



Statement of Qualifications

Solid Waste Advisory Services

Geosyntec 
consultants



Geosyntec Consultants is a specialized technical advisory and consulting engineering firm that works with private and public-sector clients to address their complex challenges involving the environment, natural resources, and civil infrastructure. Geosyntec’s team of over 1,200 engineers, geologists, environmental scientists, and other technical and project staff are based in more than 80 offices across the United States as well as Canada, Europe, and Australia.

Our private sector clients come from a variety of industries including power and utility, environmental management, food and agriculture, oil and gas, advanced technology, chemical, aerospace, pharmaceutical, and manufacturing. Our private sector clients also include regional and national developers, large commercial property owners, and law firms. Our public-sector clients are departments and agencies of municipal, state/provincial, regional, and national governments.

Since our founding in 1983, we have grown based on the application of sustainability principles to projects involving engineering and design for the environmental, water resources, and civil infrastructure, environmental contamination studies and remediation; natural resources assessment and restoration; compliance management for air emissions, wastewater discharges, and waste disposal. We also provide construction management and quality assurance services in support of these practices.

Our goal is to provide the best possible service and value to our clients, to advance technology in our primary practice areas, and to provide a stimulating, progressive, and friendly work environment that will enable us to continue to recruit and retain great staff. At Geosyntec, our vision of success builds on our internal culture of technical excellence, the outstanding qualities of our staff, a common commitment to our core values, and our long-held belief that exceptional client service coupled with exceptional project solutions will result in long-term, mutually rewarding business solutions. We bring our clients the dedicated, personal service of a small, local firm, backed by the knowledge and experience of a larger, established firm. We are proud of the significant volume of repeat business that we earn from existing clients as being representative of the trust they place in our continued ability to deliver.

We are known for our technology leadership, broad experience, and exceptional client service

www.geosyntec.com



With over 30 years of service, our professionals have been involved in more than 1,000 solid waste management projects for private clients as well as municipalities, local and state governments, regional authorities, and national governmental agencies. The range of professional services provided by Geosyntec includes:

- Solid waste minimization, diversion, and recycling studies;
- Waste flow analysis (collection and hauling), composition, and generation studies;
- Strategic planning and transactional advice;
- Financial modeling, due diligence, and cost/benefit analyses for solid waste facilities;
- Optimization of financial and operations management; and
- Design, permitting, construction, repair/maintenance, and decommissioning/closure of transfer stations, materials recovery facilities (MRFs), composting facilities, and landfills.

Unique amongst our peer firms, in addition to technical services Geosyntec provides due diligence and financial advisory specialists who offer a wealth of experience evaluating solid waste systems and infrastructure assets under a variety of project delivery and contracting mechanisms. Our clients – both private and public – are increasingly driven to improve performance, secure value for money, achieve required returns, and optimize use of assets. To assist their understanding of market drivers and operational issues, our advisory specialists translate technical and commercial issues into financial analyses, valuations, and support for financial models, with clear recommendations made without bias or allegiance to any vendor, service, or product. Geosyntec's exceptional advisory capabilities are made possible by our practice leaders' unique understanding of the symbiotic relationship between the technical aspects and the financial performance of solid waste projects. The technical and financial expertise of our practitioners allows Geosyntec to be a trusted advisory resource for counties, municipalities, states, and solid waste authorities.

Additional information on our dedicated capital, assets, and transactions (CAT) advisory services is available at www.geosyntec-cat.com



Strategic Planning and Decision-Making Support

Geosyntec offers deep experience and knowledge of solid waste planning in accordance with state and local goals for waste diversion and recycling while considering dynamic market conditions. Our expertise is built upon a legacy of being recognized leaders in helping our clients implement environmental solutions in a safe, efficient, and cost-effective manner. We are emerging as national leaders in sustainable materials management, specializing in identifying strategies to accomplish financial and environmental goals established with stakeholders and preparing action plans to detail how the strategy will be implemented. These plans serve to identify and quantify materials that could be diverted for recycling or serve as feedstock for recovery and conversion facilities. Once a strategy has been identified and agreed, we develop tools and training materials to educate managers and stakeholders about the strategy. We also develop performance metrics against which to measure the success of new strategies and identify where improvements can be made.

Operational and Organizational Assessments

Geosyntec assists its clients in ensuring that their operations are cost-effective, achieve waste reduction goals, and meet long-term community needs. For many clients, we have provided analysis and guidance in planning and designing the administrative structure for the effective management of solid waste systems. This includes organizational analysis, development of performance measures to gauge efficiency of programs and services, and evaluation of administration of personnel, physical, and financial resources, and benchmarking. We make certain that



new or modified planning strategies and objectives are appropriate, financially sound, and viable. We provide operation evaluations that accurately determine the effectiveness, efficiency, and safety of services provided by contract operators. We identify causes of performance shortfalls, offer proven recommendations to reduce costs and improve productivity and services, and assist with monitoring program results. As part of these efforts, we have prepared organizational audits, conducted regulatory compliance assessments, provided cost estimations for operation, maintenance, and equipment replacement, designed management information systems, and assisted in reorganizational planning and selection of personnel to fill key positions. We have identified the organizational strategy and then planned the structure of resources needed to implement effective system management to achieve the goals of the organization. Our efforts have resulted in improved allocation of resources, expanded and more-reliable services, enhanced worker training and safety, reduced customer complaints, and lower costs.

Our professionals understand that fully integrated solid waste management and recycling services are highly complex operations that involve coordinated and sometimes competing interests involving



trucking, heavy equipment, construction, maintenance, finance, and personnel management. We understand the advantages and disadvantages of the various types and sizes of equipment, as well as the multiple options available for operating and maintaining equipment. We offer real-world forensic and operating experience from dozens of MRFs and waste handling facilities, with first-hand knowledge of the common pitfalls affecting solid waste management facilities and their operations. Conversely, we have also worked closely with dozens of clients that operate efficient and well-managed solid waste operations, and so recognize the standards for good practice. We understand the limitations of engineering and where close operational, financial, and management control is essential for a system to perform well.

Transfer Station and Material Recovery Facility (MRF) Services



Geosyntec’s professionals have evaluated and designed numerous solid waste transfer stations for our clients. This work has required us to evaluate sites, provide layouts, perform environmental assessment studies, prepare permit applications, and construction documents. Geosyntec projects have included: (i) retrofit design for an existing 3,000 ton/day transfer station in Annapolis Junction, Maryland to incorporate automated material recovery equipment and design; and (ii) permitting,

including County and Virginia DOT permits for a citizen’s drop off facility in King George County, Virginia. Geosyntec also has extensive experience in providing construction management (CM) and construction quality assurance (CQA) services for transfer stations and civil infrastructure including resident project representative services and minimizing and managing dispute resolution on behalf of our clients.

Additionally, Geosyntec’s staff have more than 20 years’ experience in design, technical and operational aspects of the solid waste management industry. Transfer station improvement experience includes identifying design and/or operational failures in poorly performing transfer station facilities, reviewing repair alternatives, preparing work scope and budget, and evaluating post-repair success. In cases of substandard operating procedures, we identify equipment and/or training deficiencies and prepare operating plans to address environmental compliance or safety hazards.

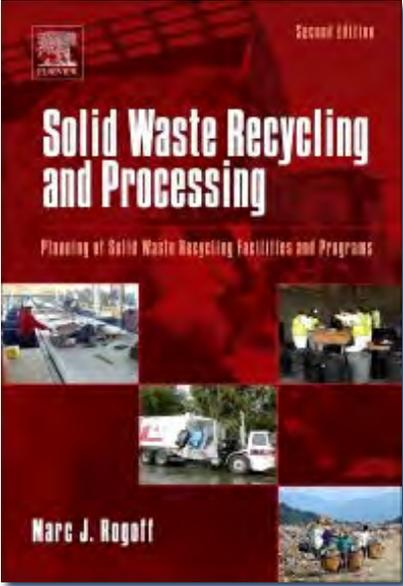




Analysis of Integrated Solid Waste Management and Recycling Programs

Geosyntec has extensive experience performing watershed analyses of integrated waste management and recycling systems that allow us to identify where materials are going, how they are being managed, and what the market rates are for services. We have designed waste sorting protocols and conducted waste characterization studies for specific processing technologies for recovery of recyclables and organics for composting. We have experience helping our clients understand the highly variable revenue streams that can come from recyclable commodity sales and have expertise at identifying and valuing alternative revenue sources (tax credits, renewable fuels credits, commodity revenue sharing, franchise royalties, asset valuations, etc.) to maximize financial benefits.

Geosyntec’s Marc Rogoff – a 35-year veteran of the business and industry thought leader – literally wrote the book on Solid Waste Recycling and Processing and has devoted a large part of his career to addressing benchmarking and other issues in the fields of collection, recycling, disposal, and ratemaking.



Contracts Review and Management



Waste services can involve a remarkable number of specialized contracts, including host agreements, franchise agreements, long-term maintenance contracts, and capital projects contracting. Geosyntec’s professionals have deep experience in negotiating and managing contracts. We help client organizations understand the current contractual commitments they must work within as well as how to potentially restructure future contracts in a manner that reduces risk and improves performance. Geosyntec assists in negotiation of contract and indemnification

language and evaluates the merits of available contracting alternatives for projects such as guaranteed fixed-price versus lump sum and others.

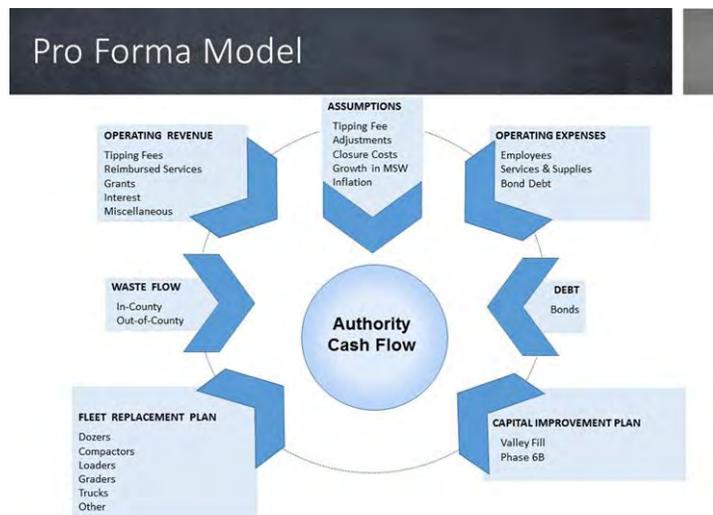
Waste Characterization Studies and Data Review

Geosyntec has significant experience designing wasteshed analyses and conducting waste characterization studies for specific processing technologies for recovery of recyclables and organics. Geosyntec professionals are familiar with the specific challenges posed by waste separation and processing, particularly as the industry moves toward automation of these operations. Our experience is based on actual facility design and facility operating requirements. We have directly managed and performed dozens of waste composition and characteristics studies, both to evaluate the bulk waste stream and to determine properties of specific waste streams of interest for separation and processing, supporting our clients' assessment of the feasibility of emerging technologies.



Financial Assessments

Geosyntec is regularly engaged to provide valuation services for solid waste assets and has provided financial analysis for long-term and annual budgeting of integrated waste management systems, cost-of-service estimates, and closure and post-closure reserves. We have performed valuation studies and cost-benefit analyses for internal and third-party collection, diversion, and disposal alternatives. Geosyntec performs the full range of consulting services for solid waste programs, including rate studies, financial assurance cost estimates, escrow account



analysis, and tipping fee analysis. Our staff has the ability to offer an independent evaluation of solid waste rates and charges that will allow solid waste agencies to meet its financial obligations, capital funding needs for system expansion, renewal and replacements, and to set aside appropriate reserve fund balances. Our financial consulting experts have assisted more than 100 clients in the development of solutions resulting in financial stability. We have made formal and information presentations to county commissions, city councils, authority boards, and citizen's advisory boards to gain acceptance of proposed new or revised rate and financial recommendations. In the course of this analysis, we have also routinely developed a number of computer models capable of evaluating the economics of current practices in comparison with alternatives. These Pro Forma Models account for the number and density of collection locations; vehicle capacities and compaction cycle times; time per stop; off-route time; fleet size; crew size; labor costs; and comparison of the costs of in-community disposal versus long-haul transport and disposal outside the community. Selected financial and rate study projects are presented in Table 1.



Table 1: Illustrative Financial and Rate Study Projects

Project	Client	Services Provided
Solid Waste Rate Study	City of Wauchula, Florida	Development of fleet replacement plan and five-year rate assessment
Landfill Cost of Service Analysis	Dalton-Whitfield Solid Waste Authority, Georgia	Market study and rate study/audit in support of cost of service and facility ownership review
Operational and Financial Assessment	Solid Waste Authority of Central Ohio (SWACO)	Rate study in support of cost of service analysis and operational review of integrated system
Programmatic, Operational, and Financial Assessment	Augusta-Richmond County, Georgia	Recommendations to improve efficiency, compliance, safety, and cash flow
Integrated Solid Waste Management System	City of Quetzaltenango, Guatemala (for Inter-American Dev. Bank)	Pro forma model for establishing modern solid waste service under private-public partnership
Long-Term Alternatives Study Solid Waste Business Plan	Santa Cruz County, Arizona	Analysis of long-term landfill closure and post closure fund reserves
Tipping Fee and Sanitation Assessment Study	Charlotte County, Florida	Countywide assessment and landfill tipping fee
Operation and Financial System Analysis	City of Dunedin, Florida	Collection system rate studies performed seven years apart
Residential Collection Rate Study	City of Pasadena, California	Multi-year collection system rate studies
Solid Waste Services Analysis and Rate Study	City of Pensacola, Florida	Pro forma model enabled what if analysis for multiple rate scenarios and out of county landfill disposal
Solid Waste Collection and Landfill Rate Study	Port Arthur, Texas	Analysis of continued collection system operations
Comprehensive Review of Solid Waste Collection and Disposal Options	Town of Chapel Hill, North Carolina	Assessment of management alternatives
Pro Forma Rate Analysis of Solid Waste Management System	Page County, Virginia	Analysis of re-opening the County landfill
Solid Waste Collection Request for Proposal Consulting Assistance	Orange County, Florida	Bid analysis and impact on countywide residential assessments
Feasibility Study of Alternatives Evaluation	Hardee County, Florida	Comparison of expansion of landfill operations versus out of county disposal
Solid Waste Alternatives Assessment Study	City of Lakeland, Florida	Analysis of automated collection program
Long Range Solid Waste Master Plan	City of Springfield, Massachusetts	Analysis of pay-as-you-throw (PAYT) and other City-provided collection services
Recycling Feasibility Study and Landfill Cost Analysis	City of Lawton, Oklahoma	Landfill tipping fee and MRF feasibility analysis
Solid Waste Plan and Rate Study	City of Killeen, Texas	Rate study performed during development of long-term master plan enabled analysis of multiple planning scenarios
Solid Waste Cost of Services and Rate Study	City of Kirkwood, Missouri	Long term financial roadmap
Solid Waste Cost of Services	Indian River County, Florida	Development of long-term assessment and financial plan
Rate Modeling for Solid Waste Management System	City of Virginia Beach, Virginia	Analysis of fleet replacement plan and rainy-day fund
Pro Forma Model Long Term Operations	Merced County Regional Solid Waste Authority, California	Cash flow analysis revealed no need for rate increase nor bond issue



Measurement and Benchmarking

For a wide variety of solid waste clients, Geosyntec’s solid waste advisory team has led dozens of benchmarking surveys of solid waste collection, landfill operations, and transfer station and MRF operations. These assignments have included developing metrics on staffing numbers, equipment usage, and various financial metrics. The aim of these studies was to benchmark operations with well-run operations of a similar size to those of the client to determine relative efficiency and operations for operational improvements. We also offer unrivaled expertise in objectively reviewing, analyzing, and measuring operational outcomes and key performance indicators and comparing them to industry benchmarks via data and customizable models we have developed over the course of our careers.

Stakeholder Outreach and Engagement

Geosyntec recognizes the importance of stakeholder engagement in highly visible planning projects, particularly those conducted by local government agencies charged with protecting the public good. While traditionally a provider of “hard” engineering services, we know the value that “soft” services bring and have learned from experience that win-win outcomes are best obtained when communications professionals work alongside technical experts to engage the public and other stakeholders. Our in-house team of communications specialists offer extensive experience developing engaging content via a wide variety of media. We also have experience developing websites, software applications, and other digital products, all of which helps our clients identify and reach the right audiences with the right messages to deliver meaningful interactive experiences. Our graphic designers are communicators first who believe that design is useless if it is not grounded in a clear understanding of audience, purpose, and message.

Waste-to-Energy (WTE) Plant Services

Geosyntec provides the following services in conjunction with WTE facilities:

Concept and Planning Level

- Assess the veracity of emerging technologies
- Economic / Pro-Forma assessments
- Feasibility studies
- By-product market studies
- Trouble-shoot existing facilities
- Environmental permitting
- Plant siting studies
- Supporting engineering services
- Grant application assistance
- Presentations to government agencies and non-technical groups

Operational Level

Geosyntec provides operational level services, often through sub-consultants. These services include facility management and technical assistance, engineering and specialized part sourcing, and performance optimization and combustion control.

Table 2 presents examples of WTE projects that have been completed by Geosyntec staff.



Table 2: Illustrative WTE Plant Assessments and Technology Reviews

Client	Plant Capacity (tons/day)	Technology	Services Provided	Energy Production
Municipality of Anchorage, Alaska	1,000	Thermal	Technology assessment; Implementation schedule	Electric power
Confidential client, Dominican Republic	4,000	Thermal	Feasibility study; Conceptual design	Electric power
Wheelabrator Baltimore, Maryland	2,250	Thermal	Review of capital budgets and O&M costs	Electric power; Heat
Confidential client, Gulf Coast	300	Gasification	Preliminary engineering design; Market study	Diesel; Jet Fuel
Green Bay, Wisconsin	200	Pyrolysis	Technical and economic evaluation; Feedstock study	Electric power; Bio-Oil
Marion, Iowa	900	Plasma Gasification	Feasibility study; Multiple feedstock study; Market study	Electric power; Fuel; Heat
Terrabon, Texas	250	Biochemical	Multiple feedstock study	Fuels
Aquarius, California	750	Gasification	Feasibility study; Multiple feedstock study	Fuels
Atlanta, Georgia	35	Plasma Gasification	Multiple feedstock study	Heat; Steam
McKinney, Texas	2,000	Autoclave	Pilot plant operational assessment; Multiple feedstock study; Market study	Fuel; RDF
Harlingen, Texas	100	Gasification	Multiple feedstock study; Market study	Electric power
Hamilton County, Ohio	1,000	Thermal, Biological, Chemical	Feasibility study; Multiple feedstock study; Market study	Electric power; Fuel; Steam; Heat
Orange County, Florida	1,000	Thermal, Biological, Chemical	Feasibility study; Multiple feedstock study; Market study	Electric power; Fuel
Monterey Regional Waste Management District, California	Pilot	Thermal, Biological, Chemical	Multiple feedstock study	Electric power; Fuel; Heat
City of Cartagena, Colombia	100-300	Gasification, Plasma Gasification	Technology assessment; Feasibility Study; Feedstock Study	Electric power; Fuel
Berkeley County, South Carolina	100	Anaerobic Digestion	Feasibility study; Multiple feedstock study; Market study	Electric power
Hampton Roads Planning District, Virginia	1,000	Thermal, Biological, Chemical	Feasibility study; Multiple feedstock study; Market study	Electric power, Steam, Heat
City and Borough of Juneau, Alaska	100	Thermal	Review of vendor proposals	Electric power



People

Geosyntec attracts some of the brightest, most creative engineers, scientists, and professionals in the consulting and engineering business. Our practitioners’ exceptional technical and problem-solving skills foster a collaborative environment that puts our clients’ needs first. Geosyntec’s high retention rate is due to a supportive and collaborative work environment that manifests itself in the quality of our work products, our established reputation with regulatory agencies, and the value our clients attest to.

Resumes of key Geosyntec staff are included in the following section.

MARC ROGOFF, Ph.D. / Tampa, Florida
mroff@geosyntec.com



Career Summary

With over 40 years of experience, Dr. Rogoff is one of the nation's top experts in solid waste collection, the evaluation of rates, cost allocation studies, system valuations, and the development of master plans for solid waste agencies. Dr. Rogoff has held executive management positions in both local government and in the private sector. His efforts have included the development of innovative collection and recycling programs, provided guidance on public education and outreach programs, and assisted in grant programs. He has conducted more than 50 solid waste collection studies enabling his clients to improve efficiencies. He has also developed and led engagement strategies with stakeholder groups and regulators under a variety of state, Federal and international regulatory programs. Dr. Rogoff is the former Director of the Collection and Transfer Technical Division with SWANA and was awarded their 2018 Distinguished Individual Achievement Award in March 2018. He currently serves on SWANA's Executive Board. He has authored more than 150 articles published in solid waste industry trade journals (recent examples are reproduced in Appendix 3). Marc is the author of eight textbooks, including the APWA's "Solid Waste Rate Setting and Financial Guide."

Specialties

- ✓ Solid waste management
- ✓ Solid waste rate studies
- ✓ Public works planning and engineering

Professional Registration

- ✓ Certified Environmental Professional
- ✓ Qualified Environmental Professional

Select Project Experience

Mecklenburg County, North Carolina, MRF Operations RFP. Project Manager to develop an RFP for long term operations of the Metrolina MRF facility.

Orange County, Florida, Residential and Recyclables Collection RFP. Project Manager to develop an RFP for automated collection of household refuse, yard debris and single-stream recyclables. This RFP resulted in \$30 per household savings over a 10-year period.

Santa Cruz, County, Arizona, Solid Waste Business Plan. Project Manager to conduct a solid waste rate study for county solid waste operations including a review of existing operations, future capital improvement needs, and reserve requirements. This study includes an evaluation of long-term post closure cost analysis.

City of Idaho Falls, Idaho, Solid Waste Automation and Rate Study. Project Manager to conduct a solid waste rate study for city solid waste collections including a review of existing operations, future capital improvement needs, and reserve requirements. This study includes an evaluation of the application of automated collection to improve service levels and reduce Worker's Compensation claims.

Charlotte County, Florida, Solid Waste and Assessment Rate Study. Project Manager to conduct a solid waste rate study for county solid waste operations including a review of existing operations, future capital improvement needs, and reserve requirements. This study includes an evaluation of special, non-ad valorem assessments to pay for the costs of the overall program over a 10-year planning period.

City of Killeen, Texas, Solid Waste Rate Study. Project Manager for the development of a 10-year rate study, including the development of customer user rates (residential and commercial), development of a fleet replacement plan, single-stream recycling, and needed funding requirements.



BILL GAFFIGAN, MBA, CVA / Kennesaw, Georgia
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Career Summary

Mr. Gaffigan is a financial professional with more than 25 years of experience as an executive and consultant in the solid waste industry. In his solid waste industry career prior to joining Geosyntec in 2013, he served as a regional controller over 22 operations for a large public waste company, and Vice President of Mergers and Acquisitions. He has provided financial and operational consulting for municipalities and other public entities, investors, and private waste companies. He has valued over 100 hauling businesses and contracts, transfer station and MRF operations, and landfills, and has brought over 60 transactions to financial close. He has been called upon and qualified as an expert witness on several occasions to value solid waste operations and has extensive experience in cost and pricing structures associated with solid waste systems.

Specialties

- ✓ Solid waste/recycling/planning
- ✓ Valuation
- ✓ Financial and strategic analysis

Professional Registration

- ✓ Certified Valuation Analyst

Select Project Experience

Long-term Planning, Solid Waste Authority of Central Ohio (SWACO). Provided advisory services as project director and project manager for projects encompassing long-term planning, operations analysis, financial analysis and policy recommendations to improve the performance of an integrated waste transfer, disposal and recycling system which handles approximately one million tons a year. Subsequently engaged for additional phases to develop benchmarking as well as input to strategic planning.

Solid Waste Management Options Study, Frederick County, Maryland. Technical lead for an in-depth stakeholder-focused study of long-term waste planning and diversion options. Engagement included qualitative and quantitative evaluations of a significant number of waste diversion options which included, among others, a three-container curbside collection program, centralized and distributed composting, and an advanced materials recovery facility (MRF).

Recycling Composition Study, Santa Rosa County, Florida. Project Director for a recycling composition study of residential curbside single-stream material. The study was developed to better understand the quality, quantity and composition of material collected from the County's three franchise zones by private waste collection franchisees.

Valuation of Collection Routes, City of Walla Walla, Washington. Served as subject matter expert on a litigation support engagement to value residential hauling routes located in an area annexed by a City. The routes were operated by a private waste company at the time of annexation but would be serviced post annexation by the City.

Cost of Services, Dalton-Whitfield Regional Solid Waste Authority, Northwest Georgia. Project Manager for advisory engagement to provide a cost of services financial analysis in support of the Dalton-Whitfield Regional Solid Waste Authority (DWRSWA) annual budgeting and planning cycle. Provided recommendations on multiple issues including pricing as well as closure and post closure reserves. DWRSWA has a highly integrated solid waste infrastructure that operates within a flow control environment. They own and operate an MSW landfill, an industrial landfill, a materials recovery facility, a commercial landfill gas-to-energy project, waste convenience/transfer facilities, and a countywide recycling program.

TOM RAMSEY, P.E. / Columbia, Maryland
tramsey@geosyntec.com



Career Summary

Mr. Ramsey has more than 25 years' experience in design, technical and operational aspects of the waste containment, civil engineering, and solid waste operations. His extensive experience in new facilities development includes project management, siting studies, and design for landfills, landfill gas-to-energy projects, transfer stations, material recovery facilities (MRFs), and trucking maintenance facilities. He performs fatal flaw analyses, applies siting criteria to area surveys, addresses compliance and/or regulatory issues, directs engineering design and permitting activities, manages real estate acquisitions, negotiates contracts, and prepares project pro forma for management review. His experience also includes construction management and engineering support for over 50 environmental infrastructure projects. This experience includes hundreds of acres of CERCLA and CERCLIS liner and closure construction, landfill gas systems, MRFs and transfer stations, and administrative facilities. His work includes constructability reviews, construction document preparation, engineering cost estimates, resident-project-representative support, claims prevention and resolution.

Specialties

- ✓ Solid waste/recycling/planning
- ✓ Design, technical and operational aspects of waste containment, civil engineering, and solid waste operations

Professional Registration

- ✓ Registered Professional Engineer in 12 states

Select Project Experience

Construction Document Preparation for Rail Transfer Station, Jessup, Maryland. Construction document preparation for a 10,000 ft² addition to a 2,500 TPD rail transfer station. The addition is to provide material recovery capacity to the facility to divert selected wastes for recovery of recyclable materials. The project involved design of the facility in a manner that would not disrupt the existing transfer operations.

Overall Operational Review and Assessment, Solid Waste Authority of Central Ohio. Work included a high-level assessment of landfill operations, LFG management, capital budgeting, in-house engineering support, and staffing for two 600 ton per day (TPD) transfer stations and a 3,000 TPD operating landfill. Provided a prioritized assessment of recommendations to improve operations and reduce costs.

Failure Analysis and Repair Design at Solid Waste Transfer Stations, Various Locations. Failure analysis and repair design for weigh scales, tipping floors, leachate management, and loading pits at solid waste transfer stations in Gastonia, North Carolina; Pendleton, South Carolina; Florence, South Carolina; Raleigh, North Carolina; Sanford, North Carolina; Siler City, North Carolina; Theodore, Alabama; Phenix City, Alabama, and Atlanta, Georgia.

Permitting, Design, and Construction of Solid Waste Transfer Stations, Various Locations. Successful completion of permitting, design, and construction of 1000+ ton per day solid waste transfer stations in Forest Park, Georgia; Lawrenceville, Georgia; and Charlotte, North Carolina. Additional transfer stations with capacities between 100 and 500 tons per day have been completed in Fairfield, South Carolina; Norfolk, Virginia; Newport News, Virginia, and Goochland, Virginia.

Design Review and Analysis of MRFs, Various Locations. Design review and analysis of MRFs with capacities up to 300 tons per day in Leesburg, Virginia; Forsyth County, Georgia; and Newport News, Virginia



JEREMY MORRIS, Ph.D., P.E. / Columbia, Maryland
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Career Summary

Dr. Morris is an internationally recognized subject matter expert with over 19 years of professional experience in solid waste management. He provides strategic advisory services on solid waste planning, including market valuations and feasibility analyses of alternative waste conversion technologies, and options for meeting waste diversion and recycling goals. Building on a background in landfill design, permitting, and construction oversight, his project experience extends to: (i) preparation of solid waste management and recycling master plans for cities/counties as well as individual facilities; (ii) feasibility studies and conceptual plans for solid waste management facilities; (iii) performing operational reviews and advising on implementing best practices; and (iv) evaluating options for increasing waste diversion, including waste transfer/processing, materials recovery/recycling, composting, and anaerobic digestion. Dr. Morris is an accomplished technical writer, having published over 60 articles, and has served as lead author on several U.S. EPA research reports and guidance documents.

Specialties

- ✓ Solid waste planning
- ✓ Recycling and waste conversion technologies
- ✓ Project lifecycle cost analyses
- ✓ Renewable energy systems at landfills
- ✓ Market valuations

Professional Registration

- ✓ Professional Engineer:
Maryland, Virginia

Select Project Experience

Solid Waste Management and Recycling Study, Frederick County, Maryland. Reviewed hard and soft infrastructure programs for increasing countywide waste diversion and recycling rate. Designed outreach forums to ensure high levels of public participation in the decision-making process. Evaluated options and technologies, including cost-benefit analysis, lifecycle cost and environmental footprint assessment, review of operational complexity, and ease of integration into existing programs. Completed strategic planning study for phased implementation of composting.

Strategic Planning for Long-Term Solid Waste Management under Regional Agreement, Confidential Client. Used financial and environmental indicators in scenario analyses to optimize future waste disposal and recycling operations under a regional four-county agreement with a combined population of 150,000.

Structuring and Design of a PPP Concession for Solid Waste Management Services, Quetzaltenango, Guatemala for Inter-American Development Bank. Conceptual design and financial analysis for 20-year service agreement under a public-private partnership (PPP). Included waste collection and transportation, street cleaning, waste separation materials recovery facility (MRF), recycling, composting, and landfill construction and operation.

Update to Waste Handling and Disposal Master Plan, Cecil County, Maryland. Reassessed the master plan to incorporate lifecycle revenue and expense costs associated with construction and operation of alternative waste processing facilities (e.g., composting, anaerobic digestion, materials recovery) into the financial schedule for the County's operation. Critical assessment of proposed facilities was based on optimal use of resources to serve current and future needs and flexibility for implementing zero waste goals. Deliverable was MS Excel® decision tool.

Master Plan for Solid Waste Management and Recycling, City of Baltimore, Maryland. Long-term planning effort for rejuvenating the City's solid waste and recycling systems to maximize waste reduction and diversion. The City has historical low rates of recycling, limited landfill capacity, and relies heavily on an aging waste-to-energy facility.

We are
engineers, scientists
and innovators.



Geosyntec Consultants is a consulting firm with engineers, geologists, environmental scientists, and other technical and project staff based in offices throughout the United States, Canada, the United Kingdom, Ireland, and Australia. We address new ventures and complex problems involving our environment, natural resources, and civil infrastructure.

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