



August 23, 2019

Mr. Michael Cox
Director
City of Cleveland Department of Public Works
500 Lakeside Avenue
3rd Floor
Cleveland, Ohio 44114

Re: RFP Assessment and Redesign of the Residential Solid Waste and Recycling

Dear Mr. Cox:

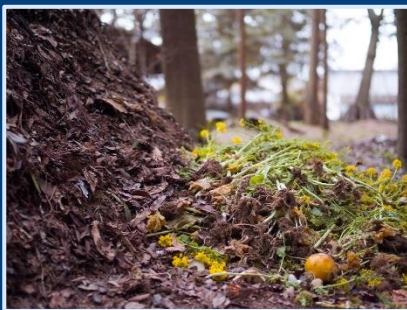
GT Environmental, Inc. (GT) is pleased to provide City of Cleveland Department of Public Works with this proposal to provide a comprehensive assessment and improvement of the residential solid waste and recycling system.

We look forward to working with the City of Cleveland Department of Public Works professionals on this project. If you have questions after you review the proposal, please contact me at 330-603-0138 or jskora@gtenvironmental.com.

Sincerely,

A handwritten signature in black ink that reads 'James A. Skora'.

James A. Skora, CHMM, S.C.
Materials Management and Sustainability Business Unit Manager



Technical Proposal

Assessment and Redesign of Residential Solid Waste and Recycling

Presented to:
City of Cleveland
Department of Public Works



Prepared by:



August 23, 2019

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A. EXECUTIVE SUMMARY

The GT consulting team is uniquely qualified to evaluate the current curbside collection systems, provide recommendations, and implement the recommendations. The GT senior staff have worked in operational capacities for the private sector managing collection systems for solid waste, recycling, bulk item collection, and special waste collection including HHW. In addition, their operational experience includes managing a 2,500 TPD transfer operation for over 16 years. The senior team also has significant experience in financial and operational system set-up and analysis.

The GT team has performed detailed solid waste system master plans for solid waste districts and routing studies for many cities in Ohio. The GT team's experience of managing collection operations along with experience in evaluating solid waste systems provides a comprehensive perspective to the project.

GT's approach to the project will be to work closely with the operational staff and management to develop a plan that has staff "buy-in" while providing innovative solutions to create a sustainable and effective materials management system for the City of Cleveland. The complete solid waste materials management system (trash, recycle and bulk) will be reviewed with structural recommendations providing a balance of public and private systems to create the best overall materials management system for The City of Cleveland.

GT proposes to conduct this project in a multi-stage process that involves phases that build upon each other. The phases are as follows:

Phase I - Analysis of the current operation and solid waste system with a focus on the curbside recycling program. Additional analysis will include the recycling drop-off program, trash collection, bulk collection program, special collections and education. The output from this phase will be the basis for developing a detailed implementation plan roadmap. This phase will also produce concise conclusions and recommendations for improvement that will be prioritized and approved by the City. Phase I is prioritized to be completed within 60 days of a signed contract with GT.

Phase II – GT will utilize all the information, data, key performance indicators, comparable city data, engagement session conclusions, recycle and waste audits and other tasks to develop a detailed implementation plan roadmap for program improvements.

Phase III - Implementation phase (Note: the implementation phase scope of work and cost is excluded from this proposal. The findings and recommendations in phase I & II will be used to develop and create the implementation plan. GT will provide the scope of work and cost upon the completion of Phase 1 & 2.)

B. PROFILE

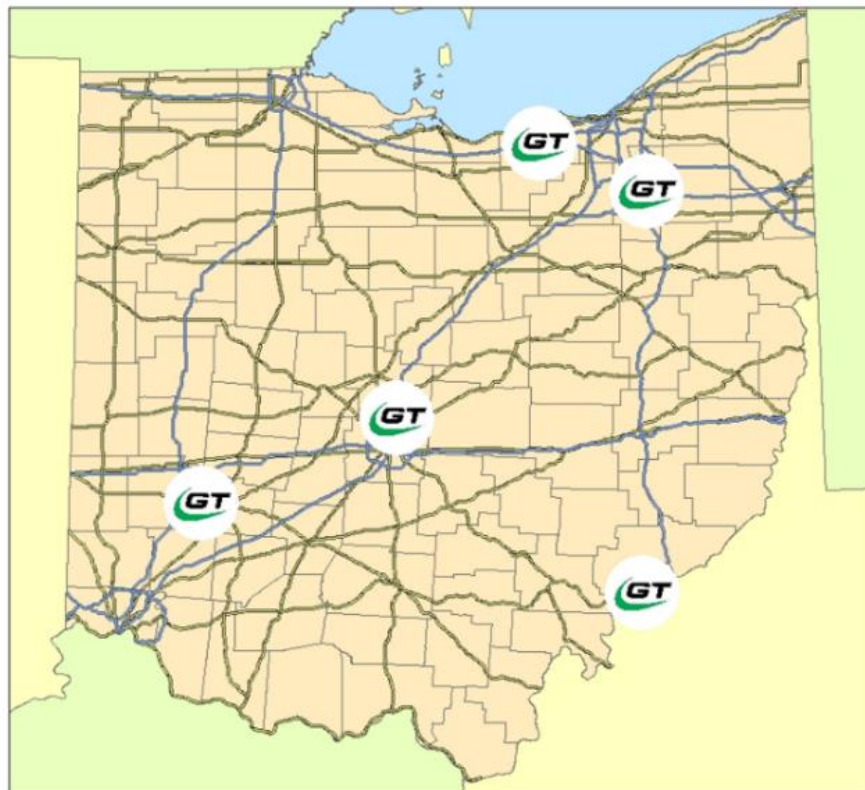
GT was founded in 1995 and provides environmental consulting services to the public (municipal, county, township, and state) and private sector. Our experienced consulting team has been providing solid waste planning and feasibility studies for over 24 years. The two senior managers who will be assigned to the project have over 25 years of experience in solid waste planning, analysis, and operations. Our consulting team has background in operations, collection, routing, PAYT programing, education/outreach, and operational systems.

GT has not been involved in any litigation in the last 5 years nor since the founding of the company. In addition, GT has not been dismissed or had services terminated in the last 5 years nor since the founding of the company.

GT' s Materials Management and Sustainability business Unit currently has the following types of contracts in progress that demonstrates GT's availability to perform the tasks detailed in this proposal for the City Cleveland in 2019.

| Type of Project | # of In Progress Contract | Due Date |
|--------------------------------|---------------------------|-----------|
| Solid Waste Plans | 4 | 2019/2020 |
| Routing and Efficiency Studies | 2 | 2019 |

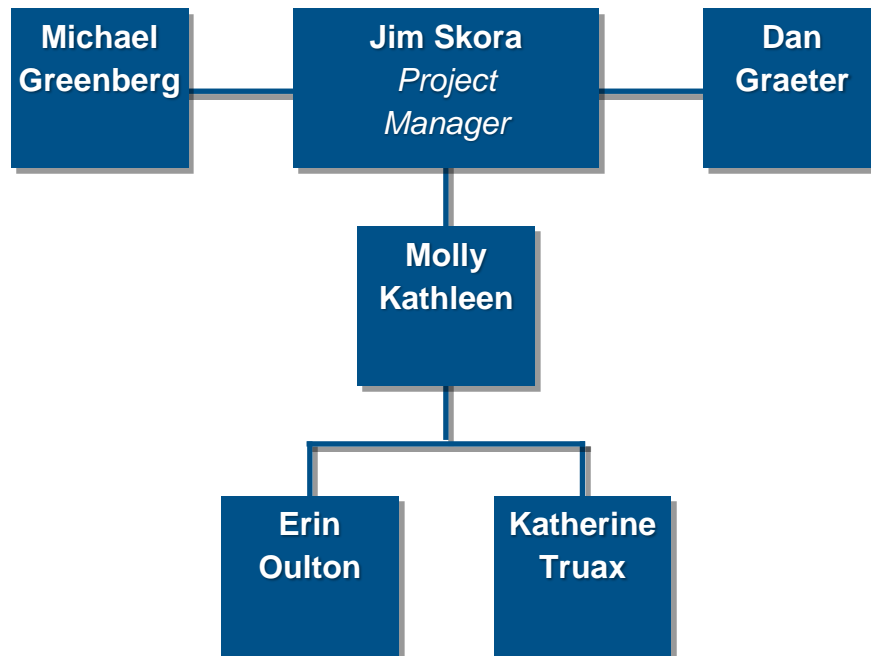
GT Environmental has seventeen employees and has offices in the Cleveland area, Dayton, Marietta and Columbus, Ohio.



C. QUALIFICATIONS

STAFFING

GT has an experienced team of solid waste and materials management professionals. The following chart depicts the team that will be dedicated to this project:



GT Environmental

James A. Skora



Mr. Skora will be the Lead Project Manager for this project with The City of Cleveland. Mr. Skora has thirty years of hazardous and solid waste management experience in the private and public sectors. His experience includes Ohio EPA Solid Waste Management and Planning, Solid Waste Management Training, Resource Conservation Recovery Act (RCRA) compliance, Department of Transportation (DOT) compliance and Property Transfer Environmental Site Assessments (PTSA). Jim was responsible for developing and operating Ohio's first permanent Household Hazardous Waste (HHW) Collection Facility in Ohio. This facility has served over 10,000 cars annually and still operates. Mr. Skora currently manages the Lorain County Collection Center where he is responsible for 20 County employees and the operation of the facility which processes 16,000 cars delivering HHW and special waste materials annually. Mr. Skora is a SWANA faculty member who teaches the Solid Waste Collections Course nationwide. Mr. Skora has conducted routing studies in the City of Cleveland, Brook Park, University Heights, Elyria and Chillicothe, Ohio.

Dan Graeter



Mr. Graeter is a Senior Manager and has 25 years of experience with solid waste planning, recycling programs, education and outreach, facility operations, financial management, and solid waste systems. Dan has worked in the private industry for 9 years and in the public sector for 16 years in various capacities of solid waste management. He has expertise in solid waste facility operations, solid waste collection systems, district planning and program development, financial systems and controls, solid waste planning, solid waste transfer station design and operations, feasibility studies, strategic planning, environmental education, public involvement, and communications programs.

Michael Greenberg



Mr. Greenberg is President of GT Environmental, Inc. and is responsible for managing company operations and product quality and timeliness. His 38 years of experience includes environmental project management, environmental regulatory compliance, strategic planning and analysis, environmental assessments, market analysis, and audits. Mr. Greenberg is the International President in 2019-2020 for the Solid Waste Association of North America, a 10,000-member association of solid waste professionals. He assumed Presidential duties on July 1, 2019.

Molly Kathleen



Molly Kathleen is an Environmental Planner with a primary focus dedicated to waste and recycling stream characterizations, solid waste management planning, facility feasibility analysis, strategic resource management planning, and GIS mapping and analysis. Molly earned a B.S. in Environmental Geography from Ohio University and is SWANA certified in Recycling Systems Management and Integrated Solid Waste Management Systems. She currently serves as the vice president of the Association of Ohio Recyclers (AOR). Prior to joining GT, she worked in university waste management supervising collection operations.

Erin Oulton



Erin Oulton is an Environmental Planner with GT Environmental, Inc. Erin specializes in solid waste management planning, waste stream characterizations, strategic resource management planning, facility feasibility analysis, and GIS mapping and analysis. Erin earned a Bachelor of Science degree in Environmental Science from Westminister College, PA. Prior to joining GT, she worked on Honda North America's Sustainability Team as an Environmental Analyst to communicate with over 300 suppliers, obtaining chemical data to meet compliance with regulations.

Katherine Truax



Katherine is an Environmental Planner with GT Environmental, Inc. Katherine specializes in solid waste management, waste stream characteristics, strategic resource management planning, facility feasibility analysis, and GIS mapping and analysis. Katherine is a graduate of The Ohio State University with a B.S. in Environment, Economy, Development, and Sustainability. Prior to working with GT Environmental, Inc., Katherine has experience working as a Tailgate Lot Recycling Manager on the Zero Waste team at OSU where she helped the public with their recycling knowledge and actions and led volunteers in waste diversion efforts.

Resumes for all staff are in Attachment 1.

Cleveland MBE/FBE/CSB

GT will team with Maria Heckaman & Associates, Inc. (MHA) to provide support services as a part of our overall proposal. Our proposed scope of services includes their involvement by task. GT will dedicate at least 25% of the hours on this project to MHA. MHA will provide 6-7 temporary laborers to GT's staff to assist with sorting activities and route data collection.

Maria Heckaman & Associates, Inc.

Since 1979, Maria Heckaman & Associates, Inc. have provided their client companies with the personalized service and expertise necessary to meet even the most challenging personnel requirements. In this world which seems so impersonal, they are committed to their applicants and client companies. Maria Heckaman, Founder and President, Certified Personnel Consultant and Career Coach, believes that everyone who contacts MHA should be treated with kindness and respect. Their business is confined to the northeast Ohio area, so we know the local marketplace and salaries well.

GT is partnering with Maria Heckaman & Associates, Inc. for the Task Three: Review and Assessment of Current Operating System in Phase One.

Illuminology

By applying both time-tested and emerging research methods from the academic settings of psychology and consumer behavior to the real-world settings of the marketplace and community, Illuminology identifies and clearly communicates the key “stories of the data” so our partners can make better decisions, change attitudes, and influence behavior. Headquartered in Columbus, Ohio and projecting across the United States, our market research firm helps organizations grow faster, communicate better, and strengthen communities.

GT is partnering with Illuminology for the Optional Task: Residential Engagement Process in Phase Two.

D. LIST OF REPRESENTATIVE PROJECTS

PROJECT ONE

Project Name: Curbside and Commercial Collection Operational Efficiency Study

Project Description: The Study evaluated the options for improving the current trash collection and recycling collection system for the City of Canton's (City) residential and commercial solid waste collection systems. The Study's purpose was to improve the City's current manual curbside trash and recycling program for the residents and commercial trash collection for multi-family, apartment and businesses (commercial collection). GT also conducted a similar project for the City of New Philadelphia and City of University Heights.

Agency and Department: Stark-Tuscarawas-Wayne Joint Solid Waste Management District and the City of Canton

Address: 9918 Wilkshire Boulevard NE, Bolivar, Ohio 44612

Point of Contact: Mr. David Held, Executive Director

Phone Number for Contact: 330-874-2258

Curbside Recycling Program Overview: The City's Sanitation Department provides residents with manual collection services for garbage (or trash), and recyclables each week. Bulk items are also collected on the trash routes. Trash collection is limited to resident provided container 32 gallon or less in size. The resident can place unlimited amounts of 32-gallon containers out for collection. Recyclables are collected in City provided 18-gallon bins with no limit on the amount of recyclables placed at the curb.

Date of Contract: April 2018 – January 2019

Date Program was fully operational: The City of Canton is in the middle of rerouting the trash and recycling routes. This will allow the city to optimize efficiency for their manual converting to semi-automated and alley pick-up truck collections. The City will use the rerouting efficiency to determine the future for automated collection.

PROJECT TWO

Project Name: Financial Analysis of Volume Based Solid Waste Collection

Project Description: GT worked with Raftelis to assist the City of Raleigh, North Carolina in evaluating volume-based systems (VBS) for collecting residential waste and increasing recycling for the City's Solid Waste Services Department.

Agency and Department: City of Raleigh, Sanitation Department

Address: 630 Beacon Lake Drive, Raleigh, NC 27610

Point of Contact: David Scarborough, Assistant Director

Phone Number for Contact: 919-996-4281

Curbside Recycling Program Overview: An integral part of the study were the assumptions regarding customer behavior for solid waste and recycling under various VBS options. To develop a range of assumptions, GT gathered benchmarking case study information from various communities throughout the country that implemented a VBS option. Information gathered included diversion rates over time, number of

customers by each cart size (or bag size) during and after implementation of a VBS option, etc.

Date of Contract: June 2017 – February 2018

Date Program was fully operational: The City used the report to determine the feasibility of implementing a Pay-As-You-Through (PAYT) Program to their city with the use of financial models and benchmarking the strategies used by other cities such as Grand Rapids, MI, Greensboro, NC, and Sacramento, CA. The City determined that PAYT was not economically feasible at the time for the City to undertake.

PROJECT THREE

Project Name: **Solid Waste Assessment & Containerized Service Plan**

Project Description: Case Western Reserve University (CWRU) decided in 2017 to complete a comprehensive waste assessment for the main campus of CWRU. The purpose of the assessment includes a full review of the current waste management system being utilized on campus, including waste disposal and recycling trends, collection structures, financial constraints and opportunities, and areas for improvement.

Agency and Department: Case Western Reserve University, Office of Sustainability

Address: Peter B. Lewis Building, 110c, Cleveland, OH 44106

Point of Contact: Erin Kollar, Assistant Director of Sustainability

Phone Number for Contact: 216-368-6989

Curbside Recycling Program Overview: CWRU is responsible for collecting bagged trash on campus from the 126 ninety-six-gallon wheeled cart staging areas on the academic side of campus and from the curbside piles in the North and South Residential Villages.

Date of Contract: July 2018 – February 2019

Date Program was fully operational: Implementation of the Containerize Service Plan which strategically assign trash from each building on campus to a specifically located container.

PROJECT FOUR

Project Name: **Delaware County Transfer Facility Master Plan**

Project Description: Evaluate the current Delaware County Transfer Facility and make recommendations to upgrade facility or build a new facility. The Master Plan included financial and operational analysis and recommendations to upgrade their materials management system. GT is currently providing consulting services to Delaware County for a Design-Build-Finance-Operate public private partnership to build a new Transfer and Recycling Center (TRC).

Agency and Department: Delaware County Regional Sewer District

Address: 50 Channing Street, Delaware, OH 43015

Point of Contact: Erik McPeck P.E., Deputy Director of Operations

Phone Number for Contact: p: 740-833-2240 m: 614-315-5382

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|--|
| <i>Curbside Recycling Program Overview:</i> The new TRC is being designed to provide infrastructure and operational support for all the curbside collection programs in the county along with education and outreach support for the programs. |
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|---|
| <i>Date of Contract:</i> September 2018 |
|---|

| |
|---|
| <i>Date Program was fully operational:</i> Currently in Process |
|---|

Cleveland Area Specific Projects

GT has assisted the City of Cleveland with its transition from manual to automated collection in 2007. The work included evaluating the manual routes, conducting a survey of multiple communities nationwide on their automated collection programs, information on collection equipment and carts and other factors. The work was conducted through the Cuyahoga County Solid Waste Management District.

GT also assisted the City in 2011 as a partner with another consulting firm to evaluate the feasibility of developing a waste to energy facility in collaboration with Cleveland Electric.

Finally, GT has prepared or assisted in the development of the last 3 solid waste management plans for the Cuyahoga County Solid Waste Management District. The projects spanned a period from 2003 to 2018. Long range planning related to the City of Cleveland was included with the plan updates.

E. PROJECT MANAGEMENT APPROACH / PROJECT METHODOLOGIES

PHASE ONE: EVALUATION AND ASSESSMENT OF CITY OF CLEVELAND RECYCLING, SOLID WASTE AND BULK COLLECTION PERFORMANCE

Task 1 – Metrics, SWOT Analysis and Key Performance Indicators

Phase 1 of this project is designed to analyze the current efficiency of the recycling, trash and bulk collection program for the City along with other programs. Key to any government department or private business is to clearly understand the data that evaluates performance and efficiency. The assessment of Strengths, Weaknesses, Opportunities, and Threats (SWOT) along with key performance indicators (KPI's) are critical for GT and City management to assess performance and areas of operations that need improvement. The GT Project Team is proposing the following to assess the current KPI's and to conduct the SWOT process:

Information Request to Cleveland

GT will prepare the information request within five-days of being awarded the project. GT will require a project liaison (one point of contact) assigned by the City of Cleveland who all information requests, scheduling and data collection can be coordinated. GT will work with the project liaison to obtain the data and information requested for the past and current operations for each aspect of the project including recycling, trash and bulk pickup.

GT will use the data and information received for performance-based standards to evaluate the automated collection program operations and route analysis. GT will use transfer station data to analyze route tonnage and time needed for solid waste and recycling collections.

Task 2 – Kickoff Meeting to Review Scope and Each Phase of the Project

After receiving the bulk of the requested information from Task 1, GT will schedule a two-hour kickoff meeting (within two weeks of project award) to review the scope, obtain information from the information request in Task 1. answer project questions so that the project can be fast tracked and meet deadlines in the schedule.

Task 3 – Review and Assessment of Current Operating System

GT will perform a review of the current operating system for the following programs:

- Curbside trash, recycling and bulk collection
- Curbside leaf and yard waste collection
- Recycling drop-offs
- Multi-family housing
- Commercial services
- Special collections
- Illegal dumping
- Education and outreach

The review will include the following:

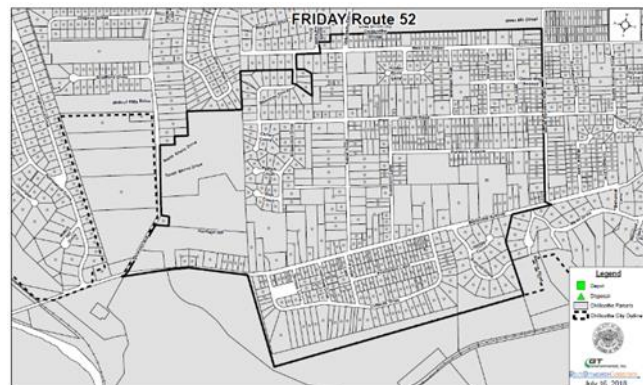
Collection Metrics

GT will review all collection metrics including tonnage collected, costs, labor levels, households served and other metrics by collection type (trash, recycle (curbside and drop-off) and bulk).

Collection Route Performance

GT proposes to review transfer station data for all collection routes to determine their productivity rates. This task is critical in understanding how each collection routes operates related to non-productive and productive times. GT will also spot check a series of collection routes (trash, recycle and bulk) to collect the following data:

- ✓ Mileage driven per vehicle
- ✓ Service/stop times
- ✓ Set-out Rates
- ✓ Service/Stop Counts
- ✓ Waste generated on an average per household basis
- ✓ Residential trash set-out levels per week
- ✓ Crew drive time to the final discharge area from the end of routes
- ✓ Other performance data as needed



GT will utilize, in part, Maria Heckaman & Associates, Inc., our MBE/FBE/CSB partner, on this task.

The data collected will be compared to high performing communities to determine the current effectiveness of the City routes by material collected. GT will assess the usage of an RFID chip system and associated software for the current cart program for tracking tips and other KPI's. GT will make recommendations for route optimization efforts that will

balance the routes based on time and tonnage to ensure that all crews are operating safely and efficiently. The quantity of routes may be recommended to change based on the data collected in this task. Route changes would occur in the implementation Phase III.

Recycle Audit

GT proposes to conduct an audit of targeted recycling routes at the transfer station. The purpose of the audit is to evaluate contamination levels and the primary types of contamination to identify specific problematic materials that are being deposited into the City of Cleveland's curbside and drop-off recycling bins.

Focused work on understanding recycling contamination in a specific community is a vital first step in protecting the longevity of your recycling program. Wish-cycling, or the practice of putting materials that residents think or hope can be recycled into recycling bins is an extremely detrimental practice that has costly implications for service providers and program providers. If left unchecked, high-contamination levels can lead to unsustainable program cost increases related to penalties and fees, low material values or rejected loads, and discontinued programs. The Recycling Partnership has identified that contamination issues are prevalent across Ohio and the nation and that localized targeted approaches based on community-specific data is most effective.



To obtain Cleveland-specific information on contamination, GT will select demographically unique routes to obtain results that are a cross-sectional study producing data representative of Cleveland's overall population. GT will select truck routes that mainly service curbside recycling programs and some drop-off recycling routes. Using GT's demographic maps and the City of Cleveland's routing information, a minimum of 8 targeted trucks will be pre-selected to be included in the recycling audit.

GT will identify, through discussions with scale house staff, approximate time frames when the selected trucks will be arriving at the transfer station to empty their loads. GT will have a dedicated team member working with transfer station staff to select a minimum 200-pound sample from each selected truck. When selected trucks dump the contents of their trucks, materials will be selected from all four quadrants of the pile to ensure that results are reflective of the trucks route and not just a single stop or housing development.

GT will work with transfer station staff to identify a 15' by 20' area where a manual sorting station can be located. The 200-pound sample from the selected City collection vehicle

will be transported to the manual sorting area where a GT project manager and a team of sorters will manually separate all materials into pre-determined material categories. After all materials are sorted, each material bin will be weighed on a scale that measures to the nearest tenth-pound and totals will be recorded. Materials can then be transported back to the tipping floor.

Photographs of materials of interest will be taken for each sample. For the recycling stream, contaminants are a major area of interest. A placard labeling which truck or sample number is being sorted will be visible in all photos of materials so photos of contaminants can be traced back to specific routes.

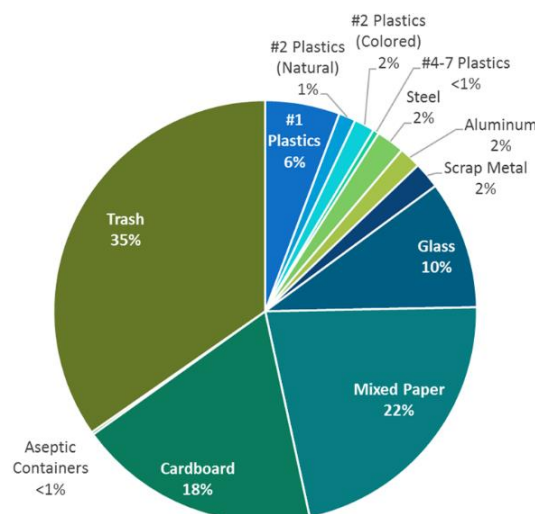
The methodology employed to complete the recycling audit will be in compliance with the Standard Test Method for Determination of the Composition of Unprocessed Municipal Solid Waste (ASTM D5231 – 92).

Proposed Recycling Audit Categories

| Type | Category |
|---------------|--|
| Recyclables | Glass containers |
| | Aluminum based materials |
| | Steel/tin cans |
| | Plastic #1 (PET) |
| | Plastic #2 (Natural HDPE) |
| | Plastic #2 (Color HDPE) |
| | Mixed Plastics |
| | Cardboard/paperboard |
| | Newspaper |
| | Office Paper |
| | Phone Books |
| Contamination | Non-Recyclable Fibers (Tissues, Napkins, Paper Towels) |
| | Non-Recyclable Plastic Containers |
| | Film Plastics |
| | Rigid Plastics |
| | Food Waste/Organics |
| | Other/Miscellaneous |
| | Collection Bags |

GT will track all recyclable material materials by the categories listed above (or as otherwise requested by the City).

GT will utilize, in part, Maria Heckaman & Associates, Inc., our MBE/FBE/CSB partner, on this task. The tasks for the recycle audit will be as follows: The sort crew will receive protective equipment, daily safety instructions, and instruction on recyclable material sorting. The GT Site Manager will ensure that the sorting is performed in accordance with the methodology developed for this project. The GT Site Manager will also ensure that a health and safety plan is developed for the project and reviewed with project participants.



A summary of results will be prepared that presents the arithmetic mean, standard deviation, and upper and lower confidence limits for each material/category. Additionally, the summary will compare contamination levels and contaminants

amongst the routes analyzed. Tailored strategies to reduce contamination will be provided in the deliverable.

In addition to collecting and analyzing quantitative contamination data, this task will aid in the development of education and outreach initiatives that target the key contaminants and participant behavior. The education and outreach initiatives will be rooted within the principals of social marketing, which seeks to not only educate and raise awareness amongst residents, it also seeks to create sustainable behavior change.

The results of the audit will be utilized to develop recommendations for the roadmap document.

Trash Audit

GT proposes to conduct an audit of targeted trash routes at the transfer station to evaluate the percentage of recyclable materials that are being landfilled by residents as well as which types of recyclable materials are most likely to be disposed by the City's residents.

To obtain Cleveland-specific information on which types of recyclables residents are most likely to dispose instead of recycle, GT will select demographically unique routes to obtain results that are a cross-sectional study producing data representative of Cleveland's overall population. GT will select truck routes that service residential curbside waste collection. Using GT's demographic maps and the City of Cleveland's routing information, a minimum of 8 targeted trucks will be pre-selected to be included in the trash audit.

GT will identify, through discussions with scale house staff, approximate time frames when the selected trucks will be arriving at the transfer station to empty their loads. GT will have a dedicated team member working with transfer station staff to select a minimum 200-pound sample from each selected truck. When selected trucks dump the contents of their trucks, materials will be selected from all four quadrants of the pile to ensure that results are reflective of the trucks route and not just a single stop or housing development.

GT will work with transfer station staff to identify a 15' by 20' area where a manual sorting station can be located. The 200-pound sample will be transported to the manual sorting area where a GT project manager and a team of sorters will manually separate all materials into pre-determined material categories. After all materials are sorted, each material bin will be weighed on a scale that measures to the nearest tenth-pound and totals will be recorded. Materials can then be transported back to the tipping floor.

Photographs of materials of interest will be taken for each sample. For example, recyclables in the landfilling (trash) stream will be categories of interest. A placard labeling which truck or sample number is being sorted will be visible in all photos of materials so photos of recyclables can be traced back to specific routes.

Proposed Trash Audit Categories

| Type | Category |
|---------------|--|
| Recyclables | Glass containers |
| | Aluminum based materials |
| | Steel/tin cans |
| | Plastic #1 (PET) |
| | Plastic #2 (Natural HDPE) |
| | Plastic #2 (Color HDPE) |
| | Mixed Plastics |
| | Cardboard/paperboard |
| | Newspaper |
| | Office Paper |
| | Phone Books |
| Contamination | Non-Recyclable Fibers (Tissues, Napkins, Paper Towels) |
| | Non-Recyclable Plastic Containers |
| | Film Plastics |
| | Rigid Plastics |
| | Food Waste/Organics |
| | Other/Miscellaneous |
| | Collection Bags |

The methodology employed to complete the trash audit will comply with the Standard Test Method for Determination of the Composition of Unprocessed Municipal Solid Waste (ASTM D5231 – 92).

GT will track all materials by the categories listed above (or as otherwise requested by the City).

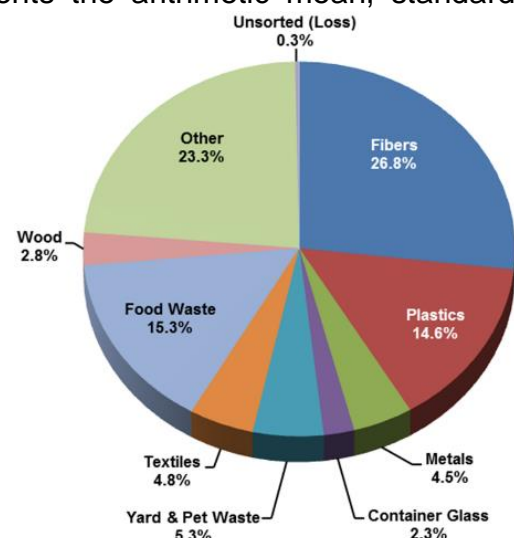
Once the appropriate sample has been collected and staged, trash materials and other materials will be sorted manually into pre-defined material categories and placed in containers for weighing and recording. GT will provide a project manager to conduct the audit of the recyclable materials.

GT will utilize, in part, Maria Heckaman & Associates, Inc., our MBE/FBE/CSB partner, on this task. The tasks for the trash audit will be as follows: The sort crew will receive protective equipment, daily safety instructions, and instruction on material sorting. The GT Site Manager will ensure

that the sorting is performed in accordance with the methodology developed for this project. The GT Site Manager will also ensure that a health and safety plan is developed for the project and reviewed with project participants.

A summary of results will be prepared that presents the arithmetic mean, standard deviation, and upper and lower confidence limits for each material/category. Additionally, the summary will compare the amounts of recyclables recovered from the landfill stream amongst the routes analyzed. Greater amounts of recyclables will likely identify routes with lower program performance or areas where residents are not adequately informed about the materials accepted in the recycling program. Tailored strategies to improve recycling capture rates will be provided in the deliverable.

In addition to collecting and analyzing quantitative data on the quantity of landfilled recyclables, this task will aid in the development of education and



outreach initiatives that target the most disposed types of recyclables and improving participant behavior. The education and outreach initiatives will be rooted within the principals of social marketing, which seeks to not only educate and raise awareness amongst residents, it also seeks to create sustainable behavior change.

The results of the audit will be utilized to develop recommendations for the roadmap document.

Task 4 – Survey and Meetings With 2-3 Comparable Cities

There are numerous large metropolitan cities with similar demographics to Cleveland that have implemented successful automated trash and recycling programs along with bulky pick-up. GT proposes to identify a master list of cities for comparison purposes. GT will then develop a detailed survey instrument to collection information and data on their program performance metrics. GT will also collect information regarding how they rolled out their programs and lessons learned. Finally, GT will obtain detailed information on their ordinances to enforce their programs. The content of the surveys would include the following:

- Management Structure
- Operations
- Training
- Maintenance
- Equipment and Equipment Inventories
- Key Performance Indicators
- Personnel
- Education of Residents
- Contamination Levels
- Routing
- Multi-family housing (five or more residential units)
- Solid Waste Ordinances and Policies
- Employment Policies
- Employee Communications
- Illegal Dumping Issues

GT will identify a list of potential communities with the Cleveland representatives and confirm from that list potential interviews of seven to ten communities to complete the questionnaire. The goal of the phone interviews will be to identify the following: type of solid waste/recycling program (bags, cart, other); city ordinances, performance metrics used for efficiency standards, financial forecasting completed prior to program initiation; programmatic issues since implementation; diversion rates; issues surrounding open dumping; education program completed prior to implementation; cost structure and budget; equipment used for program; and contact information.

The following list of potential cities GT would survey include, but not limited to:

- Cincinnati
- Indianapolis
- Nashville
- Detroit
- Milwaukee
- Pittsburgh
- Fort Wayne
- Minneapolis
- St. Louis

GT suggests meeting with 2-3 comparable cities that were surveyed. The meetings will include a strategic planning session to determine the strengths of the collection and transfer programs and determine what aspects should be modeled or mirrored in the City of Cleveland.

It would be the intent that these meetings would be held over one to two days which would include travel to the selected cities, discussions and then tours of their facilities. GT anticipates that the selected cities will be within a 6-hour drive of Cleveland.

Task 5 – Recycling Market Analysis

GT will analyze international and domestic recycling market trends to develop financially sustainable short-term and long-term strategies for residential recycling. GT will prepare a 10-year analysis of the common traded commodities for curbside and drop-off programs. The analysis will show the high, low and average markets. GT will evaluate the City's contracts and recycling rates to develop waste diversion strategies to reduce overall solid waste management costs. The analysis will also show the projected markets. Finally, the analysis will provide an inventory of local and regional market participants (brokers, processors and end users).



Task 6 – Residential Bulky Waste Collection Program

GT will evaluate the current bulk pick up process the City employees to collect out of cart materials set-out by residents. GT will also utilize the data and information obtained in the comparable city survey when evaluating the City's current program. Additional analysis and evaluation will be directed toward communities that exhibit a high performing and successful and consistent level of service for their bulk collection program. Finally the use of an appointment only program by the comparable cities will be evaluated for incorporation into the City's future service offerings.

The results of this analysis will used to develop the recommended changes to the bulk program that will be included in the roadmap document.

Task 7 – Auxiliary Services Review

This task focuses on the customer service, marketing and communication, commercial services and special waste collections in the City of Cleveland. The following current City services will be evaluated:

- Customer Service, Marketing and Communication/Constituent Outreach
- Commercial Services
- Special Collections
 - ✓ Electronic waste round up, including computers
 - ✓ Hazardous waste, including paint and chemical round up
 - ✓ Paper Shredding Service
 - ✓ Tires
- Organic Waste Reduction
 - ✓ Yard waste and leaves
 - ✓ Food waste

GT will outline cost-effective strategies for collection and processing of residential and municipal yard wastes, including the potential for citywide leaf pickup. Best practices for reducing food waste landfilled will be included (such as food rescue, composting, and biodigestion), and opportunities to build off existing resources in Cleveland.

Each collection program listed above will be assessed through the SWOT process discussed earlier. Current KPI's will be compared to high performing communities to demonstrate and justify any proposed changes in the programs.

The results of this analysis will be used to develop the recommended changes to each of the programs evaluated which will be included in the roadmap document.

Task 8 – Strategic Plan Session with Division of Waste Collection Management

Upon completion of tasks 1-7, and the other Tasks in Phase 1, GT will hold a one to two-day strategic planning session with department management and select collection crews and or supervisors. The strategic session will identify management's assessment of the strengths, weaknesses, opportunities and threats for the operations. The data collected and evaluated under this part of the project will impact the KPI's and strategic initiatives. Once KPI's and strategic initiatives are determined and prioritized, GT will prepare a dashboard (see graphic below) for management to see progress and deficiencies on a daily, weekly or monthly basis. The dashboard will be based on an Excel spreadsheet and GT will train department staff how to enter the data and use the dashboard.

City of Cleveland
Solid Waste Dashboard



Task 9 – Conclusions and Recommendations

Upon completing all tasks in Phase 1, GT will prepare a report that will summarize all of the tasks that includes conclusions and recommendations for improvement. The draft report will be presented to the City team and other stakeholders to review the conclusions and recommendations. The review will include a session to prioritize and approve the recommendations. GT does suggest that the approved recommendations are then presented to City Council for final approval. A separate presentation to City Council will be provided by GT.

Deliverables within first 60 days of a signed Contract

GT understands Cleveland's priority goals within the first 60 days of contract to allow to City to implement changes and best practices for their operations. Data collected and analyzed from Phase one will be used for the following deliverables. Strengths and challenges will be assessed to provide recommendations and efficient industry practices.

1. Residential Curbside and Drop Off Recycling Program Analysis
 - a. Collection Metrics
 - b. Collection Route Performance
 - c. Recycle Audit
 - d. Comparable Cities for Recyclables Collection
 - e. Recycling Market Analysis
2. Residential Solid Waste Collection Program Analysis
 - a. Collection Metrics
 - b. Collection Route Performance
 - c. Trash Audit
 - d. Comparable Cities for Trash Collection
 - e. Illegal Dumping
3. Residential Bulky Waste Collection Program Analysis
4. Auxiliary Services Program Analysis
 - a. Customer Service, Marketing and Communication/Constituent Outreach
 - b. Commercial Services
 - c. Special Collections
 - i. Electronic waste round up (includes computers)
 - ii. Hazardous waste (includes paint and chemical round up)
 - iii. Paper Shredding Service
 - iv. Tires
5. Creation of roadmap to implement Landfill Reduction Strategies
 - a. Organic Waste Reduction
 - i. Cost-effective residential and municipal yard waste strategy
 - ii. Food waste reduction strategies
 - b. Northeast Ohio Region circular economy expansion options

PHASE TWO: IMPLEMENTATION PLAN DEVELOPMENT

GT will use data collection and analyses performed in Phase One to develop an implementation plan and associated road map document (Plan). The Plan will include the following elements:

- City Council approved recommendations summary
- Programmatic changes with descriptions
 - ✓ Solid waste collection and routing
 - ✓ Recyclables collection and routing
 - ✓ Bulk collection and routing
 - ✓ Special collections
 - ✓ Education and outreach and community engagement
- Staffing changes and training
- Management policy changes
- Ordinance changes
- Multi-family housing waste diversion opportunities
- Capital and non-capital expenditures summary
- Equipment and supply requirements and specifications
- Procurement processes for capital expenditures
- Equipment maintenance system upgrades for new equipment
- Permitting and design tasks as needed
- Equipment delivery and installation
- Detailed timeline for implementation by milestone
- Budget for implementation tasks
- Support/develop local markets for recycled material, supporting a sustainable, local, circular economy opportunities
- Other criteria as identified



The Plan will be designed to be a living document that adjusts and improves over time as the various initiatives are implemented.

Optional Task – Residential Engagement Process

If the City would like a residential engagement process, we will work with Illuminology to recruit Cleveland residents to participate in one of three 90-minute focus groups, to be held in free locations across the City (e.g., Park and Rec Centers, Cleveland Public Library branches). For each focus group, we will recruit 12 people with the expectation that 8 will show; each attendee will receive a financial incentive (e.g., \$100) to thank them for their time. Light refreshments will also be provided. We suggest segmenting the

groups based on how actively or frequently they participate in the City's recycling program: (1) those who do this regularly (2) those who do this intermittently, and (3) those who don't.

Illuminology will design the recruitment materials used for these groups and the discussion guide used during the groups, working in partnership with GT Environmental and the City of Cleveland. We will moderate the groups and provide a brief written report (likely in PowerPoint) that will review the key research findings and insights.

Information obtained from this optional task would be incorporated into the implementation plan initiatives.

Development of Implementation Plan

GT will use the prioritized recommendations from Phase One to develop the plan to include the elements above. This Plan will have a phased in approach to the steps for implementing the recommendations into immediate actions, first year programs, and long-term goals for the City.

Review of Plan

The Draft Plan will be submitted to the City for review. After the City's comments are incorporated, the City may choose to finalize the Plan or take it to the following optional public process.

Optional Public Process

GT suggests a written public comment period with public hearing occur to allow for community input on the Plan. The 30-day comment period and public hearing would allow the administration to consider comments that may be used to strengthen the plan. This process would include neighborhood associations, local processors, and City Council representatives.

Comments would be summarized and presented to the City management team for consideration. Only comments germane to the plan as written would be considered. After all comments have been considered, a final draft plan would be prepared and submitted to the City.

Presentation of Plan

GT will present the revised Plan to City Council for approval. GT will summarize the entire process used to develop the plan, obtain City comments and changes, obtain public comment and changes and final revisions. With the approval of City Council, the plan then would move to the implementation phase discussed below.

PHASE THREE: IMPLEMENTATION OF THE STRATEGIC OPERATIONS PLAN

GT can assist the City with the implementation tasks identified and approved in Phase II for the City's Strategic Operations Plan. If the City desires GT to assist with the implementation, a separate scope of work and proposal would be developed. Since the contents of the Implementation plan have not been developed, the scope will be dependent of the Plan's results.

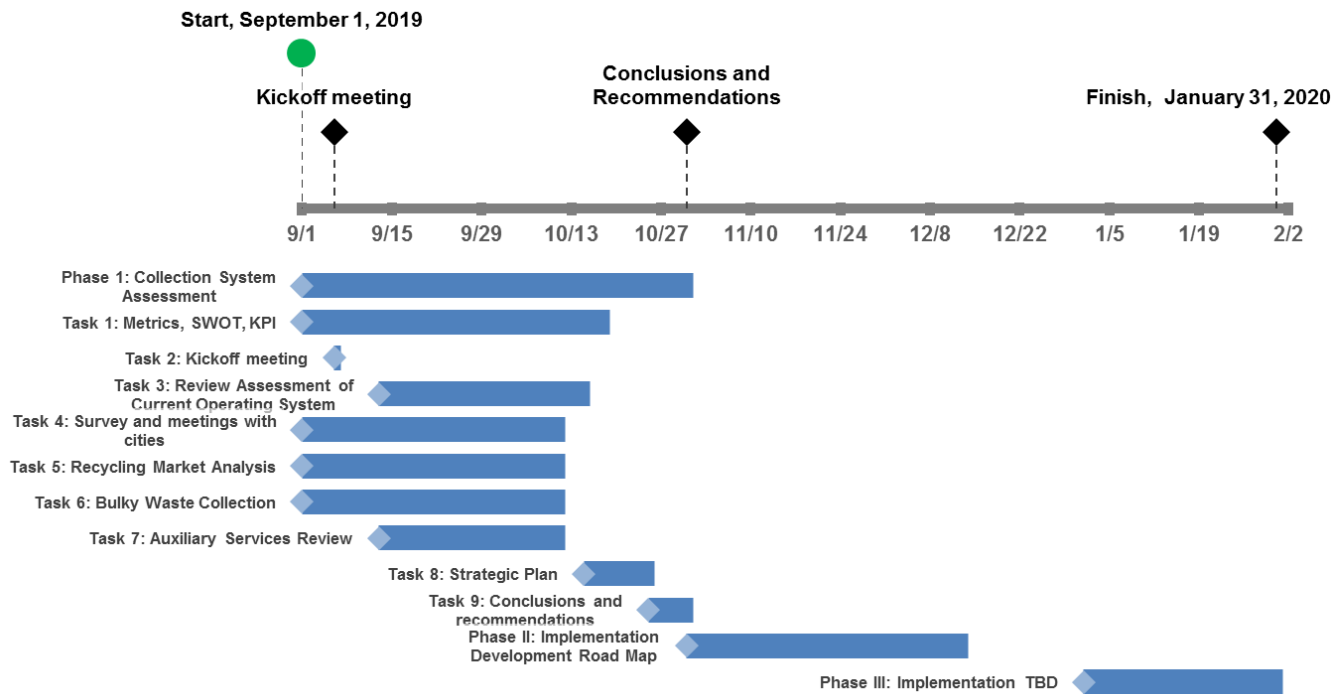
Possible list of implementation tasks GT may assist, but not limited:

- Equipment Specification development
- Bid procurement documents
- Employee Job description changes
- Ordinance Changes
- Maintenance Plans
- Management Policy Changes
- Routing Optimization for Collections
- Appointment System Development for Bulk/Special Services
- SOP development for Special Collections
- Community Engagement/Program Roll-out
- Education and Outreach Instruments
- Contamination Tagging Program

Other services mutually agreed upon would be included in the scope of work. Since GT is local to the Cleveland area, GT can be very responsive to the needs of the City. Our relationship with the Cuyahoga County Solid Waste Management District and past work with the City are all value-added benefits to working with GT on this project.

F. SCHEDULE

The following timeline is a tentative schedule for the project. The timeline will be shifted in correlation to start date. Dates for each phase may be negotiated with the City to fit its needs.



ATTACHMENT 1 – GT TEAM RESUMES

JAMES A. SKORA, CHMM, S.C.



Mr. Skora is the Manager of GT Environmental, Inc.'s Northeast Ohio office. He has 30 years of experience in the public and private sector involving solid waste recycling, disposal and planning, regulatory compliance consulting and hazardous waste management. Mr. Skora is responsible for developing new services to existing GT clients in the areas of Solid Waste Consulting, RCRA/CERCLA Corrective Actions, RCRA Compliance, Environmental Management and Compliance Audits.

EDUCATION

Bachelor of Science, Bowling Green State University, 1989

TECHNICAL SPECIALTIES

- Solid Waste Planning
- RCRA, OSHA, DOT Regulations
- Phase One and Two Site Assessments
- Hazardous Waste Management

REPRESENTATIVE EXPERIENCE

Solid Waste Management Permitting and Planning

- Ashland County Solid Waste Management District, Solid Waste Plan Update
- Auglaize County Solid Waste Management District; Solid Waste Plan Update, Annual District Report
- Butler County Solid Waste Management District, Hamilton, Ohio; MRF Feasibility Study, Solid Waste Plan Update
- Clark County Solid Waste Management District, Springfield, Ohio; Solid Waste Plan Update
- City of Norwalk, Norwalk, Ohio, Operations Study
- City of Piqua, Piqua, Ohio, Curbside Recycling Analysis
- Cuyahoga County Solid Waste Management District, Cleveland, Ohio; Solid Waste Plan Update (2003 and 2010)
- Defiance, Fulton, Paulding, Williams Four County Joint Solid Waste Management District, Defiance, Ohio; Solid Waste Plan Update
- Delaware, Knox, Marion, Morrow Solid Waste District, Fiber Collection Feasibility Study, Multi-County Solid Waste Plan Update
- Henry County Solid Waste Management District; Solid Waste Plan Update, Annual District Report

- Holmes County Solid Waste Management District, Millersburg, Ohio; Solid Waste Plan Update
- Huron County Solid Waste Management District; Solid Waste Plan Update, Operations Study, Solid Waste Plan Update
- Jefferson/Belmont Regional Solid Waste Authority, Recycling Study, Technical Assistance, Routing
- Lawrence-Scioto Solid Waste Management District, Ironton, Ohio, Solid Waste Plan Update
- Lorain County Solid Waste Management District, Elyria, Ohio; Solid Waste Collection and Disposal Analysis
- Lucas County Solid Waste Management District, Toledo, Ohio, Solid Waste Plan Update, Annual District Report
- Medina County Solid Waste Management District, Seville, Ohio; Solid Waste Plan Update, Operations Study, Bid Specification Development, Technical Assistance, Annual District Report
- Mercer County Solid Waste Management District, Celina, Ohio; Solid Waste Plan Update
- Miami County Solid Waste Management District, Troy, Ohio; Solid Waste Plan Update, MRF Feasibility Study, Recycling Access Study
- Montgomery County Solid Waste District, Dayton, Ohio; Solid Waste Plan Update
- North Central Ohio Solid Waste Management District; Solid Waste Plan Update, MRF Feasibility Study, Annual District Report, Grants, Technical Assistance
- Ohio EPA, Clinton County Solid Waste Management District, Wilmington, Ohio; Solid Waste Plan Update, Ashtabula County Solid Waste Management District
- OSS Joint Solid Waste Management District, Fremont, Ohio; Solid Waste Plan Update, Annual District Report
- Preble County Solid Waste Management District, Eaton, Ohio; Solid Waste Plan Update, Annual District Report
- Stark, Tuscarawas, Wayne Solid Waste Management District, Bolivar, Ohio; Solid Waste Plan Update (2004 and 2009)
- Southeastern Ohio Solid Waste Management District; Solid Waste Plan Update, Education Program
- Summit/Akron Solid Waste Authority, Akron, Ohio; Recycling Infrastructure Analysis, Recycling Drop-Off Analysis, Curbside Recycling Analysis, Solid Waste Collection and Disposal Analysis, MSW Contract Assistance Guidance Manual, Solid Waste Plan Update, Composting and Yard Waste Study, Annual District Report
- Van Wert County Solid Waste Management District, Solid Waste Management Plan, Annual District Report.

Waste Audits and Assessments

- Ohio State University, Columbus, Ohio
- General Motors Corporation, Kalamazoo, Michigan, and Anderson Indiana
- ALCOA, Alcoa, Tennessee, Cleveland, Ohio
- Kellogg's, Battle Creek, Michigan
- Clark Oil Company, 100 plus sites nationally
- Marathon Oil Company, 30 plus sites nationally

PROFESSIONAL MEMBERSHIPS

- Board Member – Organics Recycling Association of Ohio, 2015-Present
- Board Member – Solid Waste Association of North America (SWANA), Ohio Buckeye Chapter, 2001-Present
- Officer – Solid Waste Association of North America (SWANA), Ohio Buckeye Chapter, President 2006-2007, Vice President 2004-2006, Treasurer 2003-2004, Secretary 2002-2003
- Vice President – Organization of Solid Waste Districts of Ohio, 2001;
- Chairman – Organization of Solid Waste Districts of Ohio, North East Region, 2000, 2001

PROFESSIONAL CERTIFICATIONS

- Certified Collection Systems Manager, Solid Waste Association of North America, 2011
- Certified Integrated Solid Waste Manager, Solid Waste Association of North America, 2012
- Faculty Member, Solid Waste Association of North America, 2013
- Certified Hazardous Materials Manager (CHMM), 1991, Re-certified 2005
- 40 Hour OSHA Certified, 1989, Re-certified 2000
- DOT HM 181 Trained, 1993

WORK HISTORY

GT Environmental, Inc.
Materials Management and
Sustainability Business Unit Mgr.
July 2004 – present

Summit/Akron Solid Waste Management District
Executive Director
February 2000 – February 2002

ACRT, Inc.
Environmental Sales Manager
May 2003 – July 2004

Heritage Environmental Services, LLC
Technical Services Manager
August 1989 – February 2000

JAS Consulting
President
March 2002 – June 2004

Davis-Besse Nuclear Power Station
Graduate Assistant Nuclear Technologist
July 1988 – August 1989

DANIEL L. GRAETER

Mr. Graeter is a Senior Manager with GT Environmental, Inc. and he has 25 years of experience with solid waste planning, recycling programs, education outreach, facility operations, financial management, and solid waste systems. Dan has worked in private industry for 9 years and for the public sector for 16 years in various capacities of solid waste management. He has expertise in the following areas: solid waste facility operations, solid waste collection systems, district planning and program development, financial systems and controls, solid waste planning, solid waste transfer station design and operations, feasibility studies, strategic planning, environmental education, public involvement and communications programs.

Mr. Graeter has served on numerous solid waste and recycling professional boards including The Indiana Hoosier Chapter and The Ohio Buckeye Chapter of The Solid Waste Association of North America (SWANA), The Organization of Solid Waste Districts of Ohio (OSWDO), The Association of Ohio Recyclers (AOR), and Keep Ohio Beautiful (KOB). While serving on The Buckeye Chapter of SWANA he served in various capacities including President, Vice President, Treasurer, and Secretary. He served as the President and vice President for OSWDO.

EDUCATION

M.B.A. – Management, Wright State University
B.S.B. - Accountancy, Wright State University

TECHNICAL SPECIALTIES

- Certified Public Accountant(inactive) Ohio
- Commercial Driver License – B
- SWANA certified Transfer Stations, Manager of Landfill Operations, Recycling Systems, Zero Waste Principles and C&D Recycling.
- Emergency Management Certificates ICS-100, 200, 300, 400 and NIMS 700.

Mr. Graeter has twenty-five years of experience encompassing:

- Public Education and Public Involvement
- Strategic Planning
- Pay as You Throw Programming
- Regulatory Compliance
- Solid Waste Planning
- Transfer Station Design and Operation
- Solid Waste Collection and Routing
- Solid Waste Collection and Transfer Station Safety
- Solid Waste Financial Systems
- Collection fleet safety program

REPRESENTATIVE EXPERIENCE

Education and Outreach Programs

- *Montgomery County Solid Waste Management District*, Environmental Learning Center, building design.
- *Montgomery County Solid Waste Management District*, Environmental Learning Center, education content, media development, and exhibit design.
- *Montgomery County Solid Waste Management District*, *Environmental Crimes Task Force*.
- *Montgomery County Solid Waste Management District*, Boonshoft Museum, Solid Waste and Recycling Exhibit.

Solid Waste Management Planning and Program Management

- *Montgomery County Solid Waste Management District*, Solid Waste Management Plan Update

Facility Design and Operations

- *Delaware County, Ohio*. Transfer Station Master Plan Study
- *Pike County Solid Waste Management District*, Develop RFP for Recycling Facility.
- *Montgomery County Solid Waste Management District*, Transfer Station Upgrade and Expansion 2006.
- *Montgomery County Solid Waste Management District*, Transfer Station Scale Modification 2014.
- *Montgomery County Solid Waste Management District*, Scale Operations Procedure Manual.
- *Montgomery County Solid Waste Management District*, Scale System RFP and Implementation.
- *Allied Waste Dayton, Ohio*, Design and Implement Driver Safety Program.

Financial Cash Systems Review

- *Northeast Indiana Solid Waste Management District*, Review of Internal Controls and Cash Policy and Procedure Manual.
- *Montgomery County Solid Waste Management District*, Review of Internal Controls and Cash Policy and Procedure Manual.

SELECTED PRESENTATIONS

D Graeter, Maximizing Waste Diversion- Current State of the Art, WasteCon Orlando 2015
D Graeter, Environmental Learning Center, WasteCon, Indianapolis 2016.

ASSOCIATIONS

- Board Member – Indiana Hoosier Chapter, Solid Waste Association of North America - 2019 – present.
- President – Buckeye Chapter, Solid Waste Association of North America – 2008-2010.

- Treasurer – Buckeye Chapter, Solid Waste Association of North America – 2011-2016.
- Board Member – Buckeye Chapter, Solid Waste Association of North America - 2003 – 2016.
- Co-Chairman SWANA WasteCon Conference Indy Speedway Event – Indianapolis Indiana August 2016.
- Chairman of Ohio Partners Conference Dayton, Ohio 2015.
- Chairman of Tristate Conferences Indianapolis 2010, Cincinnati, Ohio 2008.
- Chairman of Ohio Equipment Rodeo Dayton, Ohio 2007.
- President Organization of Ohio Solid Waste Districts (OSWDO) 2014-2016.
- Greene County Solid Waste Management District Policy Committee 2015-present.

Awards

2007 SWANA Buckeye Chapter “Solid Waste Professional of the Year”

2004 State of Ohio, Department of Natural Resources “Program Employee of the Year”

WORK HISTORY

Senior Manager

GT Environmental, Inc.

2018 - present

Manager Planning and Programs

Montgomery County Solid Waste District, Ohio.

2014-2018

Assistant Manager of Solid Waste

Montgomery County Solid Waste District, Ohio

2002-2014

General Manager

Allied Waste-

Dempsey Waste Systems, Dayton, Ohio.

Countryside Waste, Celina, Ohio.

Celina Landfill, Celina, Ohio.

1998-2002

District Controller

Allied Waste, Western Ohio

Operations Manager

Allied Waste, Dayton, Ohio

1994-1998

MOLLY KATHLEEN, S.C.

Molly Kathleen is an Environmental Planner II with GT Environmental, Inc.'s Westerville, Ohio office. Molly specialized in solid waste management planning, waste stream characterizations, zero waste strategies, and GIS mapping. Prior to joining GT, she worked in university waste management supervising collection operations and implementing sustainability and waste minimization programs.

EDUCATION

B.S. – Environmental Geography, Ohio University, 2008

CURRENT CERTIFICATIONS

- Certified in Zero Waste Principles and Practices, Solid Waste Association of North America, 2018
- Certified in Integrated Solid Waste Management Systems, Solid Waste Association of North America, 2015
- Certified in Recycling Systems Management, Solid Waste Association of North America, 2012

REPRESENTATIVE EXPERIENCE**Waste Sorts, Audits, and Assessments**

- *Columbus Association of Performing Arts (CAPA)*, Columbus, Ohio: Waste Sort, Waste Minimization Study, and Action Plan, 2019 (in progress)
- *Lucas County SWMD, Toledo, Ohio*: Recycling Stream Characterization Study, 2018
- *City of Toledo and Lucas County SWMD, Toledo, Ohio*: Recycling Stream Characterization Study, 2016
- *Capital University*, Bexley, Ohio: Waste Assessment, 2016 (performed as part of the Bexley Zero Waste Plan)
- *Columbus School for Girls*, Bexley, Ohio: Waste Assessment, 2016 (performed as part of the Bexley Zero Waste Plan)
- *North Central Ohio SWMD*, Lima, Ohio: Glass Sort for Union County Recyclers Grant, 2014
- *HNS Sports Group, Dublin, Ohio*: Recycling and Waste Management for Presidents Cup Golf Tournament, 2013
- *City of Columbus*, Columbus, Ohio: Waste Stream Assessment, 2013
- *Solid Waste Authority of Central Ohio (SWACO)*: Memorial Tournament Waste Assessment: 2012, 2013
- *Solid Waste Authority of Central Ohio Solid (SWACO)*, Grove City, Ohio: Waste Characterization Study, 2012-2013
- *Lorain County SWMD*, Elyria, Ohio: Mercy Health Waste Assessment, 2012

ZERO WASTE PLANNING

- *Solid Waste Authority of Central Ohio (SWACO), Grove City, Ohio: Zero Waste Plan for City of Bexley, Ohio, 2016-2017*
- *Montgomery County SWMD, Moraine, Ohio: Dayton STEM School Zero Waste Plan, 2014*
- *Lorain County SWMD, Elyria, Ohio: Zero Waste Plan for City of Oberlin, 2013*

PROFESSIONAL ASSOCIATIONS

- Vice-President, *Association of Ohio Recyclers (AOR)*, 2015-Present
 - Member, *Association of Ohio Recyclers (AOR)*, 2010-Present
- Young Professional Chapter Liaison, *Solid Waste Association of North America – Buckeye Chapter*, 2010-Present
- Member, *Organics Recycling Association of Ohio (ORAO)*, 2010-Present
- Member, *Ohio Association of Litter Prevention and Recycling Professionals (OALPRP)*, 2010-Present

AWARDS

- *Young Professional of the Year Award*, Solid Waste Association of North America – Buckeye Chapter, 2018

WORK HISTORY

Environmental Planner
GT Environmental, Inc.
2010 – Present

Assistant Director
Department of Recycling and Refuse
Ohio University
2006 – 2009

MICHAEL GREENBERG



Mr. Greenberg is a Principal Consultant/Owner with GT Environmental, Inc. and is responsible for product quality and timeliness. His experience includes environmental project management, environmental regulatory compliance, environmental assessments, and audits. He has expertise in the following areas planning, regulatory compliance, environmental feasibility studies, environmental assessments and audits and communications programs.

EDUCATION

M.C.R.P. - City and Regional Planning, Ohio State University, 1982

B.A. - Sociology, University of Cincinnati, 1978

TECHNICAL SPECIALTIES

Mr. Greenberg has twenty-seven years of experience encompassing:

- Environmental Project Management
- Regulatory Compliance
- Waste Audits
- Environmental Long-Range Plans
- SARA 313
- Public Meeting and Public Hearing Facilitation

REPRESENTATIVE EXPERIENCE

Solid Waste Management Permitting and Planning

- North Central Ohio Solid Waste District, MRF Feasibility Study
- Butler County Department of Environmental Services, MRF Feasibility Study
- Cuyahoga County Solid Waste Management District, Solid Waste Plan Update
- Delaware, Knox, Marion, Morrow Solid Waste District, Fiber Collection Feasibility Study
- Solid Waste JB Green Team of Central Ohio, Columbus, Ohio, Solid Waste Plan Update
- Montgomery County Solid Waste District, Dayton, Ohio; Solid Waste Plan Update
- Montgomery County Solid Waste District, Dayton, Ohio; Annual Report
- Lorain County Solid Waste Management District, Elyria, Ohio; Solid Waste Plan Update
- Lorain County Solid Waste Management District; Elyria, Ohio; Annual Report
- Lorain County Solid Waste Management District; Elyria, Ohio; Recycling Feasibility Study
- Akron/Summit Solid Waste Authority, Akron, Ohio; Solid Waste Plan Update
- Akron/Summit Solid Waste Authority, Akron, Ohio; Composting and Recycling Study
- Akron/Summit Solid Waste Authority, Akron, Ohio; Annual Report
- Medina County Solid Waste Authority, Medina, Ohio; Solid Waste Plan Update

- Stark Tuscarawas Wayne Joint Solid Waste Management District; Solid Waste Plan Update
- Delaware, Knox, Marion, Morrow Solid Waste District, Marion, Ohio; Multi-County Solid Waste Plan Update
- Delaware Knox, Marion, and Morrow Solid Waste District; Request for Proposals for Yard Waste Compost Facility
- Erie County Solid Waste Management JB Green Team, Sandusky, Ohio; Recycling Alternatives Study

Solid Waste Audits and Assessments

- Solid Waste Authority of Central Ohio - The Ohio State University, Columbus, Ohio
- Capital Crossroads – Downtown Columbus Waste Assessments
- Oberlin College, Oberlin, Ohio
- R.W. Beck - Columbus Zoo & Aquarium, Columbus, Ohio
- McCauley Propeller, Dayton, Ohio
- Nordson Corporation, Amherst, Ohio
- Sheffield Lake, Ohio; Pay As You Throw Pilot Study
- Lorain County Community College, Elyria Ohio

Special Projects

- SWACO Board of Trustee and Staff Strategic Plan Facilitation
- STW – Infrastructure Study
- Cuyahoga County SWD – Service Director Strategic Planning Facilitation

ASSOCIATIONS

Board Member – Ohio Compost Association – 2007 - 2008

International Board Member-Buckeye Chapter, Solid Waste Association of North America

President – Buckeye Chapter, Solid Waste Association of North America – 2002-2004.

Board Member – Buckeye Chapter, Solid Waste Association of North America – 1997-2008

WORK HISTORY

GT Environmental, Inc.

Owner/Principal Consultant

1995 – present

Green Mountain Environmental & Communications Services

Principal Consultant

1994 – 1995

Resource Management International, Inc.

Supervising Consultant

1990 – 1994

Ohio Environmental Protection Agency

1981 – 1990

ERIN OULTON, S.C.

Erin Oulton is an Environmental Planner with GT Environmental, Inc. Erin specializes in solid waste management planning, waste stream characterizations, strategic resource management planning, facility feasibility analysis, and GIS mapping and analysis. Erin earned a Bachelor of Science degree in Environmental Science from Westminster College, PA. Prior to joining GT, she worked on Honda North America's Sustainability Team as an Environmental Analyst to communicate with over 300 suppliers, obtaining chemical data to meet compliance with regulations.

EDUCATION

Bachelor of Science – Environmental Science, Westminster College, PA, 2014

- Minors, Westminster College, PA, 2014
 - Economics and Music

CURRENT CERTIFICATIONS

- SWANA Certified, Integrated Solid Waste Management Systems Manager

TECHNICAL SPECIALTIES

- ESRI ArcGIS
- Golden Software Strater 2

SOLID WASTE PLANNING AND MAPPING

- *Ashland County SWMD, Ashland, Ohio: Annual District Report, 2018*
- *Auglaize County SWMD, St. Marys, Ohio: Annual District Report, 2017*
- *Auglaize SWMD, St. Marys, Ohio: Solid Waste Plan Update, 2018-2019*
- *CCH Environmental Group, Carrollton, Ohio: Annual District Report, 2017*
- *Clark County SWMD, Springfield, Ohio: Solid Waste Plan Update, 2017*
- *Cuyahoga County SWMD, Garfield Heights, Ohio: Solid Waste Plan Update, 2017*
- *Delaware-Knox-Marion-Morrow (DKMM) SWD, Mount Vernon, Ohio: Solid Waste Plan Update, 2017*
- *Huron County SWMD, Norwalk, Ohio: Annual District Report, 2018*
- *Lorain County SWMD, Elyria, Ohio: Annual District Report, 2017-2018*
- *Lorain County SWMD, Elyria, Ohio: Solid Waste Plan Update, 2017*
- *Lucas County SWMD, Toledo, Ohio: Annual District Report, 2017-2018*
- *Medina County SWMD, Seville, Ohio: Annual District Report, 2017-2019*
- *Mercer County SWMD, Celina, Ohio: Annual District Report, 2017-2018*
- *Mercer County SWMD, Celina, Ohio: Solid Waste Plan Update, 2017*
- *North Central Ohio (NCO) SWMD, Lima, Ohio: Annual District Report, 2017-2019*
- *Ottawa-Sandusky-Seneca SWMD, Fremont, Ohio: Annual District Review, 2018*
- *Preble County SWMD, Eaton, Ohio: Annual District Report, 2017-2018*
- *Stark-Tuscarawas-Wayne Joint SWMD, Bolivar, Ohio: Solid Waste Plan Update, 2017-2018*

- *Stark-Tuscarawas-Wayne Joint SWMD, Bolivar, Ohio: Annual District Report, 2017-2019*
- *Van Wert County SWMD, Van Wert, Ohio: Annual District Report, 2018-2019*
- *Van Wert County SWMD, Van Wert, Ohio: Solid Waste Plan Update, 2017*

MAPPING

- *GT Environmental, Inc., Westerville, Ohio: Promotional Map of Ohio MSW Landfills, Transfer Stations, and Compost Facilities, 2017*
- *Northeast Indiana SWD, Ashley, Indiana: Disaster Debris Map, 2019*

STRATEGIC PLANNING AND RESOURCE MANAGEMENT

- *City of Bexley, Bexley, Ohio: Zero Waste Plan, 2017*
- *City of Canton, Canton, Ohio: Routing Study, 2019*
- *City of Chillicothe, Chillicothe, Ohio: Routing Study, 2018*
- *City of Raleigh, North Carolina: Pay as You Throw Benchmarking Analysis, 2017*
- *City of Memphis, Tennessee: Solid Waste Collection Benchmarking Analysis, 2018*
- *North Central Ohio (NCO) SWMD, Marysville, Ohio: City of Marysville Tagging Program and Recycling Audit, 2019*
- *Organization of Solid Waste Districts of Ohio, Columbus, Ohio: Facilitation Session to Develop Recommendations for the Ohio Materials Management Advisory Council, 2017*
- *Solid Waste Authority of Central Ohio (SWACO), Columbus, Ohio: World Wildlife Fund Food Waste in Schools, 2019*

SOLID WASTE PUBLICATIONS

- *Lorain County Solid Waste Management District, Elyria, Ohio: District Annual Report (booklet for residents), 2017*

PHASE I/PHASE II PROPERTY ASSESSMENT SUPPORT

- *City of Geneva, Former Benson Property, Geneva, Ohio: Boring Logs and Well Construction Diagrams, 2018*
- *City of Austinburg, Former Austinburg Gas Station, Austinburg, Ohio: Boring Logs and Well Construction Diagrams, 2017*

PROFESSIONAL ASSOCIATIONS

- Member, Young Professional, *Solid Waste Association of North America – Buckeye Chapter*, 2017-Present

WORK HISTORY

Environmental Planner

GT Environmental, Inc.
2017 – Present

Student Representative

Westminster College
Sustainability Committee
2012 – 2014

Environmental Analyst

Honda North America
Sustainability Team
2014 – 2017

KATHERINE TRUAX, S.C.



Ms. Truax is an Environmental Planner with GT Environmental, Inc. Katherine is a graduate of The Ohio State University with a B.S. in Environment, Economy, Development, and Sustainability. Katherine specializes in solid waste management, waste stream characteristics, strategic resource management planning, facility feasibility analysis, and GIS mapping and analysis.

EDUCATION

B.S. - Environment, Economy, Development, & Sustainability, Ohio State University, 2016

CURRENT CERTIFICATIONS

- SWANA Certified, Integrated Solid Waste Management Systems Manager

TECHNICAL SPECIALTIES

- ESRI ArcGIS
- Social Media

SOLID WASTE PLANNING

- *Ashland County SWMD, Ashland, Ohio: Annual District Report, 2018-2019*
- *Auglaize County SWMD, St Marys, Ohio: Solid Waste Management Plan Update, 2018*
- *Henry County SWMD, Napoleon, Ohio: Solid Waste Management Plan Update, 2019*
- *Huron County SWMD, Norwalk, Ohio: Annual District Report, 2018-2019*
- *Lorain County SWMD, Elyria, Ohio: Annual District Report, 2018*
- *Lorain County SWMD, Elyria, Ohio: Solid Waste Management Plan Update, 2018*
- *Lucas County SWMD, Toledo, Ohio: Annual District Report, 2018-2019*
- *Medina County SWMD, Seville, Ohio: Annual District Report, 2018*
- *Mercer County SWMD, Celina, Ohio: Annual District Report, 2018-2019*
- *North Central Ohio (NCO) SWMD, Lima, Ohio: Annual District Report, 2018*
- *Ottawa-Sandusky-Seneca SWMD, Fremont, Ohio: Annual District Report, 2018*
- *Preble County SWMD, Eaton, Ohio: Annual District Report, 2018*
- *Stark-Tuscarawas-Wayne Joint SWMD, Bolivar, Ohio: Annual District Report, 2018*
- *Van Wert County SWMD, Van Wert, Ohio: Annual District Report, 2018*

MAPPING

- *GT Environmental, Inc., Westerville, Ohio: Promotional Map of Indiana MSW Landfills, Transfer Stations, and Compost Facilities, 2018*
- *GT Environmental, Inc., Westerville, Ohio: Promotional Map of Michigan MSW Landfills, Transfer Stations, and Compost Facilities, 2018*

STRATEGIC PLANNING AND RESOURCE MANAGEMENT

- *City of Memphis, Tennessee: Solid Waste Collection Benchmarking Analysis, 2018*
- *Case Western Reserve University, Cleveland, Ohio: Solid Waste and Recycling Assessment, 2018*
- *Lorain County SWMD, Elyria, Ohio: Recycling Collection Center Technical Assistance, 2018*
- *Lorain County SWMD, Elyria, Ohio: Tire Drop-Off Analysis, 2018*
- *North Central Ohio (NCO) SWMD, Lima, Ohio: Employee Time Study, 2018*
- *Northeast Indiana SWMD, Ashley, Indiana: Cash Receipt Protocol Study, 2018*
- *Solid Waste Authority of Central Ohio (SWACO), Columbus, Ohio: Strategic Planning and Technical Assistance, 2018-2019*
- *Solid Waste Authority of Central Ohio (SWACO), Columbus, Ohio: World Wildlife Fund Food Waste in Schools, 2019*

SOLID WASTE PUBLICATIONS

- *Lorain County SWMD, Elyria, Ohio: District Annual Report (booklet for residents), 2018*

PROFESSIONAL ASSOCIATIONS

- Young Professional Member – Buckeye Chapter, Solid Waste Association of North America, 2018-Present

WORK HISTORY

Environmental Planner

GT Environmental, Inc.
2018 – Present

Director of Client Services

BDT & Associates, Inc.
2017

Tailgate Lot Recycling Manager

The Ohio State University
Zero Waste Team
2016