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WASTE OUTLOOK

Gershman, Brickner & Bratton, Inc. • WINTER 2016-17

GBB's Guidance Leads to Improved Recycling and Streamlined Operations

Over the past 36 years, GBB has helped hundreds of local governments / authorities, and private-sector clients -- in 45 states and internationally -- develop and implement solid waste management plans and programs that include comprehensive recycling programs. This advice has resulted in improved services, reduced costs, and countless tons per year being diverted from landfills to recycling channels.

Being environmentally responsible is of utmost importance to GBB. Since we are a solid waste management consulting firm, we make every effort to practice what we preach. "Reduce / reuse / recycle" is a philosophy that GBB uses in

its business as often as possible. Some of the simple, but important, initiatives that we undertake as a business on a daily basis to maximize our positive environmental and social impact include:

- Printing documents only when necessary and when needed, printing double-sided;
- Purchasing and using recycled content paper products for all output;
- Using "scrap paper" for note taking;
- Using the other side of printed one-sided sheets for internal drafts;
- Printing corporate brochures on recycled paper, FSC certified;

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Rethinking Waste for a Greener Fort Worth

The City of Fort Worth has a tradition, going back almost 50 years, of being proactive in waste management, and is dedicated to providing residents with opportunities to divert, recycle, and reuse. As such, in 2014 it started the process, with GBB's assistance, to develop a comprehensive 20-year solid waste management plan aimed at performing several functions:

- Make a purposeful effort to re-think and re-evaluate the very notion of "waste";
- Create a comprehensive approach to the management of Fort Worth's MSW which deals with the city's MSW globally rather than with only some of its sectors;
- View the management of solid waste in Fort Worth from a systemic rather than an atomized way; and,
- Identify and seize potential synergies with other City departments and outside agencies.

To assist in the development of the plan, GBB performed the following key tasks:

- Data Gathering and Analysis



Identification and Evaluation of Alternatives

- Public Outreach
- Strategic Planning / Recommendations
- Present and Future Funding Strategies Analysis
- 20-Year Implementation Plan / Capital Improvement Plan
- Disaster Debris Management Plan

As part of the process, extensive public outreach efforts were conducted in 2015 to garner opinions and insight regarding the interest of residents and stakeholders in solid waste and other environmental issues. The public outreach report has been made public by the City and the graphic shown here illustrates the environmental issues most important to residents responding to a City survey.

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Innovative Way to Promote Environmental Education in Prince Williams County, VA



In October 2016, a ribbon cutting ceremony took place in Prince Williams County, VA, to unveil three new outdoor classrooms serving to support environmental education and awareness. The classrooms are one piece of a larger environmental education movement in the County which includes building the Eco-Park Complex. The 1,000-acre Eco-Park Complex encompasses the landfill, athletic fields, Outdoor Discovery Trails, wetlands, streams, gas collection and energy production and a recycling facility. GBB is very proud of having helped the County plan and develop this complex.

The classroom project began with the Solid Waste Citizens Advisory Group's interest in enhancing environmental education in the County. The implementation was a collaborative effort by Prince William County Schools, the county's Solid Waste Division, the county's parks and recreation department, Dominion Power, and Boy Scout Troop 1195, with help from youth volunteers to actually build the classrooms.

Learn more about the Eco-Park and the innovative outdoor classrooms initiative at:

www.pwcgov.org/government/dept/publicworks/trash/pages/eco-park.aspx

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- Multiple paper recycling bins and recycling bins for other recyclables throughout the office and encouraging employees to maximize recycling;
- Using reusable glasses and mugs instead of disposable cups for beverages;
- Tradeshow giveaways are biodegradable highlighters;
- Distributing newsletters electronically instead of mailing a hard copy;
- Turning off computers, copiers and lights when not in use; and
- Corporate recycling program including paper, cardboard, containers, electronics, printer cartridges, etc.

But what we are the most proud of is helping communities and businesses plan and implement initiatives that will ultimately result in large-scale recycling programs. Some of this year's projects include:

Rethinking Waste for a Greener Fort Worth, TX

As part of the development of the City's 20-year comprehensive solid waste management plan, a new goal was put in place to move the diversion rate needle from 24% to 40% of residential waste away from the landfill through recycling and other programs. Read more about this exciting initiative in the feature on page 1.

Development of Solid Waste Strategic Plan in Rutherford County and the City of Murfreesboro, TN

Rutherford County is one of the top five most populated counties in Tennessee, and its population growth is expected to be the highest in the state, going from the current 300,000 to 420,000 by 2030. The County provides solid waste disposal/recycling services to its residents through 14 Recycling Centers, and electronic waste disposal/recycling services through the Rutherford County Recycle Center. It also owns and operates the Rutherford County Landfill, a Class III/IV facility expected to reach capacity within four years. The City of Murfreesboro, which is the County seat and geographic center of Tennessee, operates one convenience center and provides residential curbside garbage and yard waste collection services. It also operates the Murfreesboro Mulch facility to manage yard waste and brush. For municipal solid waste disposal services, the County and the City receive free disposal services for approximately 80,000 tons per year from residential solid waste at the locally-available private landfill and additional hose community fees through host community agreement.

GBB, with local subcontractors TriAD Environmental Consultants and Cooley Public Strategies, LLC, started the work to prepare a solid waste strategic plan that identifies and evaluates organizational structures, services, and available technologies to manage the community's solid waste management needs for the next 20 to 40 years, including initiatives to enhance recycling efforts.

Recycling and Refuse Service Telephone Survey in the City of Broken Arrow, OK

The GBB Project Team conducted a randomized, statistically significant telephone survey of the residents of the city about their attitudes, opinions, behaviors, and engagement regarding their curbside garbage service, recycling, and the bag voucher system. The intent of the project was to gather information that could be used to make decisions about future revisions to the residential solid waste collection system, with a particular interest in adding curbside recycling service, and in the billing/payment method (i.e., volume-based billing).



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Recycling Study in Muskegon County, MI

The GBB Project Team performed a study examining and reviewing Muskegon County's solid waste management system. Initially, the team generated baseline data and a framework for future reporting, including a recycling rate. In addition to supporting the County in compliance with new legislation, it provided a quantitative means for evaluating present and future recycling and waste reduction activity. As part of the assignment, GBB also provided recommendations for system improvements, including recycling, procurement, services provision, and program evaluation.



Kate Vasquez (GBB Senior Consultant), along with Lori Scozzafava (GBB VP), near beautiful Lake Michigan in Muskegon County last August.

Recyclables and Yard Waste Collection

Efficiency Analysis in Aiken, SC

As a subcontractor to Smith+Gardner, GBB evaluated the efficiency of the City's yard waste and recyclables collection programs. An economic model of the current recyclables and yard waste collection system was created, providing summary estimates of the labor and maintenance costs along with the summary capital expense of running the recyclables and yard waste collection program. The Project Team provided estimates and assumptions about what would be needed for the City to improve costs of the recyclables and yard waste collection system. Additionally, an operational and economic model for yard waste system was developed for the City's next budget period. The findings from the Project Team's analysis provided the City with an opinion on the potential cost savings and benefits of an improved recyclables and yard waste collection system.

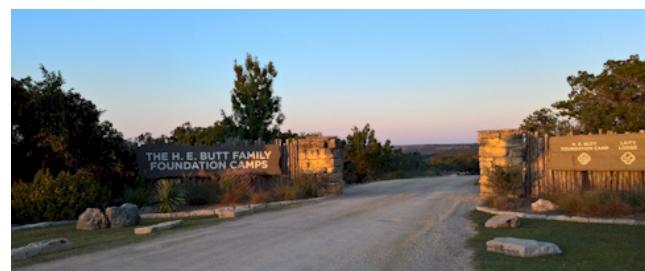
Research for Single Stream Recycling Facility in the Southern Chesapeake Bay

Region, MD

GBB provided research and assistance as the Maryland Environmental Service (MES) considered offering Single Stream processing capabilities for the area around the Southern Chesapeake Bay and the Southeast coastal region in Maryland and potentially some areas of southern Delaware. MES needed assistance with researching additional information on the current practices for collecting recyclables, available recyclables, logistics, processing, costs, and a development strategy to implement a new facility for single stream processing and marketing services.

Facility Evaluation for the H.E. Butt Family Foundation Camp, San Antonio, TX

The H.E. Butt Foundation camp, a retreat facility in the Hill Country of Texas, 2 hours west of San Antonio, tasked GBB with evaluating both waste generation and waste management, and how those activities can further the intentions of the facility and return value to the Earth.



As part of the assignment, GBB visited the camp, observed waste generation and waste management activities, reported on the current systems, and provided ideas for improvements that will lead to increased recycling and greater system efficiencies.

REW Magazine Expands Coverage as Waste Today

GBB Continues Cooperation Agreement with Magazine Initiated in 2012

waste today

In September, GIE Media Inc. announced the expansion of Renewable Energy from Waste (REW) magazine into a new comprehensive waste and environmental services publication, Waste Today, which debuts with the January/February 2017 issue. The magazine will be delivered in a print and digital platform, complemented by a dedicated website (www.WasteTodayMagazine.com), and a weekly e-newsletter.

GBB is proud to continue its partnership with REW Magazine, initiated in April 2012, with the new expanded Waste Today Magazine. The partnership includes co-organizing the annual Renewable Energy from Waste Conference, joining the publication's Editorial Advisory Board and contributing a column to each print issue along with occasional articles.

The new Waste Today magazine will cover collection and transfer, organics, recycling, conversion technologies, waste-to-energy, landfill management, special and hazardous waste, markets and contracting, mergers and acquisitions and more — all aspects of the industry.

Stephen Simmons Joins GBB Ownership Group; Promoted to Sr. VP



Stephen Simmons is now part of GBB's ownership group, joining President and co-founder Harvey Gershman, and Senior VPs Chris Lund, and John Carlton. He has also been promoted to Senior VP.

"I'm proud to join GBB's ownership group and to have this opportunity to further contribute and participate in shaping GBB's future in my new role. It is very exciting to work closely with a team of passionate individuals and to have a direct positive impact on many communities and organizations by helping develop sustainable solutions for complex solid waste management issues."

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Rethinking Waste for a Greener Fort Worth

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In August 2016, the draft plan was presented to the City Council, which was followed by a public comment period in the fall. The final plan will be presented to the Fort Worth City Council for approval in early 2017.

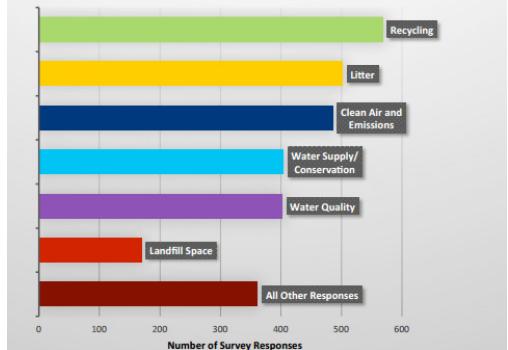
A key element of the "Rethinking Waste for a Greener Fort Worth" initiative is its goal to divert 40% percent of residential waste away from the landfill through recycling and other programs. As a point of reference, the city diverted 7% of its waste prior to 2003 and 24% in 2013.

Drawing on feedback from the public, input from the City, and solid waste industry experience, including best practices, the recommendations report, included in the plan, is organized into 5 key categories:

- Services to Residents
- Services to Industrial, Commercial, and Institutional Customers
- Services to the Community
- Solid Waste Management Facilities
- Solid Waste Services Division Activities

Some of the key residential green initiatives include encouraging more reuse and donation opportunities, an additional drop-off station, the conversion of solid waste vehicles to compressed natural gas, evaluation and incentives offered

Environmental Issues Prioritized by Fort Worth Residents



for backyard composting, evaluation of residential food waste and residential yard waste collection for composting, and segregating brush from bulk collection.

Key commercial green initiatives include requiring that private haulers offer recycling to all establishments, working with businesses to curb improperly managed on-premise trash, establishing access to the City contracted Recycling Center by private haulers, and working with the Planning and Development Department to establish a program to encourage incentives that foster a means to increase diversion or recovery of building construction and demolition materials.

For more information about the initiative, and to see the draft plan, visit: www.fortworthtx.gov/swplan/

GBB Acquires Energy Facilities Group of RRC Power & Energy

In September 2016, GBB announced the acquisition of RRC Power & Energy, LLC's Energy Facilities Group, a multi-disciplinary team that provides consulting and engineering services to waste facilities, district energy systems, and power generating plants nationwide. This team has executed many projects including plant modifications, as well as new facility design and construction. Their services include studies, facility audits/assessments, owners engineer services, project management, engineering design, construction support commissioning / acceptance testing, and operations monitoring. Joining GBB as part of this acquisition, and based in the Minneapolis-Saint Paul metro area, are:

- **Matt Clark, P.E. (GBB Vice President)**
- **Steve Vrchota, P.E. (GBB Senior Project Manager)**
- **Rob Dunnette (GBB Principal Associate)**



(From left to right) Rob Dunnette, Matt Clark, and Steve Vrchota at GBB's booth at the Recycling Association of the Minnesota / Solid Waste Association of North America-Minnesota Chapter conference in early October in Bloomington, MN.