



**SOLID WASTE
MANAGEMENT
CONSULTANTS**

Memorandum

TO: Russell Gale, Assistant City Manager, Administration, City of Broken Arrow, OK

FROM: Kate Vasquez, Senior Consultant, Gershman, Brickner & Bratton, Inc. (GBB)

COPY: Lee Zirk, General Services Director, City of Broken Arrow, OK
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RE: Cost estimation for pilot projects

GBB REF: C15102-02

DATE: 9/29/2017

Introduction to Assignment

From October 2016 to August 2017, GBB assisted the City of Broken Arrow (City) in the process of supporting a Citizens' Committee regarding the implementation of curbside recycling collection from residential customers in Broken Arrow. This assignment included preparation of the final report by the Committee for presentation to the Broken Arrow Municipal Authority (BAMA). In the report, the Committee recommended to BAMA that the City conduct a pilot project of two methods for collecting recyclables at the curb: Scenario 1, as described by the Committee, involves a two-cart system whereby residents set out recyclables in one rolling cart and garbage in another; Scenario 2 involves using one cart for setting out recyclables and allowing residents to continue to set out garbage in plastic bags on the ground. In addition, the Committee advised that customers in the pilot projects, as they would during the ultimate implementation, would receive collection once weekly, with all materials collected on the same day. Furthermore, at the time any subsequent recycling program should be fully implemented, the Committee recommended that the City would discontinue distribution of the "free" black plastic bags in which residents currently set out their waste.

During the course of preparing the Committee report, the City asked GBB to prepare an informal estimate of the possible cost implications of conducting the pilot projects that the Committee recommended, and to include that information in the report. The City further directed GBB to prepare an alternate informal estimate for the cost implications of conducting a single pilot project—i.e., pilot testing Scenario 1, only. This information was shared with the Committee members in the draft version of their report, presented to them at their final work session on July 10, and the committee approved inclusion of the assumptions

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and information in their report. The pricing is described as “informal” because it was limited to GBB’s approximate estimation of the level of effort required for consulting and costs for public relations services, survey services, and capital expenditures based solely on the information available at that time and on the previous experience of GBB.

On August 2, GBB presented the Citizens’ Committee Report to the BAMA. On August 3, during a debriefing meeting, the City requested that GBB prepare a more detailed cost estimate for the following possibilities:

- A dual pilot of both Scenario 1 and Scenario 2, as recommended by the Committee;
- A single pilot of Scenario 1; and,
- A scaled-down single pilot of Scenario 1 consisting of 500 customers, rather than the more typical 1,000 customers. This is henceforth referred to as “Scenario 3.”

The City requested that GBB estimate the costs for consulting services in more detail, and also contact other vendors (public relations, survey services, and truck routing) for costs for each possible choice of pilot project(s). This memorandum reports on the findings of those cost estimations and the GBB recommendation for a course of action.

Preparation of the Cost Estimate

GBB utilized the following techniques to prepare each cost estimate.

- Detailed preparation of GBB’s level of effort to conduct each possibility. This effort includes planning, meetings, project management, travel expenses, pilot project implementation, evaluation of the pilot project(s), and reporting thereupon. The costs are greatest for the dual pilots, Scenario 1 and 2, and least for the Scenario 3 pilot.
- Requested to ShapardResearch for pricing to survey the participants in each possibility. ShapardResearch is an Oklahoma firm already familiar with Broken Arrow, having conducted the public survey in May 2016 that GBB managed during our initial assignment. For the dual pilot, ShapardResearch would complete surveys with 400 of the 1,000 customers in each pilot; for the single pilot, ShapardResearch would complete 400 surveys from the population of 1,000 customers. Statistically, this would allow ShapardResearch to make a statistically valid projection with the results of the surveys across the entire participating population. For Scenario 3, the scaled-down pilot, ShapardResearch would complete 200 surveys. This is due to the fact that completing 400 surveys in a population of 500 customers is statistically improbable. This number of completed surveys is not statistically valid for projecting the results across the entire population, which is a compromise of the scaled-down pilot project. To somewhat compensate, the survey given would be a longer format that aims to capture greater detail about the respondents’ opinions
- Requested pricing from C2Logix to create the collection routes for the pilot project(s). C2Logix conducted the routing and resource estimation for the cost modeling task during GBB’s support of the Committee. As a result, C2Logix already has all the data necessary for conducting this routing work, in addition to being familiar with the proposed services, and can therefore provide more accurate pricing and conduct the work efficiently and expediently.

- Included capital costs as figured, provided, and verified by the City and GBB's experience. Estimated recyclables processing costs were also included.
- Requested local public relations firms to provide pricing to create and implement messaging to educate the participants during the planning and implementation phases of the pilot project(s). GBB received pricing from four firms. Two of the firms provided pricing comparable and competitive with one another.¹ The level of effort included in each of the cost estimates is the mathematical average of the pricing provided by those two firms.
- Requested pricing from American Waste Control for processing the recyclables. American Waste Control provided pricing of \$59.05 per ton, with 80 percent revenue sharing. This results in a projected net cost below the disposal rate the City currently pays. This is reflected in all pricing.
- Included a 10 percent contingency on the combined costs of all professional services and capital purchases.

Importantly, the costs prepared by GBB do not include the following internal costs to the City:

- Printing, mailing, and labor from the City Public Information Officer.
- Additional overtime, temporary labor, or fuel associated with conducting the pilot project(s).
- Future costs associated with continuing to provide recyclables collection to the participants in the pilot project(s). In the experience of GBB, over more than 35 years, municipalities continue to provide pilot project service to the participants, even after the pilot period ends.

Results of Cost Estimations

The dollar amounts provided below are based on best estimates of the work, in the absence of a confirmed scope of work. While they are offered with all sincerity, they do not constitute binding proposals. All values have been rounded to the nearest \$5,000, with the exception of values less than \$5,000, which are provided as calculated. Exact calculated values are available separately.

Dual Pilot of Scenario 1 and Scenario 2

This possibility is the most expensive because it requires the most planning and the most survey work. The public relations costs are also higher because two different sets of messaging will need to be created. In addition, it requires the greatest number of truck retrofits and the purchase of more than 3,000 carts. GBB estimates that external costs to conduct a dual pilot of Scenario 1 to 1,000 homes and Scenario 2 to 1,000 homes would be about \$455,000.

¹ The third firm provided pricing at roughly half the level of the two figures used; the fourth was more than a third greater than the level of the two figures used.

Table 1 Approximate External Costs for Dual Pilot of Scenario 1 and Scenario 2

Consulting & Professional Services ²	Recyclables Processing Net Cost ³	Truck Retrofits ⁴	Cart Purchase ⁵	10% Planning Contingency	Calculated Total External Costs
\$160,000	(\$1,481)	\$70,000	\$185,000	\$40,000	\$455,000

Single Pilot of Scenario 1

This possibility is the second-most expensive (and, conversely, the second-least expensive) because it requires less planning and less survey work. The public relations costs are slightly lower because only one set of messaging will need to be created. In addition, capital costs are lower because it requires far fewer truck retrofits and a third fewer carts. GBB estimates that external costs to conduct a single pilot of Scenario 1 to 1,000 homes would be about \$315,000.

Table 2 Approximate External Costs for Single Pilot of Scenario 1

Consulting & Professional Services	Recyclables Processing Net Cost	Truck Retrofits ⁶	Cart Purchase ⁷	10% Planning Contingency	Calculated Total External Costs
\$135,000	(\$740)	\$30,000	\$125,000	\$25,000	\$315,000

Scaled-down Pilot of Scenario 1 (Scenario 3)

This is the least costly primarily because it requires far less capital costs—one fewer truck retrofit and only slightly more than 1,000 carts. It also requires somewhat less consulting and professional services, due to less project analysis and less survey work. Public relations costs are approximately the same. The compromise for the cost savings lies in the foregone opportunity for field experience and the uncertainty in the results being representative. Pilot projects for curbside collection typically consist of approximately 1,000 homes because this constitutes a complete route, or a day's work by a single crew. The data associated with completing the work—time, labor, fuel, tons—can be used with more certainty in cost models. Compared with a single pilot of Scenario 1, the experience for the customers (and their feedback) would be largely the same; however, the learning opportunity for the City would be somewhat diminished. GBB estimates that external costs to conduct a single pilot of Scenario 1 to 500 homes would be about \$230,000.

² Includes GBB, routing by C2Logix, survey work by Shapard Research, and PR work by a firm to be selected

³ A net cost of (\$9.39) per ton was figured by subtracting avoided disposal cost of \$12.81 per ton from the provided processing cost, which is mitigated by revenue sharing of 80 percent. To calculate the Recyclables Processing Net Cost, this value was multiplied by a projected 39.42 pounds per month of recyclables, which assumes pilot project participants would divert 22.5 percent of their waste to the recycling stream, on average.

⁴ Seven trucks at \$10,000 per truck

⁵ 2,000 carts for Scenario 1 plus 1,000 carts for Scenario 2, plus a back-up supply of 2.5 percent results in 3,075 carts at \$60.00 each.

⁶ Three trucks at \$10,000 per truck

⁷ 2,000 carts plus a back-up supply of 2.5 percent results in 2,050 carts at \$60.00 each.

Table 3 Approximate External Costs for Pilot of Scenario 3

Consulting & Professional Services	Recyclables Processing Net Cost	Truck Retrofits⁸	Cart Purchase⁹	10% Planning Contingency	Calculated Total External Costs
\$130,000	(\$370)	\$20,000	\$60,000	\$15,000	230,000

Recommendations and Next Steps

GBB advises that a single pilot of Scenario 1 is the best practice choice. A two-cart system for recyclables and garbage is the standard nationwide across a broad range of customer population sizes. The cart for recyclables encourages comprehensive participation while the cart for garbage discourages contamination of the recyclables and prevents vectors.

Acknowledging that the financial impact of the pilot project can be greatly reduced by controlling the capital costs, GBB advises that the Scenario 3 pilot is our secondary recommendation. A scaled-down pilot would still bring great value to the City in terms of learning how residents will respond to curbside recyclables collection and the other attendant service changes. It will also provide insight on how completion of recycling routes and once-weekly garbage routes would compare to current operations.

GBB advises against conducting a dual pilot of Scenario 1 and Scenario 2. Of note, when GBB was explaining the pilot programs to the firms who contributed information and expertise to this memo (survey, routing, processing, and public relations), they informally expressed to GBB their reservations about the idea of a dual pilot project. Their thoughts, which were offered independently, mirror those of GBB, as follows:

- The City will expend hundreds of thousands of dollars to pilot a service it ultimately will not implement;
- At the conclusion of the pilot period, the City will face the difficult choice of changing 1,000 customers' curbside service from the "losing" scenario to the "winning" one, or discontinuing their recycling service until the citywide program is implemented; and,
- As GBB has stated previously, we do not recommend Scenario 2 (1 cart + garbage in bags) as it is not a best practice. We have discussed this informally with colleagues in the industry, who also express concern, in particular regarding the performance of household garbage bags for set-out.

GBB, C2Logix, ShapardResearch, and the responding public relations firms welcome additional questions about the preparation of this memorandum and the costs reflected therein. Each partner is enthusiastic about the project, and ready to begin work as early as the fall of 2017. Thank you for this opportunity, and we look forward to working with you in the near future.

⁸ Two trucks at \$10,000 per truck

⁹ 1,000 carts plus a back-up supply of 2.5 percent results in 1,025 carts at \$60.00 each.