incremental diversion expressed in terms of



PROJECT PERFORMANCE

Completed on Time: Yes / On-going

Completed on Budget: Yes / On-going

PROJECT SCOPE PERFORMED

- ✓ Solid Waste Disposal and Recycling Processes and Resources Evaluation
- ✓ Feasibility Analysis
- ✓ Financial Studies
- ✓ Future Needs Assessment
- ✓ Waste Generation Estimates
- ✓ Recycling Needs Analysis
- ✓ Regional Processing Facilities
- ✓ Education & Outreach

PROJECT OUTCOME

Based on initial stakeholder engagement and analysis performed to date, Arcadis prepared a procurement document that the County has issued to solicit information from private sector vendors to describe how their technology could be adapted into existing transfer station infrastructure in support of County goal to move towards zero waste. In addition, our efforts included development of a unique evaluation model which enables our client to balance cost and level of performance with other programmatic goals and objectives.

$/ton, buy-back period, and return on investment. The technology assessment was used to 'inform' a subsequent Request for Expression of Interest, the results of which were used to evaluate the extent to which these technologies were adaptable to local waste stream and site conditions.

- **Local Organized Stakeholder Participation.** We understand the importance of engaging the County's own constituency and other local stakeholders which may advocate or be proponents of alternative MSW processing or resource and/or energy recovery technologies. We subsequently worked in collaboration with County staff and developed a strategy to engage with specific local organized stakeholders in an effort to solicit their timely input of data, reports and opinions. This included development of objective criteria and a process for consideration of various forms of information provided by stakeholders external to the County government. A Local Stakeholder Engagement Plan was prepared and implemented to inform decisions and the process for completing the tasks noted below.
- **Increased Diversion and MSW Processing Technology Evaluation.** We have commenced evaluating the costs and benefits as well as potential constraints and limitation of using a range of technologies s to increase diversion and process MSW materials in such a way as to enhance recovery of resources and energy and minimize residual wastes. The anticipated range of alternatives being evaluated include:
  - Technologies and/or Facilities for Diversion and Enhanced Resource Recovery Which Involve Adaptive Re-Use of the Derwood Property (Shady Grove) including but not limited to the Transfer Building Tipping Floor. Such technologies include in-vessel composting, mixed waste processing, mechanical-biological treatment (MBT), and durable goods reuse and recycling.
  - Technologies for Diversion and Enhanced Resource and Energy Recovery Which Involve Re-Use of the Dickerson Property after the RRF is Decommissioned. Such technologies include anaerobic digestion (AD), expanded residential organics composting, construction and demolition debris (C&D) recycling, biofuel / hydrogen production, solar farm in potential combination with intensive greenhouse operation.
  - Disposal of residuals by transfer and long-haul outside of County to landfill; short-haul to in-County future landfill Site, and impact of reduced tonnage at RRF.
  - Other considerations related to RRF closure are being considered such as loss of metals and energy recovery revenues; reduction in greenhouse gas emissions; and decommissioning costs.
- **Procurement/Solicitations.** A procurement strategy workshop was completed with senior County staff followed by development

of a Request for Expressions of Interest (REOI) to solicit vendor input regarding their various waste processing technology capabilities and adaptability to local County conditions as well as alignment with the County's broader goals and objectives.

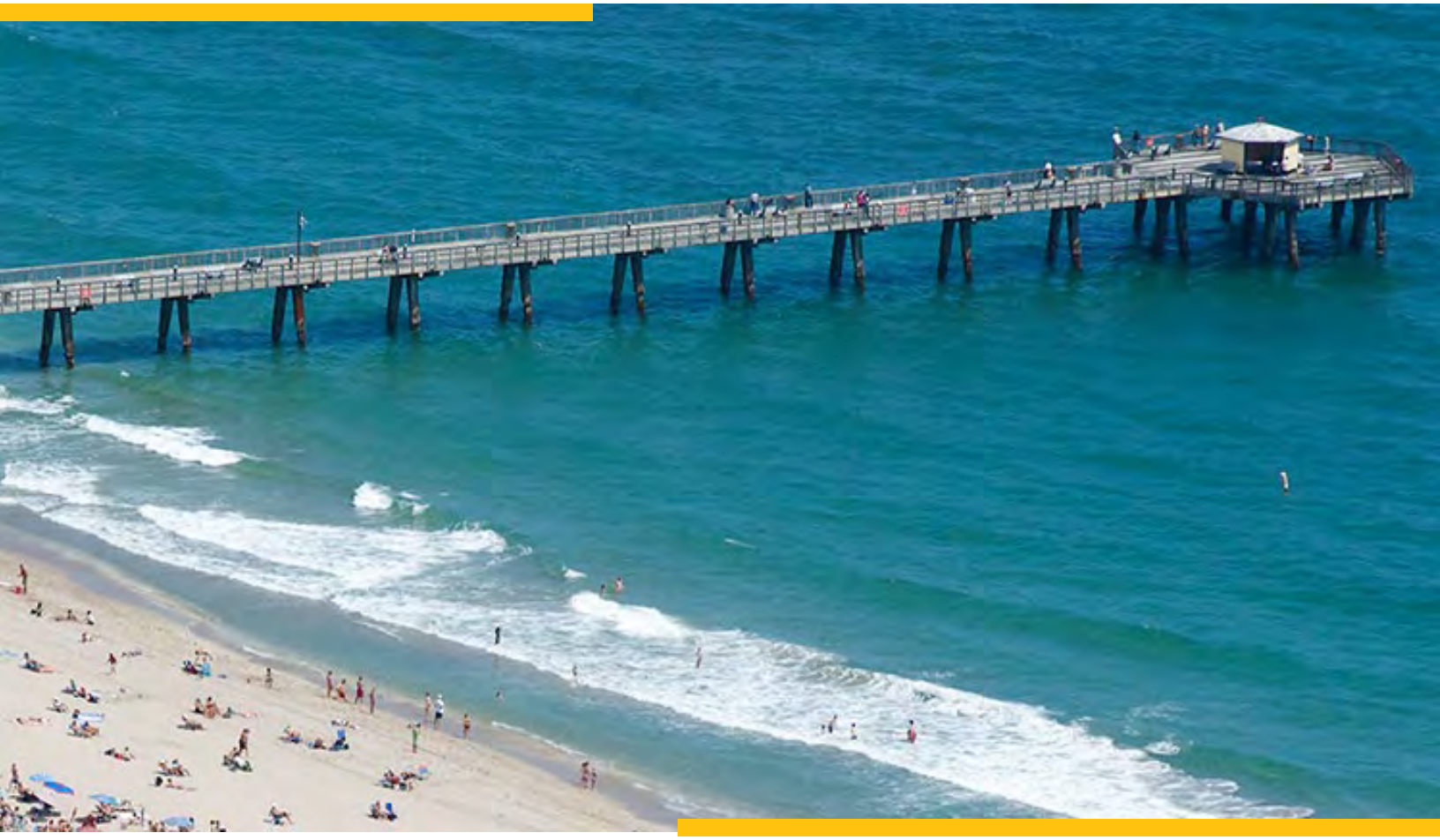
- **Evaluation of Alternative MSW Management Systems.** A series of MSW management 'systems' are being developed to adapt existing MSW transfer station and RRF property to utilize an optimum combination of proven waste processing technologies currently available in other parts of the County which are commercially available and have a proven successful record of performance.

  Central to this effort is our analysis of the existing MSW 'Wasteshed' including spatial distribution of waste types and quantities and how the waste stream 'moves' through the County, including development of a mass balance/process diagram to establish a baseline of the County's existing MSW management system.

  Alternative MSW systems, which reflect various adaptation strategies of existing County assets, are being developed, each with an updated process diagram, which will enable conceptualization of necessary modifications to facility design and operations, with corresponding estimated lifecycle cost and level of performance.

  These various alternative systems will be evaluated and compared using a unique 'Evaluation Model' which considers not just financial/cost of service, but level of service measured in terms of percent diversion, environmental impact (Greenhouse gas emissions modeling) and carbon footprint, as well as environmental justice considerations. In doing so, the model enables the County to maximize the value and utility of existing MSW infrastructure and assets while creating an updated management system which balances cost and level of service with their broader performance objectives.

- **Request for Proposal.** As the project moves forward, we are scheduled to develop and RFP to enable solicitation and procurement of vendor(s) prequalified to facilitate adaptation of existing or development of new infrastructure which aligns with the County's preferred forward looking MSW management system.



RRS Projects

RIGHT
Team ● Schedule ● Solution

SCS ENGINEERS

Technical Support

Hillsborough County | Hillsborough County, FL

Client Reference: Travis Barnes, (813) 209-3085, barnest@hillsboroughcounty.org

Role: Subcontractor **Project Timeline:** 6.2019 - Present

RRS has served as a subconsultant to Geosyntec, HDR, and CDM Smith to provide technical support across multiple work streams. Hillsborough County is located in the west central portion of Florida with a population of over 1.4 million, making it the fourth-most populous county in Florida. The County's Solid Waste Services oversees waste collection, disposal, and recycling in Hillsborough County. The department contracts with private companies for curbside residential and commercial service, and operates several centers throughout the county that accept trash, hazardous waste such as oil and electronics, and yard waste. The department also runs a trash-to-energy plant. RRS provides lead services for MRF RFP development, collection contract negotiations, diversion plan support, and MRF contract services to the County, and is assisting in other County efforts as required.

RRS leverages in-house knowledge and experience to review service agreements and provide an opinion and rationales the County should consider for renewing its current franchise agreements. RRS is currently on the negotiating team for over $80M of contracts. RRS was asked to join as a subcontractor for the principal consultants to provide direct County support for these projects and has worked in the county for nearly 4 years providing expert guidance and support.

In addition, RRS reviewed the recycling and diversion plan for Hillsborough County as a subcontractor for CDM Smith. A fact-finding trip was conducted at four mixed waste technology facilities and one MRF. After the thorough investigation of all available technology for waste programs, several recommendations were made to the client based on their needs. RRS was responsible for fully vetting any new waste diversion technologies coming into the county based on the current RFP and companies. RRS presented its findings before the Board of County Commissioners, and the report was accepted. Recommendations were also made on a public-private MRF design-build-operate scope RFP for 2023 and a solid waste diversion RFQ for 2022.

PROJECT PERFORMANCE

Completed on Time: Yes

Completed on Budget: Yes

PROJECT SCOPE PERFORMED

- ✓ Solid Waste Disposal and Recycling Processes and Resources Evaluation
- ✓ Feasibility Analysis
- ✓ Financial Studies
- ✓ Future Needs Assessment
- ✓ Waste Generation Estimates
- ✓ Recycling Needs Analysis
- ✓ Local and Regional Policy
- ✓ Regional Processing Facilities
- ✓ Recycling Benchmarking

PROJECT OUTCOME

- Multiple RFPs, ITBs, franchise agreements, and more.
- Technology/facility recommendations

Zero Waste Plan

Hennepin County | Hennepin, MN

Client Reference: Carolyn Collopy, (612) 596-0993, carolyn.collopy@hennepin.us

Role: Prime **Project Timeline:** 2.2022 – 4.2023

Hennepin County sought an expert team of consultants to develop an actionable pathway to advance the county from their current diversion rate of less than 50% to one that achieves zero-waste through a reduced reliance on both landfilling and waste-to-energy. RRS was hired to meet the needs of the Commissioners and County, including the development a plan that values waste reduction, reuse, recycling, and composting above waste-to-energy, includes actions over aspirational language, and includes space for diverse stakeholders to be fully engaged. The development of Hennepin County's Zero Waste Plan included a review of the existing waste management system and the programs and policies that influence it, a robust engagement process of industry stakeholders and the community, and the identification of strategies that will accelerate Hennepin County's path to zero waste in the decade ahead. To help achieve these aggressive targets, the plan aims to engage all people in the County, including vulnerable communities, to adopt and implement strategies that reduce emissions associated with materials use and waste. These strategies align with the County's statutory responsibilities to manage its solid waste system. The plan is shaped by broad community engagement and is meant to be viewed through a lens of diversity, equity, and inclusion.

PROJECT PERFORMANCE

Completed on Time: Yes

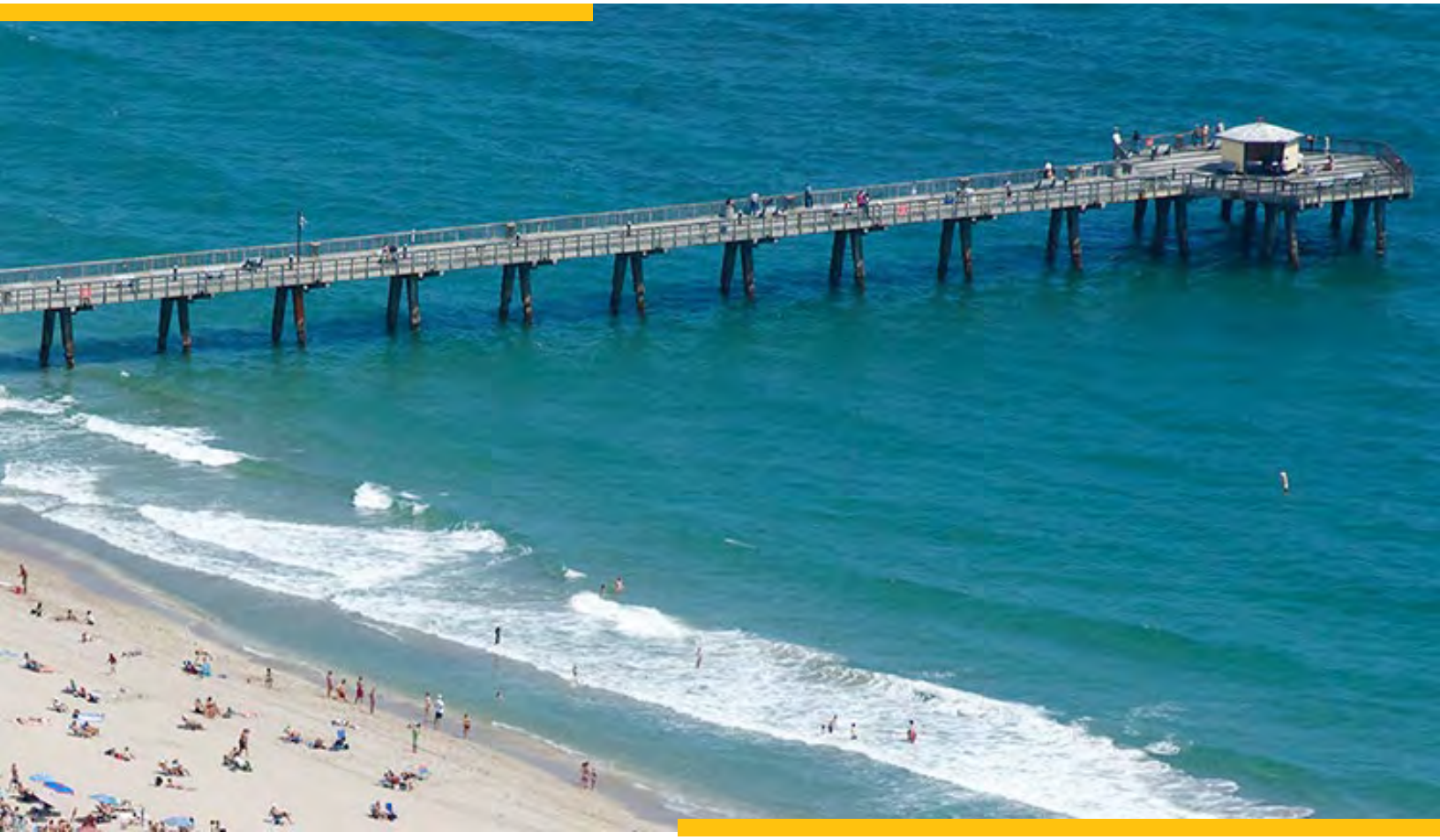
Completed on Budget: Yes

PROJECT SCOPE PERFORMED

- ✓ Solid Waste Disposal and Recycling Processes and Resources Evaluation
- ✓ Feasibility Analysis
- ✓ Financial Studies
- ✓ Future Needs Assessment
- ✓ Waste Generation Estimates
- ✓ Target Setting
- ✓ Recycling Needs Analysis
- ✓ Local and Regional Policy
- ✓ Regional Processing Facilities
- ✓ Recycling Benchmarking
- ✓ Education & Outreach

PROJECT OUTCOME

The new zero-waste plan complements the Climate Action Plan and is the foundation for the state's mandated Solid Waste Management Master Plan, which requires at least a 75% recycling rate by 2030.



Mercury. **Projects**

RIGHT

Team ● Schedule ● Solution

SCS ENGINEERS

Parks and Recreation City Bond Referendums

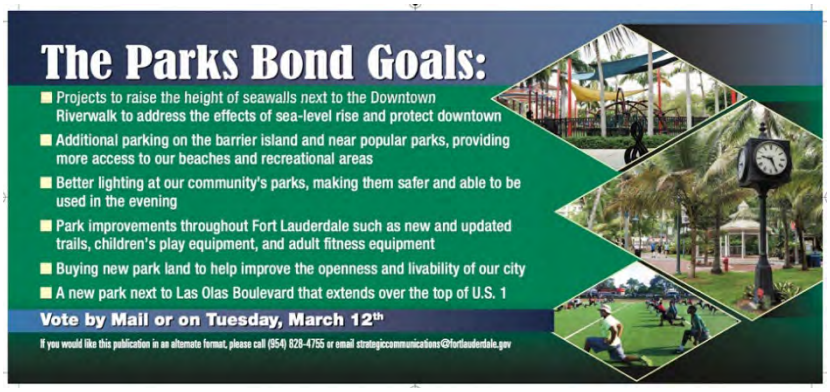
City of Fort Lauderdale | Fort Lauderdale, FL

Client Reference: Scott Wyman, (954) 828-5314, swyman@fortlauderdale.gov

Role: Prime **Project Timeline:** 2018-2019

Our team worked with the City of Fort Lauderdale to develop a successful public relations strategy to gain support for two different bond referendums: one for $200 million to be directed toward improvements to public parks and the other to designate $100 million for a new Fort Lauderdale police station.

We employed a comprehensive strategy that included community outreach, crafting persuasive messaging that shaped public perception, and implementing both digital advocacy and direct mail initiatives. While a public campaign existed for the referendum, our primary focus was collaborating with the city to effectively utilize resources to educate the community about the bond and to ensure city residents had accurate information. Leveraging our experience in working with government resources, we successfully garnered widespread support for the two referendums, both of which passed with voter approval.



PROJECT PERFORMANCE

Completed on Time: Yes

Completed on Budget: Yes

PROJECT SCOPE PERFORMED

- ✓ Public Affairs Campaign
- ✓ Community Outreach & Education
- ✓ Persuasive Message Development
- ✓ Digital Advocacy Program
- ✓ Direct Mail Initiative

PROJECT OUTCOME

We successfully garnered widespread support for the two referendums, both of which passed with voter approval.

Poseidon Water Public Affairs Campaign

Poseidon Water| Huntington Beach, CA

Client Reference: Scott Maloni, (760) 655-3900

Role: Prime **Project Timeline:** 2014

Poseidon Water engaged Mercury in 2014 to help secure regulatory and public support for the company's proposed desalination plant in Huntington Beach, California, and to maintain and expand public support for the company's Carlsbad plant.

Mercury developed a public affairs strategy that neutralized an aggressive campaign opposing the projects by focusing on the projects' potential to provide a reliable water supply during unprecedented drought conditions and dispelling myths about desalination.

Mercury worked with Poseidon and affiliated stakeholders to establish relationships with newsroom and editorial staff in key markets. As a result, Mercury was able to secure significant, positive coverage in statewide and national media, including editorials in support of the project from major newspapers in California. In addition, Mercury placed dozens of opinion editorials and letters to the editor in media in conjunction with partner organizations like the California Chamber of Commerce and building trades unions. CNN profiled Poseidon's plant in a segment of its "Cities of Tomorrow" program, highlighting desalination as a solution for modern cities.

PROJECT PERFORMANCE

Completed on Time: Yes

Completed on Budget: Yes

PROJECT SCOPE PERFORMED

- ✓ Public Affairs Campaign
- ✓ Coalition Building
- ✓ Media Relations
- ✓ Community Outreach & Education

PROJECT OUTCOME

Thanks to Mercury's efforts, public support for desalination in California is at approximately 75 percent according to recent polls, and the Orange County Water District has approved a contract to purchase water from Poseidon's Huntington Beach plant.

To further leverage positive coverage, Mercury disseminating pieces to key decision makers in the legislature and coastal commissions and undertook an aggressive social media campaign on Facebook and Twitter.

As a result of Mercury's efforts, public support for desalination in California is at approximately 75 percent according to recent polls, and the Orange County Water District has approved a contract to purchase water from Poseidon's Huntington Beach plant.

Section 4

Workload of the Firm

RIGHT
Team ● Schedule ● Solution

4 | Workload of the Firm

We focus on your needs to resolve challenges and accomplish your objectives. We are ready to support the Authority on day one with our key staff and firm resources.

Commitment to Meet Your Schedule and Budget

SCS is committed to client success. We accomplish this by assigning qualified staff to meet the needs of our clients with the requisite training, qualifications, and expertise. In terms of staffing assignments, we assess workload and staffing needs proactively through regular staffing coordination meetings at the regional, office, and project levels. This is supported with continuing coordination on a weekly and monthly basis by preparing and monitoring workload projections. We hold weekly in-house meetings with all active project resources to communicate schedule, budget, staffing needs, and ongoing activities with projects. This allows them to predict staffing needs. The staff resources available in our local and regional offices provide significant support that facilitates required resource allocations to meet the Authority's needs. Our Florida offices (Coconut Creek, Fort Lauderdale, West Palm Beach, Miami, Tampa and Orlando) Atlanta, GA, and Mobile, AL include more than 180 professionals, as well as access to 1,200 nationally, to cover the potential services described in this solicitation. The SCS Team has secured the commitment of our Key Staff and those of our teaming partners for this Master Plan. Key project personnel are available to initiate work immediately upon contract execution and to continue work on an expedited basis in order to meet the Authority's required schedule. **We commit to providing other resources as needed to supplement the proposed team to meet the Authority's needs, including the deep bench of additional staff available from our teaming partners. Our Project Manager, Daniel Dietch, MBA will be responsible for scheduling and committing team resources to the project and incorporating additional staff as needed.**

Recent Awards

ENR Engineering News-Record

#1
Solid Waste
ENR Top 500 Sourcebook

#3
Solid Waste
ENR Top 400 Construction

#50
ENR Top 500 Design Firms

#89
ENR Top 150 Global Design Firms Sourcebook

Additionally, we have commitments if additional staffing is required to meet critical schedules or to address events not contemplated at this time. We have access to significant corporate resources covering all of the areas highlighted in our organization chart, thus allowing us to bring in qualified supplemental personnel from our other offices if needed. Any one of these professionals can be called upon to assist and support the Authority with any project task requested. Specifically, we have assigned our local SCS leaders to this contract. In the past year, we have hired over 30 new staff members to join our Florida program. This growth in our solid waste and environmental programs, when other firms are retracting, is a testament to our commitment to our clients and our capacity to assist the Authority.

Throughout the contract, our team will routinely conduct internal coordination and delegation meetings as well as regularly meet with you to discuss schedules and budgets. We utilize Deltek Vision to assist with assigning resources,

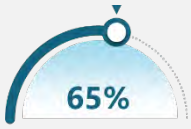
internal timekeeping, and cost/budget reporting. This allows Daniel to track internal and external project expenses in real-time to proactively address and maintain task schedules and project budget control. Daniel's diligent budget and expense control results in our provision of best-value services and he will apply a rigorous accounting process that helps reduce the time the Authority spends on invoice review and procurement. Our process is successful in keeping projects on schedule and budget as demonstrated by the references provided in **Section 3**.

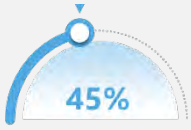
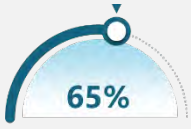
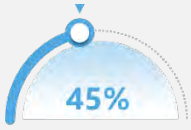
Active and Near Future Projects

The SCS Team has been supporting the County on key activities that supported the creation of the new ILA and we have been closely monitoring the associated activities, including providing technical input to County staff and attending the many meetings of the Authority since it was established. **We have prioritized this opportunity long before your RFP was issued.** Accordingly, we have secured the commitment of our identified team and they have ample availability and flexibility to meet the Authority's aggressive schedule to complete the Master Plan. Our existing project workload includes both fixed-scope projects and miscellaneous service contracts. Our dedicated team's availability increases steadily over the balance of the year. **Table 4-1** provides a listing of the current and future project work each of the key Project/ Task Managers are assigned along with remaining labor commitment percentages. Historically, SCS Project Managers are typically involved with an average of five projects at any given time. The projected workload is flexible and will be adjusted to provide all necessary hours needed to complete the anticipated assignments for the Authority's Master Plan project.

List all active projects in which the Vendor is currently working utilizing the same personnel that will be performing the work proposed hereunder, and all projected projects that those same personnel of the Vendor will be working on in the near future.

Table 4-1. Key Staff Workload

Key Staff Member	Current/Near Future Projects	% Remaining Labor Commitment
Daniel Dietch, MBA	• Norman's Cay Zero Waste and Solid Waste Management Plan • Collier County Various Solid Waste Planning Projects • Orange County MRF Procurement Assistance • Miami-Dade County RNG System Procurement Assistance	
Bob Gardner, PE, BCEE	• Southeastern Public Service Authority Solid Waste Management Services • Butte County Master Plan • Southeastern Public Service Authority Landfill Expansion Environmental Impact Statement • Frederick County Engineering Services • City of Bristol Landfill Engineering	
Michelle Leonard	• Fresno County Solid Waste Planning • FCC Environmental/Westen Placer Waste Management MRF Design • City of Davis Downtown Waste Management Plan • San Gabriel Valley Council of Government Regional Food Recovery Program • Los Angeles County Commercial and Institutional Recycling	
Stacey Demers, LEED	• Arlington County Zero Waste and Solid Waste Management Plan • Broward County Waste Generation Study • Alameda County Waste Characterization Study • ReGen Monterey Waste Characterization Study	

Key Staff Member	Current/Near Future Projects	% Remaining Labor Commitment
Robert Curtis, PE	• Manatee County Solid Waste Disposal Options • NAVFAC Solid Waste Facility Design Build Guantanamo Bay • Marion County Baseline Landfill Closure • Hillsborough County Engineering Services	
Vita Quinn, MBA	• Gulf Coast Recycling Analysis • City of Atlanta 5-Year Rate Study for Solid Waste Services • Broward County Waste Generation Study • Grand Rapids Materials Rate Study • City of Davis Solid Waste Cost of Services Rate Study	
Ketan Shah, PhD	• Kittitas County Transfer Station Design • Coquitlam Landfill Gas System Replacement Design • King County Environmental Investigations	
Candy Elliott, PG	• Pelican Renewables Class VI Work • American Electric Power Service Corporation Engineering, Design, Permit for Pirkey Plant Deep Injection Well • Crestmont Carbon Sequestration Feasibility Study	
Brent Dieleman, TRUE Advisor	• Hartford County Solid Waste Plan Update • Howard County Solid Waste Plan Update Arlington County Solid Waste Management Plan • Broward County Waste Generation Study • Pennsylvania DEP Recycling Technical Assistance	
Daniel Leo, JD	• Waste Management Landfill Gas to Renewable Natural Gas Plant • Nextera Engineering Procurement and Construction for Renewable Natural Gas Plant • Conversion Energy Gasification Engineering • Waste Management Renewable Energy Fairless Renewable Natural Gas Plant Design	
Kayla Ouellette	• Equity Lifestyle Properties Regulatory Support • City of Springfield Supplemental Services • Manatee County Solid Waste Disposal Options • Collier County Solid Waste/Recycling Collection Plan	

SCS has consistently demonstrated that it has the resources to execute multiple project assignments concurrently. The nature of this assignment will utilize SCS resources that are uniquely qualified to address the specific tasks required by this contract. This contract will neither overburden nor alter current staff assignments.

Provide examples from the past five years of situations where the same personnel were working on similar projects concurrently, and describe the Vendor's approach in managing these projects. Were there or will there be any challenges for Vendor to perform the work proposed herein, and, any of the listed projects? If so, describe how the Vendor dealt or will deal with the projects' challenges.

As evidenced in this proposal, SCS has completed many projects similar in nature to this Master Plan, and the associated staff have demonstrated their success working with the project management philosophy championed by SCS. This includes participating in the proactive and ongoing project staffing approach identified above. Once awarded a project, the SCS project manager coordinates the staffing requirements and secures the commitment from each team member. The project manager then uses our client service planner, which is a framework that we use to confirm the client preferences for matters including communications, meetings, decisions and involvement, information and data, deliverable standards, invoicing, change management, and performance feedback. Once we have confirmed the client preferences, we will convene an internal project initiation meeting to share the client preferences and establish a common understanding of the project drivers, needs, and expectations amongst the project team. As we are involving multiple teaming partners, this meeting will also include them.

It is typical for consulting firms to have staff committed to multiple projects and SCS is no different. We manage our commitments through effective project planning. We will develop a project management plan that guides the performance of our work. Given the aggressive project schedule, we anticipate having multiple activities occurring concurrently. Accordingly, we will have at least weekly internal progress meetings to assess our progress on each activity. We also embrace the philosophy of identifying potential problems before they become crises through proactive project management; we hold each team member accountable for their commitments, which is foundational to our client service standards.

We employ these practices on all of our projects and have provided specific project references in our proposal as evidence of our ability to manage a dynamic work environment. **The bottom line is that the SCS Team has prioritized this project and we offer our commitment to employ best practices to achieve your objectives and schedule.**

Section 5

Forms/Responsiveness Criteria

RIGHT
Team ● Schedule ● Solution

SCS ENGINEERS

5 | Forms/Responsiveness Criteria

SCS acknowledges the Addenda issued on February 15, 2024.

Litigation History

SCS has been in business for over 53 years. We have offices throughout the United States and other parts of the World. SCS stands behind its work. Occasionally, an organization with our scope and size has been involved in litigation. None of the matters have been or are material to our operations or limit in any way our ability to perform the work contemplated.

Financial Information

Please see attached consolidated audited financial statements.

Authority to Conduct Business in Florida/License Requirements

State of Florida Business Licensure and Professional Certifications/Registrations in the State of Florida

State of Florida
Department of State

I certify from the records of this office that STEARNS, CONRAD AND SCHMIDT, CONSULTING ENGINEERS, INC. is a Virginia corporation authorized to transact business in the State of Florida, qualified on December 21, 1987.

The document number of this corporation is P17311.

I further certify that said corporation has paid all fees due this office through December 31, 2024, that its most recent annual report/uniform business report was filed on January 17, 2024, and that its status is active.

I further certify that said corporation has not filed a Certificate of Withdrawal.

Given under my hand and the Great Seal of the State of Florida at Tallahassee, the Capital, this the Seventeenth day of January, 2024

Secretary of State

Tracking Number: 5527394564CC

To authenticate this certificate, visit the following site, enter this number, and then follow the instructions displayed.

https://services.sunbiz.org/Filings/CertificateOfStatus/CertificateAuthentication

State of Florida
Department of State

I certify that the attached is a true and correct copy of the Renewal of Fictitious Name Registration for SCS ENGINEERS, which was filed on September 6, 2022, as shown by the records of this office.

The document number assigned to this renewal is G22000110408.

Given under my hand and the Great Seal of Florida, at Tallahassee, the Capital, this the Seventh day of September, 2022

Secretary of State

2/4/2021 DBPR - STEARNS, CONRAD & SCHMIDT CONSULTING ENGINEERS, INC., Doing Business As: SCS ENGINEERS, Registry

11:50:36 AM 2/4/2021

Licensee Details

Licensee Information

Name:	STEARNS, CONRAD & SCHMIDT CONSULTING ENGINEERS, INC. (Primary Name) SCS ENGINEERS (DBA Name)
Main Address:	3922 COCONUT PALM DRIVE SUITE 102 TAMPA Florida 33619
County:	HILLSBOROUGH
License Mailing:	
LicenseLocation:	3922 COCONUT PALM DRIVE SUITE 102 TAMPA FL 33619
County:	HILLSBOROUGH

License Information

License Type:	Registry
Rank:	Registry
License Number:	4892
Status:	Current
Licensure Date:	12/31/1987
Expires:	

Special Qualifications — **Qualification Effective**

Alternate Names

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View License Complaint

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LICENSEE DETAILS 9:31:03 AM 2/7/2023

Licensee Information

Name:	LEBRON, CARLO FELIX (Primary Name)
Main Address:	2912 WEST TRILBY AVE TAMPA Florida 33611
County:	HILLSBOROUGH

License Information

License Type:	Professional Engineer
Rank:	Prof Engineer
License Number:	60815
Status:	Current,Active
Licensure Date:	01/13/2004
Expires:	02/28/2025

Special Qualifications — **Qualification Effective**

Alternate Names

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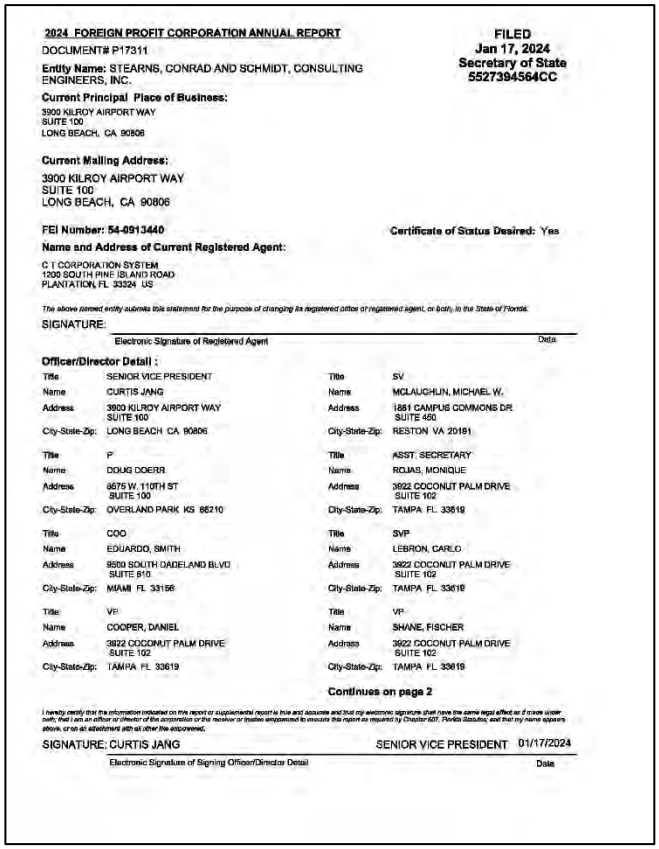
Under Florida law, email addresses are public records. If you do not want your email address released in response to a public-records request, do not send electronic mail to this entity. Instead, contact the office by phone or by traditional mail. If you have any questions, please contact 850.487.1395. Pursuant to Section 455.275(1), Florida Statutes, effective October 1, 2012, licensees licensed under Chapter 455, F.S. must provide the Department with an email address if they have one. The email's provided may be used for official communication with the licensee. However email addresses are public record. If you do not wish to supply a personal address, please provide the Department with an email address which can be made available to the public. Please see our Chapter 455 page to determine if you are affected by this change.

Corporate Registration to Operate In The State Of Florida



2024 FOREIGN PROFIT CORPORATION ANNUAL REPORT

DOCUMENT# P17311

FILED
Jan 17, 2024
Secretary of State
5527394564CC

Entity Name: STEARNS, CONRAD AND SCHMIDT, CONSULTING ENGINEERS, INC.

Current Principal Place of Business:

3900 KILROY AIRPORT WAY
SUITE 100
LONG BEACH, CA 90806

Current Mailing Address:

3900 KILROY AIRPORT WAY
SUITE 100
LONG BEACH, CA 90806

FEI Number: 54-0913440

Certificate of Status Desired: Yes

Name and Address of Current Registered Agent:

C T CORPORATION SYSTEM
1200 SOUTH PINE ISLAND ROAD
PLANTATION, FL 33324 US

The above named entity submits this statement for the purpose of changing its registered office or registered agent, or both, in the State of Florida.

SIGNATURE:

Electronic Signature of Registered Agent — Date

Officer/Director Detail :

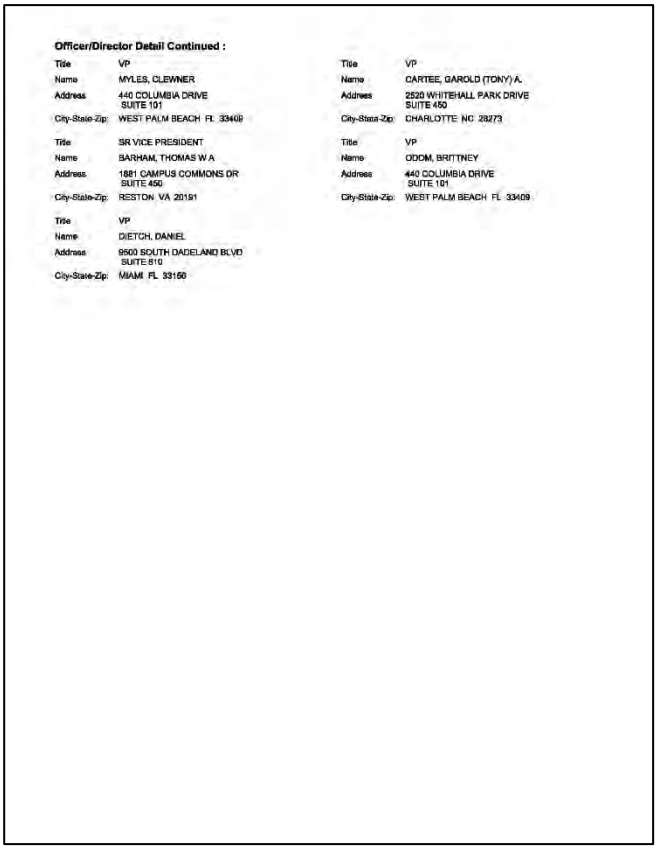
Title	SENIOR VICE PRESIDENT	Title	SV
Name	CURTIS JANG	Name	MCLAUGHLIN, MICHAEL W.
Address	3900 KILROY AIRPORT WAY SUITE 100	Address	1851 CAMPUS COMMONS DR SUITE 450
City-State-Zip:	LONG BEACH CA 90806	City-State-Zip:	RESTON VA 20191
Title	P	Title	ASST. SECRETARY
Name	DOUG DOERR	Name	ROJAS, MONIQUE
Address	8575 W. 110TH ST SUITE 100	Address	3922 COCONUT PALM DRIVE SUITE 102
City-State-Zip:	OVERLAND PARK KS 66210	City-State-Zip:	TAMPA FL 33619
Title	COO	Title	SVP
Name	EDUARDO, SMITH	Name	LEBRON, CARLO
Address	9500 SOUTH DADELAND BLVD SUITE 810	Address	3922 COCONUT PALM DRIVE SUITE 102
City-State-Zip:	MIAMI FL 33156	City-State-Zip:	TAMPA FL 33619
Title	VP	Title	VP
Name	COOPER, DANIEL	Name	SHANE, FISCHER
Address	3922 COCONUT PALM DRIVE SUITE 102	Address	3922 COCONUT PALM DRIVE SUITE 102
City-State-Zip:	TAMPA FL 33619	City-State-Zip:	TAMPA FL 33619

Continues on page 2

I hereby certify that the information indicated on this report or supplemental report is true and accurate and that my electronic signature shall have the same legal effect as if made under oath; that I am an officer or director of the corporation or the receiver or trustee empowered to execute this report as required by Chapter 607, Florida Statutes; and that my name appears above, or on an attachment with all other like empowered.

SIGNATURE: CURTIS JANG — SENIOR VICE PRESIDENT — 01/17/2024

Electronic Signature of Signing Officer/Director Detail — Date



Officer/Director Detail Continued :

Title	VP	Title	VP
Name	MYLES, CLEWNER	Name	CARTEE, GAROLD (TONY) A.
Address	440 COLUMBIA DRIVE SUITE 101	Address	2520 WHITEHALL PARK DRIVE SUITE 450
City-State-Zip:	WEST PALM BEACH FL 33409	City-State-Zip:	CHARLOTTE NC 28273
Title	SR VICE PRESIDENT	Title	VP
Name	BARHAM, THOMAS W A	Name	ODOM, BRITTNEY
Address	1851 CAMPUS COMMONS DR SUITE 450	Address	440 COLUMBIA DRIVE SUITE 101
City-State-Zip:	RESTON VA 20191	City-State-Zip:	WEST PALM BEACH FL 33409
Title	VP		
Name	DIETCH, DANIEL		
Address	9500 SOUTH DADELAND BLVD SUITE 810		
City-State-Zip:	MIAMI FL 33156		

Insurance Requirements
See letter provided from our Insurance Carrier.

The following pages contain SCS's completed forms.

1. Exhibit A - Vendor Questionnaire and Standard Certifications
2. Exhibit B – Vendor Reference Verification Form
3. Exhibit D – Litigation History Form
4. Insurance Letter
5. Exhibit E – Agreement Exception Form and Form of Agreement
6. Consolidated Audited Financial Statements

EXHIBIT "A"

VENDOR QUESTIONNAIRE AND STANDARD CERTIFICATIONS

The completed form, including acknowledgment of the standard certifications and should be submitted with the solicitation response. Failure to timely submit may affect Vendor's evaluation.

If a response requires additional information, the Vendor should upload an additional written detailed response with submittal; each response should be numbered to match the question number. The completed questionnaire and attached responses will become part of the procurement record. It is imperative that the person completing the Vendor Questionnaire be knowledgeable about the proposing Vendor's business and operations.

1. Legal business name:

Stearns, Conrad and Schmidt, Consulting Engineers, Inc.

2. Doing Business As/ Fictitious Name (if applicable):

SCS Engineers

3. Federal Employer I.D. no. (FEIN):

54-0913440

4. Dun and Bradstreet No.:

05-224-2385

5. Website address (if applicable):

www.scsengineers.com

6. Principal place of business address:

3900 Kilroy Airport Way # 100

Long Beach, CA 90806

7. Office location responsible for this project:

6115 Lyons Road. Coconut Creek, FL 33073

8. Telephone no.: Fax no.:

Telephone No: 305-298-6568

9. Type of business (check appropriate box):

Corporation (specify the state of incorporation): ■ Commonwealth of Virginia

Sole Proprietor □ _____

Limited Liability Company (LLC) □ _____

Limited Partnership □ _____

General Partnership (State and County Filed In) □ _____

Other – Specify □ _____

10. List Florida Department of State, Division of Corporations document number (or registration number if fictitious name): G22000110408

11. List name and title of each principal, owner, officer, and major shareholder:

a) Douglas L. Doerr, PE, President and CEO

b) James J. Walsh, PE, Chairman

c) Michael W. McLaughlin, PE, Senior VP and Secretary

d) Curtis P. Jang, Senior VP, Treasurer, and Chief Financial Officer

e) Thomas W. A. Barham, Senior VP, Asst. Secretary, and General Counsel

12. AUTHORIZED CONTACT(S) FOR YOUR FIRM:

Name: Daniel Dietch

Title: VP, Project Director

E-mail: DDietch@scsengineers.com

Telephone No.: 305-298-6568

Name: _____

Title: _____

E-mail: _____

Telephone No.: _____

13. Has your firm, its principals, officers or predecessor organization(s) been debarred or suspended by any government entity within the last three years? If yes, specify details in an attached written response. Yes □ No ■

14. Has your firm, its principals, officers, or predecessor organization(s) ever been debarred or suspended by any government entity? If yes, specify details in an attached written response, including the reinstatement date, if granted. Yes □ No ■

15. Has your firm ever failed to complete any services and/or delivery of products during the last three (3) years? If yes, specify details in an attached written response. Yes □ No ■

16. Is your firm or any of its principals or officers currently principals or officers of another organization? If yes, specify details in an attached written response. Yes □ No ■

17. Have any voluntary or involuntary bankruptcy petitions been filed by or against your firm, its parent or subsidiaries or predecessor organizations during the last three years? If yes, specify details in an attached written response. Yes □ No ■

18. Has your firm's surety ever intervened to assist in the completion of a contract or have Performance and/or Payment Bond claims been made to your firm or its predecessor's sureties during the last three years? If yes, specify details in an attached written response, including contact information for owner and surety. Yes □ No ■

19. Has your firm ever failed to complete any work awarded to you, services and/or delivery of products during the last three (3) years? If yes, specify details in an attached written response.

Yes □ No ■

20. Has your firm ever been terminated from a contract within the last three years? If yes, specify details in an attached written response. Yes □ No ■

Non-Collusion Certification:

Vendor shall disclose, to their best knowledge, any Authority officer or employee, or any relative of any such officer or employee as defined in Section 112.3135 (1) (c), Florida Statutes, who is an officer or director of, or has a material interest in, the Vendor's business, who is in a position to influence this procurement. Any Authority officer or employee who has any input into the writing of specifications or requirements, solicitation of offers, decision to award, evaluation of offers, or any other activity pertinent to this procurement is presumed, for purposes hereof, to be in a position to influence this procurement.

The Vendor hereby certifies that: (select one)

■ The Vendor certifies that this offer is made independently and free from collusion; or

□ The Vendor is disclosing names of officers or employees who have a material interest in this procurement and is in a position to influence this procurement. Vendor must include a list of name(s), and relationship(s) with its submittal.

Public Entities Crimes Certification:

In accordance with Public Entity Crimes, Section 287.133, Florida Statutes, a person or affiliate placed on the convicted vendor list following a conviction for a public entity crime may not submit on a contract: to provide any goods or services; for construction or repair of a public building or public work; for leases of real property to a public entity; and may not be awarded or perform work as a contractor, supplier, subcontractor, or consultant under a contract with any public entity; and may not transact business with any public entity in excess of the threshold amount provided in s.287.017 for Category Two for a period of

36 months following the date of being placed on the convicted vendor list. The Vendor hereby certifies that: (check box)

☐ The Vendor certifies that no person or affiliates of the Vendor are currently on the convicted vendor list and/or has not been found to commit a public entity crime, as described in the statutes.

Scrutinized Companies List Certification:

Any company, principals, or owners on the Scrutinized Companies with Activities in Sudan List, the Scrutinized Companies with Activities in the Iran Petroleum Energy Sector List, or the Scrutinized Companies that Boycott Israel List is prohibited from submitting a response to a solicitation for goods or services in an amount equal to or greater than $1 million.

The Vendor hereby certifies that: (check each box)

☐ The Vendor, owners, or principals are aware of the requirements of Sections 287.135, 215.473, and 215.4275, Florida Statutes, regarding Companies on the Scrutinized Companies with Activities in Sudan List the Scrutinized Companies with Activities in the Iran Petroleum Energy Sector List, or the Scrutinized Companies that Boycott Israel List; and

☐ The Vendor, owners, or principals, are eligible to participate in this solicitation and are not listed on either the Scrutinized Companies with Activities in Sudan List, the Scrutinized Companies with Activities in the Iran Petroleum Energy Sector List, or the Scrutinized Companies that Boycott Israel List; and

☐ If awarded the Contract, the Vendor, owners, or principals will immediately notify the County in writing if any of its principals are placed on the Scrutinized Companies with Activities in Sudan List, the Scrutinized Companies with Activities in the Iran Petroleum Energy Sector List, or the Scrutinized Companies that Boycott Israel List.

I hereby certify to the information provided in the Vendor Questionnaire and Standard Certifications:

Vice President	2-27-24
*AUTHORIZED SIGNATURE/NAME	TITLE	DATE

Vendor Name: SCS Engineers

* I certify that I am authorized to sign this solicitation response on behalf of the Vendor as indicated in Certificate as to Corporate Principal, designation letter by Director/Corporate Officer, or other business authorization to bind on behalf of the Vendor. As the Vendor's authorized representative, I attest that any and all statements, oral, written or otherwise, made in support of the Vendor's response, are accurate, true and correct. I also acknowledge that inaccurate, untruthful, or incorrect statements made in support of the Vendor's response may be used by the Authority as a basis for rejection, rescission of the award, or termination of the contract. I certify that the Vendor's response is made without prior understanding, agreement, or connection with any corporation, firm or person submitting a response for the same items/services and is in all respects fair and without collusion or fraud. I also certify that the Vendor agrees to abide by all terms and conditions of this solicitation, acknowledge and accept all of the solicitation pages as well as any special instructions sheet(s).

State of Florida

Department of State

I certify that the attached is a true and correct copy of the Renewal of Fictitious Name Registration for SCS ENGINEERS, which was filed on September 6, 2022, as shown by the records of this office.

The document number assigned to this renewal is G22000110408.

Given under my hand and the Great Seal of Florida, at Tallahassee, the Capital, this the Seventh day of September, 2022

Secretary of State

APPLICATION FOR RENEWAL OF FICTITIOUS NAME

FILED
Sep 06, 2022
Secretary of State
G22000110408

REGISTRATION# G92122000141

Fictitious Name: SCS ENGINEERS

Current Mailing Address:

3900 KILROY AIRPORT WAY
SUITE 100
LONG BEACH, CA 90806

New Mailing Address:

Current County of Principal Place of Business:

MULTIPLE

New County of Principal Place of Business:

Current FEI Number:

54-0913440

New FEI Number:

Current Owner(s):

Document #: P17311 ( ) Delete
FEI #: 54-0913440
Name: STEARNS CONRAD AND SCHMIDT CONSULTING ENGINEERS IN
Address: 3900 KILROY AIRPORT WAY, STE 100
City-St-Zip: LONG BEACH, CA 90806 US

Additions/Changes to Owner(s):

Document #: ( ) Change ( ) Addition
FEI #:
Name:
Address:
City-St-Zip:

I the undersigned, being an owner in the above fictitious name, certify that the information indicated on this form is true and accurate. I understand that the electronic signature below shall have the same legal effect as if made under oath. I am aware that false information submitted in a document to the Department of State constitutes a third degree felony as provided for in s. 817.155, Florida Statutes.

SUZANNE HELAK 09/06/2022

Electronic Signature(s) Date

Certificate of Status Requested ( ) **Certified Copy Requested (X)**

Helak, Suzanne

From: OnlineWebFicRen@dos.state.fl.us
Sent: Wednesday, September 7, 2022 2:19 AM
To: GR-CorporateSecretary
Subject: Fictitious Name Renewal - G22000110408; 600393989246
Attachments: CC-600393989246-09072022-G92122000141.pdf; 60989246.tif

Subject: SCS ENGINEERS

Renewal Number: G22000110408

This will acknowledge the Fictitious Name Registration Renewal for SCS ENGINEERS, filed on September 06, 2022.

This renewal continues the original registration number - G92122000141 until December 31, 2027.

Enclosed is the certification you requested.

If the mailing address of this business changes, please notify this office in writing or through the link provided on our website www.sunbiz.org for Address & FEI/EIN Changes. Please reference the original registration number.

Should you have any questions regarding this matter you may contact our office at (850) 245-6058.

Division of Corporations

Print

Licensee

Name:	**STEARNS, CONRAD & SCHMIDT CONSULTING ENGINEERS, INC.**	License Number:	**4892**
Rank:	**Registry**	License Expiration Date:	
Primary Status:	**Current**	Original License Date:	**12/31/1987**

Related License Information

License Number	Status	Related Party	Relationship Type	Relation Effective Date	Rank	Expiration Date
60815	Current, Active	LEBRON, CARLO FELIX	Registry	04/04/2019	Professional Engineer	02/28/2025

ONLINE SERVICES

Apply for a License

Verify a Licensee

View Food & Lodging Inspections

File a Complaint

Continuing Education Course Search

View Application Status

Find Exam Information

Unlicensed Activity Search

AB&T Delinquent Invoice & Activity List Search

LICENSEE DETAILS

11:31:24 AM 1/26/2024

Licensee Information

Name:	**STEARNS, CONRAD & SCHMIDT CONSULTING ENGINEERS, INC.** (Primary Name) **SCS ENGINEERS** (DBA Name)
Main Address:	**3922 COCONUT PALM DRIVE SUITE 102 TAMPA Florida 33619**
County:	**HILLSBOROUGH**
License Location:	**3922 COCONUT PALM DRIVE SUITE 102 TAMPA FL 33619**
County:	**HILLSBOROUGH**

License Information

License Type:	**Engineering Business Registry**
Rank:	**Registry**
License Number:	**4892**
Status:	**Current**
Licensure Date:	**12/31/1987**
Expires:	

Special Qualifications	Qualification Effective

Alternate Names

View Related License Information

View License Complaint

State of Florida
Department of State

I certify from the records of this office that STEARNS, CONRAD AND SCHMIDT, CONSULTING ENGINEERS, INC. is a Virginia corporation authorized to transact business in the State of Florida, qualified on December 21, 1987.

The document number of this corporation is P17311.

I further certify that said corporation has paid all fees due this office through December 31, 2024, that its most recent annual report/uniform business report was filed on January 17, 2024, and that its status is active.

I further certify that said corporation has not filed a Certificate of Withdrawal.

Given under my hand and the Great Seal of the State of Florida at Tallahassee, the Capital, this the Seventeenth day of January, 2024

Secretary of State

Tracking Number: 5527394564CC

To authenticate this certificate,visit the following site,enter this number, and then follow the instructions displayed.

https://services.sunbiz.org/Filings/CertificateOfStatus/CertificateAuthentication

ONLINE SERVICES

Apply for a License

Verify a Licensee

View Food & Lodging Inspections

File a Complaint

Continuing Education Course Search

View Application Status

Find Exam Information

Unlicensed Activity Search

AB&T Delinquent Invoice & Activity List Search

LICENSEE DETAILS

9:31:03 AM 2/7/2023

Licensee Information

Name:	**LEBRON, CARLO FELIX (Primary Name)**
Main Address:	**2912 WEST TRILBY AVE TAMPA Florida 33611**
County:	**HILLSBOROUGH**

License Information

License Type:	**Professional Engineer**
Rank:	**Prof Engineer**
License Number:	**60815**
Status:	**Current,Active**
Licensure Date:	**01/13/2004**
Expires:	**02/28/2025**

Special Qualifications	Qualification Effective

Alternate Names

View Related License Information

View License Complaint

VENDOR REFERENCE VERIFICATION FORM FOR RFP

[Insert Solicitation No. and Title] Solicitation No. 5942001 Consulting Svs - Preparation of Solid Waste & Recycling Master Plan			
Reference For (hereinafter, "Vendor"):	SCS Engineers		
Reference Date:			
Organization/Firm Providing Reference:	Collier County Solid and Hazardous Waste Management Division		
Contact Name:	Kari Ann Hodgson, P.E.		
Contact Title:	Division Director		
Contact Email:	Kari.Hodgson@colliercountyfl.gov		
Contact Phone:	(239) 252-2504		
Name of Referenced Project:	Long-Term Sustainable Solid Waste Plan		
Contract Number:	18-7432-SW		
Date Range of Services Provided:	Start Date: May 6, 2020	End Date: September 29, 2023	
Project Amount:	$165,247		
Vendor's Role in Project:	☑ Prime	☐ Subconsultant/Subcontractor	
Would you use this Vendor again?	☑ Yes	☐ No	
If you answered no to the question above, please specify below: (attach additional sheet if needed)			
Description of services provided by Vendor, please specify below: (attach additional sheet if needed)			
See attached.			

Please rate your experience with the referenced Vendor via checkbox:	Needs Improvement	Satisfactory	Excellent	Not Applicable
Vendor's Quality of Service:				
Responsive:	☐	☐	☑	☐
Accuracy:	☐	☐	☑	☐
Deliverables:	☐	☐	☑	☐
Vendor's Organization:				
Staff Expertise:	☐	☐	☑	☐
Professionalism:	☐	☐	☑	☐
Turnover:	☐	☐	☑	☐
Timeliness of:				
Project:	☐	☐	☑	☐
Deliverables:	☐	☐	☑	☐
Project completed within budget:	☐	☐	☑	☐
Cooperation with:				
Your Firm:	☐	☐	☑	☐
Subcontractor(s)/Subconsultant(s):	☐	☐	☑	☐
Regulatory Agency(ies):	☐	☐	☑	☐

All information provided to the Authority is subject to verification. Vendor acknowledges that inaccurate, untruthful, or incorrect statements made in support of this response may be used by the Authority as a basis for rejection, rescission of the award, or termination of the contract.

*****THE SECTION BELOW IS FOR AUTHORITY USE ONLY*****

Verified via: ☐ Email ☐ Verbal	Verified by:		Division:	
			Date:	

Long-Term Sustainable Solid Waste Plan (LTSSWP)

The Collier County (County) Solid and Hazardous Waste Management Division (Division) engaged SCS Engineers (SCS) to prepare a Long-Term Sustainable Solid Waste Plan as an update to their Integrated Solid Waste Strategy that was unanimously adopted by the Board of County Commissioners in 2006. The work included:

1. Summarizing the County's current core solid waste management facilities and programs;
2. Documenting the success of the initiatives identified during the last BCC Workshop;
3. Reaffirming the Enduring Guiding Principles that will provide the framework for evaluating future development of the LTSSWP;
4. Identifying and evaluating potential solid waste initiatives and options to meet or exceed the statewide recycling goal based on the following components:
   - Source Reduction, Materials Reuse and Recycling;
   - Diversion;
   - Optimization of Existing Assets and Resources;
   - Partnerships; and
   - Acquisition of Additional Facilities.
5. Benchmarking and preparing fact sheets that reflect potential solid waste initiatives, programs, and facilities that may serve as enhancements to the LTSSWP; and
6. Preparing a presentation identifying the key elements of the recommended Long-Term Sustainable Solid Waste Plan.

Activities included preparing for and facilitating an Integrated Solid Waste Management Strategy Status Update workshop with the County's Project Delivery Team (PDT) to review the activity and principal results since the 2006 Integrated Solid Waste Management Strategy Workshop. Following the workshop, SCS prepared a status summary memorandum that documented progress since 2006 related to the identified solid waste management initiatives, programs, and facilities. In addition, SCS conducted a survey of comparable Florida counties and prepared a "State of Solid Waste Management in Florida" memorandum that captured information including new public and private landfills, landfill capacity, new collection agreements, and new recycling facilities.

SCS also facilitated a solid waste management brainstorming session with the PDT that identified the following strategies:

- Regional Cooperation Opportunities with Public and Private Parties;
- Reconsideration of the Solid Waste Facilities Master Plan;
- Optimization of the Eustis Landfill, Immokalee Landfill, Collier County Landfill, and Resource Recovery Business Park; and
- Operational Structures (e.g., Independent District, Dependent District, Authority, etc.).

Following the brainstorming session, SCS prepared fact sheets that analyzed the technical, financial, and operational feasibility as well a potential landfill capacity (i.e., airspace) savings, estimated carbon emission reductions, and estimated fiscal impacts for each option. While the project has been completed, SCS will be engaged under a separate authorization to support the PDT and lead a workshop with the Board of County Commissioners.

Solid Waste Disposal Options Analysis

The Manatee County Solid Waste Division (County) operates the Class I Lena Road Landfill (Landfill), which is estimated to have less than 20 years of remaining disposal capacity. SCS Engineers (SCS) was engaged to evaluate solid waste disposal options, prepare technical memoranda for each option, and support the presentation of options to the County's Board of County Commissioners (Board). This reference relates to the evaluation of solid waste management alternatives to landfilling within the County. These options include conversion technology (transforming waste materials to useable energy), transferring waste out-of-county to a non-County owned disposal facility, or for the County to purchase or partner, and develop a landfill or enter into a disposal partnership outside of the County boundaries.

Initially, SCS analyzed the future disposal needs of the County for the next 50 years beyond the life of the Landfill. SCS evaluated the County's future waste streams using current waste generation rates, population growth, and economic and development initiatives. Using the current and future disposal needs, SCS conducted a conversion technology assessment that assessed the universe of available technologies, which were characterized as commercially proven, emerging, or developing and included a discussion of the benefits and challenges of each technology, footprint needed, capital expenditures for development, and an estimated timeline from siting to start up. SCS prepared a technical memorandum that summarized the data, analysis, findings, and recommendations for County review and policy direction. SCS also explored options dispose of waste out of County. SCS assessed the long-term waste transfer options using a customized model to evaluate the financial feasibility of possible alternatives. SCS' analysis considered factors such as the cost of current operations, the cost of transfer station construction, ongoing costs of onsite transfer station operations and staffing, alternative disposal facility tipping fees, distance to alternative disposal facilities, and the cost to transfer waste to disposal facilities. SCS also considered the impact of potential fees that could be charged before it would result in Landfill customers transporting their waste directly to the alternative disposal facilities. SCS prepared a technical memorandum that summarized the data, analysis, findings, and presented the recommendations for County review and direction. Lastly, SCS conducted a desktop review of out-of-county disposal scenarios that may be advantageous to the County and identified examples of regional municipal and municipal/private solid waste disposal partnerships in Florida. The work was presented to the Board, which resulted in the policy direction to optimize the Landfill for future disposal capacity, which was determined to be the best value alternative.

VENDOR REFERENCE VERIFICATION FORM FOR RFP

[Insert Solicitation No. and Title] Solicitation No. 5942001 Consulting Svs - Preparation of Solid Waste & Recycling Master Plan			
Reference For (hereinafter, "Vendor"):	SCS Engineers		
Reference Date:	February 14, 2024		
Organization/Firm Providing Reference:	Manatee County, FL		
Contact Name:	Christian Collins		
Contact Title:	Deputy Director Utilities		
Contact Email:	chris.collins@mymanatee.org		
Contact Phone:	(941) 792-8811, ext. 5275		
Name of Referenced Project:	Solid Waste Disposal Options Analysis		
Contract Number:	21-TA003767SAM		
Date Range of Services Provided:	Start Date: April 5, 2023	End Date: August 14, 2023	
Project Amount:	$72,363		
Vendor's Role in Project:	☑ Prime	☐ Subconsultant/Subcontractor	
Would you use this Vendor again?	☑ Yes	☐ No	
If you answered no to the question above, please specify below: (attach additional sheet if needed)			
Description of services provided by Vendor, please specify below: (attach additional sheet if needed)			
See attached.			

Please rate your experience with the referenced Vendor via checkbox:	Needs Improvement	Satisfactory	Excellent	Not Applicable
Vendor's Quality of Service:				
Responsive:	☐	☐	☑	☐
Accuracy:	☐	☐	☑	☐
Deliverables:	☐	☐	☑	☐
Vendor's Organization:				
Staff Expertise:	☐	☐	☑	☐
Professionalism:	☐	☐	☑	☐
Turnover:	☐	☐	☑	☐
Timeliness of:				
Project:	☐	☐	☑	☐
Deliverables:	☐	☐	☑	☐
Project completed within budget:	☐	☐	☑	☐
Cooperation with:				
Your Firm:	☐	☐	☑	☐
Subcontractor(s)/Subconsultant(s):	☐	☐	☑	☐
Regulatory Agency(ies):	☐	☐	☑	☐

All information provided to the Authority is subject to verification. Vendor acknowledges that inaccurate, untruthful, or incorrect statements made in support of this response may be used by the Authority as a basis for rejection, rescission of the award, or termination of the contract.

*****THE SECTION BELOW IS FOR AUTHORITY USE ONLY*****

Verified via: ☐ Email ☐ Verbal	Verified by:		Division:	
			Date:	

VENDOR REFERENCE VERIFICATION FORM FOR RFP

[Insert Solicitation No. and Title] Solicitation No. 5942001 Consulting Svs - Preparation of Solid Waste & Recycling Master Plan			
Reference For (hereinafter, "Vendor"):	SCS Engineers		
Reference Date:	February 13, 2024		
Organization/Firm Providing Reference:	Yakima County Solid Waste		
Contact Name:	Karma Suchan		
Contact Title:	Solid Waste Manager		
Contact Email:	karma.suchan@co.yakima.wa.us		
Contact Phone:	509-574-2455		
Name of Referenced Project:	Rate Study as part of Solid Waste Management Plan		
Contract Number:	034-2021		
Date Range of Services Provided:	Start Date: 02/23/2021	End Date: 07/03/2023	
Project Amount:	$68,200 for Rate Study portion		
Vendor's Role in Project:	☑ Prime	☐ Subconsultant/Subcontractor	
Would you use this Vendor again?	☑ Yes	☐ No	
If you answered no to the question above, please specify below: (attach additional sheet if needed)			
Description of services provided by Vendor, please specify below: (attach additional sheet if needed)			
Provided us a complete overview with interactive modeling that identified rates, fees, projected cash flows, impacts from capital projects,			

Please rate your experience with the referenced Vendor via checkbox:	Needs Improvement	Satisfactory	Excellent	Not Applicable
Vendor's Quality of Service:				
Responsive:	☐	☐	☑	☐
Accuracy:	☐	☐	☑	☐
Deliverables:	☐	☐	☑	☐
Vendor's Organization:				
Staff Expertise:	☐	☐	☑	☐
Professionalism:	☐	☐	☑	☐
Turnover:	☐	☐	☑	☐
Timeliness of:				
Project:	☐	☐	☑	☐
Deliverables:	☐	☐	☑	☐
Project completed within budget:	☐	☐	☑	☐
Cooperation with:				
Your Firm:	☐	☐	☑	☐
Subcontractor(s)/Subconsultant(s):	☐	☐	☐	☑
Regulatory Agency(ies):	☐	☐	☑	☐

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Verified via: ☐ Email ☐ Verbal	Verified by:		Division:	
			Date:	

VENDOR REFERENCE VERIFICATION FORM FOR RFP

[Insert Solicitation No. and Title] Solicitation No. 5942001 Consulting Svs - Preparation of Solid Waste & Recycling Master Plan			
Reference For (hereinafter, "Vendor"):	SCS Engineers		
Reference Date:	2/13/2024		
Organization/Firm Providing Reference:	Butte County Public Works Neal Road Recycling and Waste Facility		
Contact Name:	Neal Road Recycling and Waste Facility Master Plan		
Contact Title:	Neal Road Recycling and Waste Facility Master Plan		
Contact Email:	ccissell@buttecounty.net		
Contact Phone:	(530) 552-5687		
Name of Referenced Project:	Neal Road Recycling and Waste Facility Master Plan		
Contract Number:	X90685		
Date Range of Services Provided:	Start Date: 01/27/22	End Date: 08/08/24	
Project Amount:	$328,757.00		
Vendor's Role in Project:	☑ Prime	☐ Subconsultant/Subcontractor	
Would you use this Vendor again?	☑ Yes	☐ No	
If you answered no to the question above, please specify below: (attach additional sheet if needed)			
Description of services provided by Vendor, please specify below: (attach additional sheet if needed)			
See Attached			

Please rate your experience with the referenced Vendor via checkbox:	Needs Improvement	Satisfactory	Excellent	Not Applicable
Vendor's Quality of Service:				
Responsive:	☐	☑	☐	☐
Accuracy:	☐	☑	☐	☐
Deliverables:	☐	☐	☑	☐
Vendor's Organization:				
Staff Expertise:	☐	☑	☐	☐
Professionalism:	☐	☑	☐	☐
Turnover:	☐	☐	☐	☐
Timeliness of:				
Project:	☐	☑	☐	☐
Deliverables:	☐	☑	☐	☐
Project completed within budget:	☐	☐	☑	☐
Cooperation with:				
Your Firm:	☐	☑	☐	☐
Subcontractor(s)/Subconsultant(s):	☐	☑	☐	☐
Regulatory Agency(ies):	☐	☑	☐	☐

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Verified via: ☐ Email ☐ Verbal	Verified by:		Division:	
			Date:	

ATTACHMENT III
Scope of Work

Unless indicated otherwise herein, the CONTRACTOR shall furnish all labor, materials, transportation, supervision and management and pay all taxes required to complete the project described below:

Duties and obligations of the CONTRACTOR:

The following scope of services addresses the requirements outlined in the County's Request for Qualifications dated August 27, 2021, and in discussions with COUNTY staff to develop a new Master Plan for the Neal Road Recycling and Waste Facility (NRRWF).

TASK 1 – Kickoff Meeting

A virtual kickoff meeting will be held with the CONTRACTOR's project team and COUNTY staff. The kickoff meeting will introduce the key project team members, review and discuss the scope of services and schedule, establish communication and project management protocols, confirm deliverables, and review information needs for the project. CONTRACTOR will prepare a memorandum summarizing the discussions from the meeting.

TASK 2 – Review Background Documents

CONTRACTOR will prepare an initial data/information request and submit this to the COUNTY prior to the kickoff meeting. A preliminary data/information request list is provided below:

a. Previous master plan.
b. Landfill permits (solid waste, air, stormwater, groundwater, etc.).
c. Landfill sequencing plans.
d. Facility information, capacities, throughput for the landfill, resource recovery, vegetation, and septage handling and disposal facilities.
e. Solid waste, recycling, organic waste (vegetative and food waste), and recycling quantities (historical, current, and projected).
f. Historical (last five years) and operational and capital expenditures.
g. Current capital improvement plan.
h. Previous consultant reports, e.g., landfill site investigations (geotechnical, hydrogeological, wetlands, engineering, CEQA, etc.
i. Previous technology evaluations and reports.
j. Historical Board reports relating to solid waste operations (last 10 years).
k. Landfill information, including permitted airspace, consumed airspace, remaining permitted airspace, and deemed expansion airspace.
l. Achieved air space utilization factor (AUF).
m. Soil balance assessment of the site.
n. Cover practices, sources, and costs.
o. Reserve funds and balances.
p. Closure and post-closure care estimates (most recent).
q. Financial assurance mechanism used by Butte County.
r. Most recent topographic map of the site.
s. Operational budget for the NRRWF, including projected capital expenditures.
t. Solid waste asset list.
u. Maintenance data base for equipment.
v. Scale records, with waste types.

CONTRACTOR will compile and review the information provided by the COUNTY, which will serve as the foundation for the development of the Master Plan, which includes Summary Report,

VENDOR REFERENCE VERIFICATION FORM FOR RFP

[Insert Solicitation No. and Title] Solicitation No. 5942001 Consulting Svs - Preparation of Solid Waste & Recycling Master Plan			
Reference For (hereinafter, "Vendor"):	SCS Engineers		
Reference Date:	2/15/2024		
Organization/Firm Providing Reference:	Southeastern Public Service Authority (SPSA)		
Contact Name:	Dennis Bagley		
Contact Title:	Executive Director		
Contact Email:	dbagley@spsa.com		
Contact Phone:	757-295-6990		
Name of Referenced Project:	Solid Waste System Engineering, Permitting, Compliance, and Planning		
Contract Number:			
Date Range of Services Provided:	Start Date: 7/2022	End Date: 12/2026	
Project Amount:	Varies, ongoing consulting services: 2022-$142,000 2023 - $802,000		
Vendor's Role in Project:	☑ Prime	☐ Subconsultant/Subcontractor	
Would you use this Vendor again?	☑ Yes	☐ No	
If you answered no to the question above, please specify below: (attach additional sheet if needed)			
Description of services provided by Vendor, please specify below: (attach additional sheet if needed)			
Engineering design, permitting, compliance monitoring and reporting, construction quality assurance, solid waste studies			

Please rate your experience with the referenced Vendor via checkbox:	Needs Improvement	Satisfactory	Excellent	Not Applicable
Vendor's Quality of Service:				
Responsive:	☐	☐	☑	☐
Accuracy:	☐	☐	☑	☐
Deliverables:	☐	☑	☐	☐
Vendor's Organization:				
Staff Expertise:	☐	☐	☑	☐
Professionalism:	☐	☐	☑	☐
Turnover:	☐	☐	☑	☐
Timeliness of:				
Project:	☐	☑	☐	☐
Deliverables:	☐	☐	☐	☐
Project completed within budget:	☐	☐	☑	☐
Cooperation with:				
Your Firm:	☐	☐	☑	☐
Subcontractor(s)/Subconsultant(s):	☐	☐	☑	☐
Regulatory Agency(ies):	☐	☐	☑	☐

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			Date:	

VENDOR REFERENCE VERIFICATION FORM FOR RFP

[Insert Solicitation No. and Title] Solicitation No. 5942001 Consulting Svs - Preparation of Solid Waste & Recycling Master Plan			
Reference For (hereinafter, "Vendor"):	SCS Engineers		
Reference Date:	February 15, 2024		
Organization/Firm Providing Reference:	Iowa Department of Natural Resourses		
Contact Name:	Tom Anderson		
Contact Title:	Executive Officer II		
Contact Email:	Tom. Anderson@dnr.iowa.gov		
Contact Phone:	515-240-6059		
Name of Referenced Project:	Transitioning to a Sustainable Materials State		
Contract Number:	21ESDLQBTANDE-0001		
Date Range of Services Provided:	Start Date: October 26, 2020	End Date: August 30, 2024	
Project Amount:	$429,750		
Vendor's Role in Project:	☑ Prime	☐ Subconsultant/Subcontractor	
Would you use this Vendor again?	☑ Yes	☐ No	
If you answered no to the question above, please specify below: (attach additional sheet if needed)			
Description of services provided by Vendor, please specify below: (attach additional sheet if needed)			
Research and facilitation of multiple stakeholder subcommittee meetings to establish SMM priorities, conduct life cycle analyses to gauge public health and environmental impacts, and recommend strategies to implement SMM policies, programs, facilities, & funding.			

Please rate your experience with the referenced Vendor via checkbox:	Needs Improvement	Satisfactory	Excellent	Not Applicable
Vendor's Quality of Service:				
Responsive:	☐	☐	☑	☐
Accuracy:	☐	☐	☑	☐
Deliverables:	☐	☐	☑	☐
Vendor's Organization:				
Staff Expertise:	☐	☐	☑	☐
Professionalism:	☐	☐	☑	☐
Turnover:	☐	☐	☐	☑
Timeliness of:				
Project:	☐	☐	☑	☐
Deliverables:	☐	☐	☑	☐
Project completed within budget:	☐	☐	☑	☐
Cooperation with:				
Your Firm:	☐	☐	☑	☐
Subcontractor(s)/Subconsultant(s):	☐	☐	☑	☐
Regulatory Agency(ies):	☐	☐	☑	☐

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VENDOR REFERENCE VERIFICATION FORM FOR RFP

[Insert Solicitation No. and Title] Solicitation No. 5942001 Consulting Svs - Preparation of Solid Waste & Recycling Master Plan			
Reference For (hereinafter, "Vendor"):	SCS Engineers		
Reference Date:	February 20, 2024		
Organization/Firm Providing Reference:	PA DEP - Bureau of Waste Management, Waste Minimization		
Contact Name:	John Nantz		
Contact Title:	Program Analyst		
Contact Email:	jnantz@pa.gov		
Contact Phone:	717-787-0120		
Name of Referenced Project:	Recycling Technical Assistance Training Program		
Contract Number:	PO No. 4300754381 (4)1-year renewals remain		
Date Range of Services Provided:	Start Date: 07/01/2023	End Date: 06/30/2024	
Project Amount:	$232,500		
Vendor's Role in Project:	☑ Prime	☐ Subconsultant/Subcontractor	
Would you use this Vendor again?	☑ Yes	☐ No	
If you answered no to the question above, please specify below: (attach additional sheet if needed)			
Description of services provided by Vendor, please specify below: (attach additional sheet if needed)			
Provide recycling technical assistance to county and municpalities in Pennsylvania wishing to start up or enhance recycling programs.			
Each project is limited to $7,500 worth of consulting services.			

Please rate your experience with the referenced Vendor via checkbox:	Needs Improvement	Satisfactory	Excellent	Not Applicable
Vendor's Quality of Service:				
Responsive:	☐	☐	☑	☐
Accuracy:	☐	☐	☑	☐
Deliverables:	☐	☐	☑	☐
Vendor's Organization:				
Staff Expertise:	☐	☐	☑	☐
Professionalism:	☐	☐	☑	☐
Turnover:	☐	☐	☐	☑
Timeliness of:				
Project:	☐	☐	☑	☐
Deliverables:	☐	☐	☑	☐
Project completed within budget:	☐	☐	☑	☐
Cooperation with:				
Your Firm:	☐	☐	☑	☐
Subcontractor(s)/Subconsultant(s):	☐	☐	☑	☐
Regulatory Agency(ies):	☐	☐	☑	☐

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[Insert Solicitation No. and Title] Solicitation No. 5942001 Consulting Svs - Preparation of Solid Waste & Recycling Master Plan			
Reference For (hereinafter, "Vendor"):	SCS Engineers		
Reference Date:	2/15/2024		
Organization/Firm Providing Reference:	Prince George's County Government, Resource Recovery Division		
Contact Name:	Bruce M. O'Dell, Jr.		
Contact Title:	Disposal Section Manager		
Contact Email:	bmodell@co.pg.md.us		
Contact Phone:	office) 301-952-7644; cell) 240-508-9685		
Name of Referenced Project:	Zero Waste Initiatives Plan, Waste Characterization Study		
Contract Number:	Contract S00-113 - Task Order No. S00-113-SCS121-0916		
Date Range of Services Provided:	Start Date: Sep 2014	End Date: Dec 2017	
Project Amount:	$124,000 for Zero Waste Initiatives Plan		
Vendor's Role in Project:	☑ Prime	☐ Subconsultant/Subcontractor	
Would you use this Vendor again?	☑ Yes	☐ No	

If you answered no to the question above, please specify below: (attach additional sheet if needed)

N/A

Description of services provided by Vendor, please specify below: (attach additional sheet if needed)

Zero Waste Initiatives Plan, Waste Characterization Study, Ongoing Landfill Gas-to-Energy System

Please rate your experience with the referenced Vendor via checkbox:	Needs Improvement	Satisfactory	Excellent	Not Applicable
Vendor's Quality of Service:				
Responsive:	☐	☐	✓	☐
Accuracy:	☐	☐	✓	☐
Deliverables:	☐	☐	✓	☐
Vendor's Organization:				
Staff Expertise:	☐	☐	✓	☐
Professionalism:	☐	☐	✓	☐
Turnover:	☐	☐	✓	☐
Timeliness of:				
Project:	☐	☐	✓	☐
Deliverables:	☐	☐	✓	☐
Project completed within budget:	☐	☐	✓	☐
Cooperation with:				
Your Firm:	☐	☐	✓	☐
Subcontractor(s)/Subconsultant(s):	☐	☐	✓	☐
Regulatory Agency(ies):	☐	☐	✓	☐

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			Date:	

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[Insert Solicitation No. and Title] Solicitation No. 5942001 Consulting Svs - Preparation of Solid Waste & Recycling Master Plan			
Reference For (hereinafter, "Vendor"):	SCS Engineers		
Reference Date:	February 20, 2024		
Organization/Firm Providing Reference:	Arlington County VA Department of Environmental Service		
Contact Name:	Douglas Krietemeyer		
Contact Title:	Environmental Sustainability Planner		
Contact Email:	dkrietemeyer@arlingtonva.us		
Contact Phone:	703-2298-0443		
Name of Referenced Project:	Arlington County Solid Waste Management Plan and Zero Waste Plan		
Contract Number:	22-DES-R-646		
Date Range of Services Provided:	Start Date: 3/14/2022	End Date: 12/31/2023	
Project Amount:	$179,832.50		
Vendor's Role in Project:	☑ Prime	☐ Subconsultant/Subcontractor	
Would you use this Vendor again?	☑ Yes	☐ No	
If you answered no to the question above, please specify below: (attach additional sheet if needed)			
Description of services provided by Vendor, please specify below: (attach additional sheet if needed)			
Identification of zero waste programs and policies with associated implementation cost, greenhouse gas savings, and diversion rate.			
Presentations to SWAC. Development of a Solid Waste Management Plan and Voluntary Zero Waste Programs for 2024-2044.			

Please rate your experience with the referenced Vendor via checkbox:	Needs Improvement	Satisfactory	Excellent	Not Applicable
Vendor's Quality of Service:				
Responsive:	☐	☐	☑	☐
Accuracy:	☐	☑	☐	☐
Deliverables:	☐	☑	☐	☐
Vendor's Organization:				
Staff Expertise:	☐	☑	☐	☐
Professionalism:	☐	☐	☑	☐
Turnover:	☐	☑	☐	☐
Timeliness of:				
Project:	☐	☑	☐	☐
Deliverables:	☐	☑	☐	☐
Project completed within budget:	☐	☐	☑	☐
Cooperation with:				
Your Firm:	☐	☐	☑	☐
Subcontractor(s)/Subconsultant(s):	☐	☐	☐	☑
Regulatory Agency(ies):	☐	☑	☐	☐

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Verified via: ☐ Email ☐ Verbal	Verified by:		Division:	
			Date:	

LOCKTON

UNCOMMONLY INDEPENDENT

February 23, 2024

Broward County Board of County Commissioners

Re: Solicitation 5942001
Preparation of Solid Waste & Recycling Master Plan

To Whom It May Concern:

Please be advised that Stearns, Conrad & Schmidt Consulting Engineers meets or exceeds the insurance requirements contained in the above referenced solicitation.

Please let me know if you have any questions regarding their insurance program.

Sincerely,

Gary L. Stevens Jr.

Gary L. Stevens Jr.

Practice Leader

EXHIBIT "D"

LITIGATION HISTORY FORM

The completed form(s) should be returned with the Vendor's submittal. Vendor may be deemed non-responsive for failure to fully comply within stated timeframes.

☑ There are no material cases for this Vendor; or

☐ Material Case(s) are disclosed below:

Is this for a: (check type) ☐ Parent, ☐ Subsidiary, or ☐ Predecessor Firm?	If Yes, name of Parent/Subsidiary/Predecessor: Or No ☐
Party	
Case Number, Name, and Date Filed	
Name of Court or other tribunal	
Type of Case	Bankruptcy ☐ Civil ☐ Criminal ☐ Administrative/Regulatory ☐
Claim or Cause of Action and Brief description of each Count	
Brief description of the Subject Matter and Project Involved	
Disposition of Case (Attach copy of any applicable Judgment, Settlement Agreement and Satisfaction of Judgment.)	Pending ☐ Settled ☐ Dismissed ☐ Judgment Vendor's Favor ☐ Judgment Against Vendor ☐ If Judgment Against, is Judgment Satisfied? ☐ Yes ☐ No
Opposing Counsel	Name: Email: Telephone Number:

Vendor Name: SCS Engineers

EXHIBIT "E"

AGREEMENT EXCEPTION FORM

AND FORM OF AGREEMENT

The completed form(s) should be submitted with the solicitation response. If not submitted with solicitation response, it shall be deemed an affirmation by the Vendor that it accepts contract terms and conditions stated in the solicitation.

The Vendor must provide on the form below, any and all exceptions it takes to the contract terms and conditions the form of which is attached hereto, including all proposed modifications to the contract terms and conditions or proposed additional terms and conditions. Additionally, a brief justification specifically addressing each provision to which an exception is taken should be provided.

☑ There are no exceptions to the contract terms and conditions state in this solicitation; or

☐ The following exceptions are taken to the contract terms and conditions state in this soliciation: (use additional forms as needed; separate each Article/ Section number)

Term or Condition Article / Section	Insert proposed modifications to the contract terms and conditions or proposed additional terms and condition	Provide brief justification for proposed modifications

Vendor Name: SCS Engineers

STEARNS, CONRAD AND SCHMIDT CONSULTING ENGINEERS, INC. DBA SCS ENGINEERS AND SUBSIDIARIES

Consolidated Audited Financial Statements
For the Years Ended December 31, 2022 and 2021

STEARNS, CONRAD AND SCHMIDT CONSULTING ENGINEERS, INC.
DBA SCS ENGINEERS AND SUBSIDIARIES

Contents

For the Years Ended December 31, 2022 and 2021

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CPAS & BUSINESS ADVISORS

INDEPENDENT AUDITORS' REPORT

Board of Directors
STEARNS, CONRAD AND SCHMIDT CONSULTING ENGINEERS, INC.
DBA SCS ENGINEERS AND SUBSIDIARIES
Long Beach, California

Opinion

We have audited the accompanying consolidated financial statements of Stearns, Conrad and Schmidt Consulting Engineers, Inc. dba SCS Engineers and Subsidiaries, which comprise the consolidated balance sheets as of December 31, 2022 and 2021, and the related consolidated statements of income, stockholder's equity, and cash flows for the years then ended, and the related notes to the consolidated financial statements.

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of Stearns, Conrad and Schmidt Consulting Engineers, Inc. dba SCS Engineers and Subsidiaries as of December 31, 2022 and 2021, and the results of their operations and their cash flows for the years then ended in accordance with accounting principles generally accepted in the United States of America.

Basis for Opinion

We conducted our audits in accordance with auditing standards generally accepted in the United States of America. Our responsibilities under those standards are further described in the Auditors' Responsibilities for the Audit of the Consolidated Financial Statements section of our report. We are required to be independent of Stearns, Conrad and Schmidt Consulting Engineers, Inc. dba SCS Engineers and Subsidiaries and to meet our other ethical responsibilities in accordance with the relevant ethical requirements relating to our audit. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Responsibilities of Management for the Consolidated Financial Statements

Management is responsible for the preparation and fair presentation of the consolidated financial statements in accordance with accounting principles generally accepted in the United States of America, and for the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of consolidated financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the consolidated financial statements, management is required to evaluate whether there are conditions or events, considered in the aggregate, that raise substantial doubt about Stearns, Conrad and Schmidt Consulting Engineers, Inc. dba SCS Engineers and Subsidiaries' ability to continue as a going concern within one year after the date that the consolidated financial statements are available to be issued.

714 667 2600
fax 714 667 2636
1 Park Plaza, Suite 950, Irvine, CA 92614
www.gelmanllp.com

Auditors' Responsibilities for the Audit of the Consolidated Financial Statements

Our objectives are to obtain reasonable assurance about whether the consolidated financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditors' report that includes our opinion. Reasonable assurance is a high level of assurance but is not absolute assurance and therefore is not a guarantee that an audit conducted in accordance with generally accepted auditing standards will always detect a material misstatement when it exists. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control. Misstatements are considered material if there is a substantial likelihood that, individually or in the aggregate, they would influence the judgment made by a reasonable user based on the consolidated financial statements.

In performing an audit in accordance with generally accepted auditing standards, we:

- Exercise professional judgment and maintain professional skepticism throughout the audit.
- Identify and assess the risks of material misstatement of the consolidated financial statements, whether due to fraud or error, and design and perform audit procedures responsive to those risks. Such procedures include examining, on a test basis, evidence regarding the amounts and disclosures in the consolidated financial statements.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of Stearns, Conrad and Schmidt Consulting Engineers, Inc. dba SCS Engineers and Subsidiaries' internal control. Accordingly, no such opinion is expressed.
- Evaluate the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluate the overall presentation of the consolidated financial statements.
- Conclude whether, in our judgment, there are conditions or events, considered in the aggregate, that raise substantial doubt about Stearns, Conrad and Schmidt Consulting Engineers, Inc. dba SCS Engineers and Subsidiaries' ability to continue as a going concern for a reasonable period of time.

We are required to communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit, significant audit findings, and certain internal control related matters that we identified during the audit.

Gelman LLP

Irvine, California
March 10, 2023

STEARNS, CONRAD AND SCHMIDT CONSULTING ENGINEERS, INC.
DBA SCS ENGINEERS AND SUBSIDIARIES

Consolidated Balance Sheets
December 31,

ASSETS

	2022	2021
Current assets:		
Cash and cash equivalents	$ 20,481,678	$ 10,160,343
Marketable securities	11,495,662	16,875,254
Accounts receivable, net	98,868,966	78,834,623
Contract assets	27,654,286	15,584,795
Prepaid expenses and other current assets	2,269,027	1,848,528
Total current assets	160,769,619	123,303,543
Property and equipment:		
Automotive equipment	1,867,532	1,729,021
Machinery	11,994,839	11,524,429
Office furniture and equipment	3,301,356	3,359,813
Computers	4,082,600	3,608,652
Software	3,444,548	4,741,486
Leasehold improvements	1,253,467	1,236,798
	25,944,342	26,200,199
Less: accumulated depreciation and amortization	20,989,655	20,942,966
Total property and equipment, net	4,954,687	5,257,233
Other assets:		
Right of use assets, operating leases, net	17,497,610	-
Deposits and other	1,707,099	732,751
Goodwill	11,994,270	11,994,270
Cash surrender value of life insurance	1,463,909	1,419,678
Total other assets	32,662,888	14,146,699
	$ 198,387,194	$ 142,707,475

Continued

STEARNS, CONRAD AND SCHMIDT CONSULTING ENGINEERS, INC.
DBA SCS ENGINEERS AND SUBSIDIARIES

Consolidated Balance Sheets
December 31,

LIABILITIES AND STOCKHOLDER'S EQUITY

	2022	2021
Current liabilities:		
Current maturities of notes payable - former stockholders	$ -	$ 2,205,196
Current maturities of operating lease liabilities	7,023,481	-
Accounts payable	49,717,135	32,304,791
Accrued expenses	16,026,900	16,825,685
Contract liabilities	16,273,462	6,385,604
Accrued ESOP contributions	12,400,000	11,600,000
Accrued bonuses	17,059,659	17,194,308
Accrued income taxes	30,942	68,370
Total current liabilities	118,531,579	86,583,954
Long-term liabilities:		
Operating lease liabilities, less current portion	11,045,870	-
Deferred rent	-	391,039
Stock appreciation rights	8,566,647	7,789,117
Total long-term liabilities	19,612,517	8,180,156
Total liabilities	138,144,096	94,764,110
Stockholder's equity:		
Common stock, $0.024 par value: 10,000,000 shares authorized; issued and outstanding 1,499,928 shares at December 31, 2022 and 2021	35,998	35,998
Retained earnings	60,207,100	47,907,367
Total stockholder's equity	60,243,098	47,943,365
	$ 198,387,194	$ 142,707,475

See accompanying notes to the consolidated financial statements

STEARNS, CONRAD AND SCHMIDT CONSULTING ENGINEERS, INC.
DBA SCS ENGINEERS AND SUBSIDIARIES

Consolidated Statements of Income
For the Years Ended December 31,

	2022	2021
Revenues earned	$ 438,805,997	$ 348,472,955
Cost of revenues earned:		
Direct expenses	301,437,169	226,035,274
Indirect expenses	89,909,260	78,472,837
Total cost of revenues earned	391,346,429	304,508,111
Gross profit	47,459,568	43,964,844
Selling, general, and administrative expenses	35,578,646	35,236,092
Income from operations	11,880,922	8,728,752
Other income, net	555,811	1,146,443
Income before provision for income taxes	12,436,733	9,875,195
Provision for income taxes	137,000	151,000
Net income	$ 12,299,733	$ 9,724,195

See accompanying notes to the consolidated financial statements

STEARNS, CONRAD AND SCHMIDT CONSULTING ENGINEERS, INC.
DBA SCS ENGINEERS AND SUBSIDIARIES

Consolidated Statements of Stockholder's Equity
For the Years Ended December 31, 2022 and 2021

	Shares	Common Stock	Retained Earnings	Total Stockholder's Equity
Balance - December 31, 2020	1,499,928	$ 35,998	$ 38,183,172	$ 38,219,170
Net income	-	-	9,724,195	9,724,195
December 31, 2021	1,499,928	35,998	47,907,367	47,943,365
Net income	-	-	12,299,733	12,299,733
Balance - December 31, 2022	1,499,928	$ 35,998	$ 60,207,100	$ 60,243,098

See accompanying notes to the consolidated financial statements

STEARNS, CONRAD AND SCHMIDT CONSULTING ENGINEERS, INC.
DBA SCS ENGINEERS AND SUBSIDIARIES

Consolidated Statements of Cash Flows
For the Years Ended December 31,

	2022	2021
Cash Flows From Operating Activities:		
Net income	$ 12,299,733	$ 9,724,195
Adjustments to reconcile net income to net cash provided by (used in) operating activities:		
Loss on operating lease cancellation	23,999	-
Deferred rent	(41,615)	(39,057)
Depreciation and amortization	2,965,086	2,706,964
Net (gain) on sale of property and equipment	(3,891)	(35,125)
Noncash lease expense	718,865	-
Unrealized (gain) loss on marketable securities	777,655	(219,772)
Realized (gain) loss on sale of marketable securities	416,047	(112,275)
Change in allowance for doubtful accounts	175,138	49,323
(Increase) decrease in:		
Accounts receivable	(20,209,481)	(29,883,202)
Contract assets	(12,069,491)	(11,284,755)
Prepaid expenses and other current assets	(941,046)	(412,302)
Deposits and other	(974,348)	(104,898)
Cash surrender value of life insurance	(21,784)	(14,203)
Increase (decrease) in:		
Accounts payable	17,412,344	13,504,225
Accrued expenses	(798,785)	(252,817)
Contract liabilities	9,887,858	4,796,130
Accrued ESOP contributions	800,000	1,100,000
Accrued bonuses	(134,649)	3,566,516
Accrued income taxes	(37,428)	(18,981)
Stock appreciation rights	777,530	5,288,709
Net cash provided by (used in) operating	11,021,737	(1,641,325)
Cash Flows From Investing Activities:		
Purchases of property and equipment	(2,695,791)	(2,777,830)
Proceeds from sales of property and equipment	37,142	64,233
Purchases of marketable securities	(21,050,409)	(23,008,751)
Proceeds from sales of marketable securities	25,236,299	19,216,700
Investments in cash surrender value of life insurance	(22,447)	(23,289)
Net cash provided by (used in) investing activities	1,504,794	(6,528,937)

Continued

STEARNS, CONRAD AND SCHMIDT CONSULTING ENGINEERS, INC.
DBA SCS ENGINEERS AND SUBSIDIARIES

Consolidated Statements of Cash Flows
For the Years Ended December 31,

	2022	2021
Cash Flows From Financing Activities:		
Principal repayments of notes payable - former stockholders	(2,205,196)	(1,855,758)
Net cash (used in) financing activities	(2,205,196)	(1,855,758)
Net increase (decrease) in cash and cash equivalents	10,321,335	(10,026,020)
Cash and cash equivalents, beginning of year	10,160,343	20,186,363
Cash and cash equivalents, end of year	$ 20,481,678	$ 10,160,343
Supplemental Disclosure of Cash Flow Information:		
Cash paid during the years for:		
Interest	$ 43,384	$ 96,450
Income taxes	$ 176,076	$ 169,980
Supplemental Disclosure of Non-Cash Investing and Financing Activities:		
Right of use assets obtained in exchange for operating lease liabilities	$ 24,930,744	$ -

During the year ended December 31, 2021, the Company placed in service approximately $1,142,000 of costs related to internally developed software that was in process at December 31, 2020.

RIGHT

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SCS ENGINEERS

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RRS

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