

THE COST OF GOING GREENER: DECISION-MAKING TO PROVIDE RECYCLING SERVICES

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Kelly Olivera, Director of Budget and Evaluation of the City of Fayetteville, sat at her desk and scanned through her emails. She was extremely shaken by one email. It was a notification from the recycling service providing city recycling contract services. Olivera was informed that there would be a significant increase in the cost to provide the current level of service to city residents. She knew immediately that any cost increase would have consequences. Would citizens still find value in the recycling services provided? Would the recycling demand be met? Would the city's reputation be at risk if services were not provided? How would costs be covered? Would residential solid waste fees for citizens need to be increased? If so, how would citizens respond to a fee increase?

While she could appreciate that costs had been rising during the pandemic, she was sure from her experience with the City Council that there would be apprehension about fee increases. The City Council was fiscally conservative by nature – unwilling to enforce fee increases unless necessary. With 2020 scheduled as an election year for Mayor and City Council members, any decision held consequences. Olivera was asked to research the situation and provide a recommendation for the City Manager and Council.

Undaunted, Olivera knew that she had to act quickly to uphold expectations of recycling services for the citizens, identify any risks, evaluate the alternatives, and make a responsible, informed recommendation. As with any special decision, Olivera and city officials placed the citizens of Fayetteville at the heart of the process. Consistent with the total value contribution (TVC) approach, Olivera purposefully gathered data to work towards a strategic decision on whether to outsource, often referred to as a make-or-buy decision, recycling services, or instead to bring the recycling services in-house. The City's goals and reputation needed to be considered. Furthermore, Olivera had to develop differential costs-and-benefits analyses to support the recommendation. With potential impacts at all stakeholder levels (Mayor and City Council, City of Fayetteville employees, third-party contractors, and the citizens), the decision on the frequency and management of recycling services had never been more critical. Furthermore, a closer look at the situation indicated concerns over recycling can size, solid waste funds and the annual citizen fee for services, City and Mayor/Council risk assessment, and differential analysis.

Introduction to Kelly Olivera – Director of Budget and Evaluation

Born and raised in Fayetteville, North Carolina, Olivera's passion for public service and ties to the City led her to return to the area. Armed with a newly minted Bachelor of Science in Accountancy degree from the University of North Carolina Wilmington, she successfully joined the City of Fayetteville's Finance Department. Her initial post was as a financial analyst. Olivera then worked for the City of Fayetteville for over ten years.

During her time with the City, Olivera and the then-current Budget and Evaluation Director, Tracey Broyles, founded the City's Budget and Evaluation Office in 2014. As Olivera's time and experience with the City grew, she was eventually promoted to the Assistant Director of Budget and Evaluation and worked closely with Director Broyles to organize and direct the city's planning and budget activities for the next seven years.

Upon Director Broyles' retirement in June 2021, Olivera succeeded her long-time mentor and was promoted to the position of Director of Budget and Evaluation. In this role, Olivera assisted and advised the current City Manager, Doug Hewett, in developing the City's more than \$240 million annual budget (City of Fayetteville 2022).

Exhibit 1. Photo of Kelly Olivera

Source: City of Fayetteville



Background of the City of Fayetteville

As a city that grew from a small band of Scottish immigrants in the 1730s to the sixth largest city in North Carolina, Fayetteville played a significant role in America's history. Named to honor Marquis de Lafayette, a French nobleman who served the Continental Army as a Major General during the Revolutionary War (City of Fayetteville 2022), Fayetteville initially enjoyed great success as a town known for trade and access to a significant number of waterways that were essential for the growth and prosperity of eastern North Carolina (see Exhibit 2). Later, as the significant differences between the northern and southern states emerged, Fayetteville became part of the Civil War, culminating with the burning of large sections of Fayetteville by Union General William Sherman as he marched across the south (Cumberland County 2022).

More recently, Fayetteville had become the home to a large contingent of military personnel at Fort Bragg and Pope Army Airfield, and enjoyed a rich mixture of cultural diversity and a variety of business and industrial opportunities. Known as “America’s Can-Do City,” Fayetteville’s image was laced with history, blessed with heroes, and known for its hometown feel (City of Fayetteville 2022).

Exhibit 2. City of Fayetteville

Source: City of Fayetteville



The City branded itself by focusing on its history and current offerings (see [Fayetteville, NC - Community Video Tour \(elocallink.tv\)](#)). Given its significant advantages, Fayetteville grew from a city of 35,000 in 1950 to well over 200,000. As with many cities, Fayetteville faced challenges, including shrinking budgetary allocations, increased taxpayer demand for accountability, and political pressures from elected officials and constituents. Tasked with providing excellent service and controlling costs, the city government was continually being asked to do more with less. The constant over all the years was the City’s desire to provide quality services for its citizens while being good stewards of its financial resources.

Background of the Solid Waste Department

Given the size of Fayetteville, considerable deliberation regarding the collection and disposal of solid waste materials were critical for the City to retain its beauty and hometown feel. The City had prioritized beautification and recycling education for many years, as visible in the video [City of Fayetteville, NC \(2016\). Environmental Services Guide. – YouTube Video](#). To expand understanding of the issues, the City hired Gershman, Brickner & Bratton, a national consulting firm specializing in solid waste issues. The City wanted to understand the value of services and

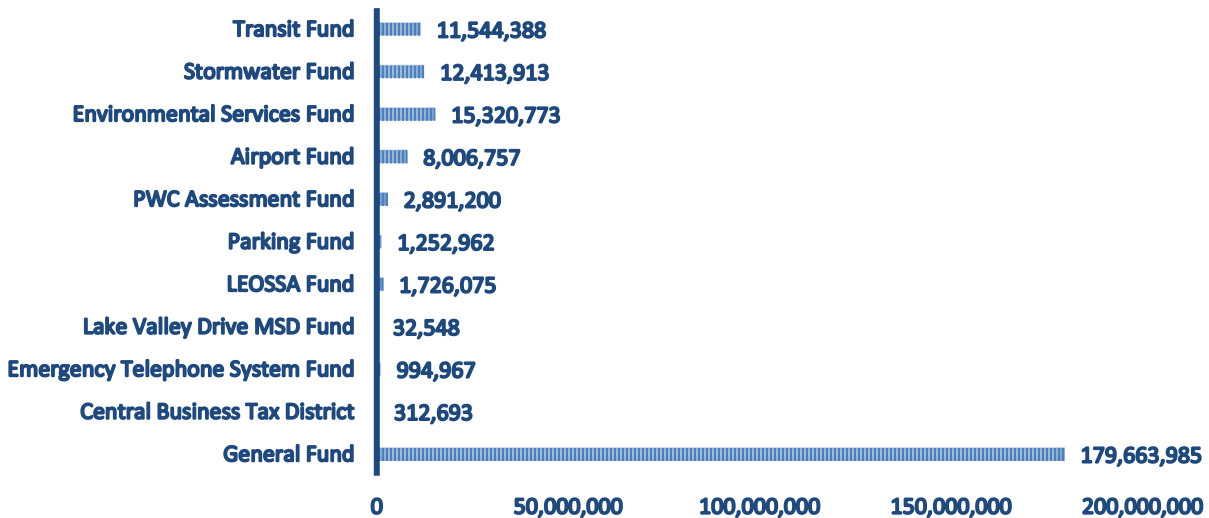
ways to ensure that expectations would be met. The City budgeted \$25,000 a year to educate residents about the proper handling and disposal of solid waste materials ([NC Department of Environmental Quality 2021](#)). One way was to distribute videos such as the [City of Fayetteville, NC \(n.d.\). Reduce. Reuse. Recycle. What you Need to Know. - YouTube Video](#). By reducing the recycling volume, the City had more time to gather information and evaluate what was to come next for its recycling services.

Fayetteville's Manager of the Solid Waste Department, David Thompson ([NC Department of Environmental Quality 2021](#)), was tasked with ensuring that the process was valuable for the citizens, cost-effective, and environmentally friendly. The City continued to provide a wide range of solid waste services. Collecting household garbage, yard waste, bulky items, and recycling required a significant number of employees and assets. Along with a crew of 61 full-time workers, the City maintained a fleet of automated trash pick-up trucks and different types of vehicles to ensure that services were provided as effectively as possible (City of Fayetteville CAFR 2022). As seen in Exhibit 3 below, the budget for FY21 presented the summary of expenditure appropriations by fund. The environmental service fund included expenditures for operating the City's residential garbage, yard waste, and recycling programs had the second highest expenditure appropriation of \$15,320,773 (City of Fayetteville 2020).

Exhibit 3. Summary of Expenditure Appropriations by Fund FY21

Source: City of Fayetteville 2020

SUMMARY OF EXPENDITURE APPROPRIATIONS BY FUND FY21



City of Fayetteville

Olivera explained how one notification changed everything! In 2020, Olivera was notified that the existing recycling service provider, Waste Management, contacted the City to put it on notice of a substantial cost increase for weekly service of collecting household recycling. While the City had been proactive by contracting Gershman, Brickner & Bratton to gain insight into recycling issues, the Waste Management notification resulted in an immediate sense of urgency. The conversation moved from proactive to consideration to so much more (Olivera 2022).

Olivera explained that the priority was - and continued to be - the citizens. The City’s mission and vision reinforced this concept. The City’s vision was “an attractive, culturally diverse, and inclusive city that is safe, prosperous, innovative, and unified” (City of Fayetteville November 18, 2022). Therefore, an attractive City included one that was free of garbage and debris. The City’s mission stated, “to provide high quality and sustainable public services for communities to

thrive and our businesses to grow” (City of Fayetteville November 18, 2022). In turn, the City put a great deal of time, effort, and resources into ensuring that high quality and sustainable public services, such as recycling, were available for citizens. The idea was to promote increased business growth within the community. As expected, the City’s FY21 strategic plan was focused on growth within the area. The City’s Strategic Operating Plan for FY21 included Goal 4 as a desirable place to live, work, and recreate (City of Fayetteville November 18, 2022). The City committed to a strategic objective to *“provide a clean and beautiful community with increased green spaces”* (City of Fayetteville November 18, 2022).

Olivera realized that change was inevitable and other areas needed to be analyzed. With risk assessment in mind, how would the change affect the City’s reputation? The reputation of the Mayor and City Council? The City Council needed to make a decision that was positive for the citizens. Otherwise, the City could face a backlash if inadequate services or high costs were passed on to citizens. With 2020 as a scheduled election year, the Mayor and City Council were at risk of negative voting.

How best to change was the vital and immediate question? The environmental services fund had been a self-supported fund with no support from *ad valorem* tax revenue (property tax revenue). The primary source of funding for environmental services was the annual solid waste fee to citizens of \$225, which came into effect in July 2020. The fee had already increased once. Any additional fee would be viewed negatively. There were limits on what expenses the fund could cover. Upon initial review, it was apparent that the City would *not* be able to cover the costs of a significant increase in weekly services.

Changing from weekly to bi-weekly services would require a change in processes. The City’s recycling services included a 33-gallon recycling can for each household. The continuation of a weekly recycling pick-up would not require a change of can. However, if bi-weekly services were to be considered, a much larger recycling can would be necessary. A 96-gallon can might meet the demand for biweekly services. However, a coordinated effort would be needed to

pick up existing cans and replace them with the larger cans. Olivera estimated that at least 61,000 cans would have to be purchased. The cans would have required the City logo to be applied. Indeed, this would be expensive!

As with any large purchase, the City obtained three quotes from vendors to support the best decision. All three quotes received were over \$3 million in costs for the City. Deliberations were held on which vendor to select, how to finance, and whether a fee increase was needed. Of course, it had been the City's long-time preference to provide services at a reasonable fee with avoidance of unnecessary fee increases. Should Olivera purchase the cans, or phase them in over four to five years?

Ultimately, the City decided that for consistency, the best option was to replace all the recycling cans at one time and finance the purchase price through the manufacturer. Here, the City could turn in its existing smaller cans (as the plastic was recyclable) and thereby received a cost reduction for purchasing the larger cans. Regardless of the sourcing decision made, the City would have to replace the existing cans with larger cans for bi-weekly recycling collection. Olivera understood that the savings from weekly to bi-weekly services would provide the debt service capacity to afford the cans' cost.

In the first quarter of 2021, a strategic, collaborative effort was underway to pick up the old cans and replace them with larger ones. The City conducted a media campaign to inform its citizens about the change. The can manufacturer price included the pickup and drop off of cans. The process was recorded by video on the trucks to provide confidence and accountability. Cans were collected by zip code until the process was complete. With the larger 96-gallon cans in place, the City was able to shift its efforts toward a sourcing decision on bi-weekly collection.

The fiscal year 2021, which represented July 2020 through June 2021, included financing costs for the purchase of larger 96-gallon recycling cans, delivery at each household point, and

collection of existing smaller cans at \$3.3 million - regardless of the sourcing approach (Olivera 2022).

The contract cost per household was \$3.39 per month for weekly contracted collection (Olivera 2022). It was estimated that the number of households would be approximately 61,501 during fiscal year 2022 (Olivera 2022). For ease of consideration, Olivera used the same number of households over five fiscal years (FY22 – FY26), assuming a 2% consumer price index increase in the cost per household monthly rate (Olivera 2022).

Alternative 1 – City In-house Sourcing Data

The desired annual solid waste fee for citizens would remain at \$225 for the foreseeable fiscal years of FY22 – FY26 (Olivera 2022). Indeed, the City would maintain more control over the recycling process if the services were provided in-house. However, costs would increase. Estimated personnel costs for 13 City staff employees, which included 9 drivers, 1 collector, and 2 supervisors, were projected at a base rate of \$810,869.42 for FY22, assuming a 3% cost increase each year (Olivera 2022). Operating costs for fuel, various maintenance charges, uniforms, equipment, and data plans were estimated at approximately \$695,323.80 as a base rate for FY22, assuming a 2% cost increase year after year. Financing costs for vehicles such as collection trucks and two new supervisor vehicles were anticipated to cost approximately \$819,832.43 across FY22 – FY25, which was in line with the City's desired four-year debt payment schedule (Olivera 2022).

With the in-house sourcing approach, future consideration of replacing twelve vehicles would be needed after eight years or FY29 (Olivera 2022). Based on a seven-year useful life and using the straight-line depreciation method, the annual depreciation cost would have been \$448 thousand per year, which would have offset any savings potentially available at the end of FY26 (Olivera 2022).

Alternative 2 – External Sourcing Data

The desired annual solid waste fee for citizens would remain at \$225 for the foreseeable fiscal years of FY22 – FY26. Furthermore, for calculation purposes, the number of households would remain constant at 61,501 across FY22 – FY26 (Olivera 2022).

Considering bi-weekly collection services, a proposed Waste Management contract cost per household each month would have entailed a rate of \$2.35 for FY22, with a 2% consumer price index increase in the rate each fiscal year (Olivera 2022).

Special Decision-Making: Differential Analysis

Special sourcing decisions, often called make-or-buy decisions, entailed reviewing the details of at least two alternatives to arrive at the best decision for the organization. For decision-makers like Olivera, understanding key terminology and concepts had been vital to understanding a situation, effectively evaluating alternatives, and determining her recommendation.

Several concepts were vital as an initial starting point. According to Brewer, Garrison and Noreen (2022), differential analysis was described as a forward-looking process where costs and benefits that were not the same between alternatives have been deemed relevant to the decision. In comparison, costs or benefits (revenues) that had been the same were considered irrelevant to decision-making. Brewer *et al.* defined differential costs as “*a future cost that differs between any two alternatives*” (2022, p. 41). In turn, differential revenues were known as future revenues or benefits that differed between two alternatives.

Additional terminology was essential in determining when and how to evaluate and determine various costs. For example, a sunk cost was considered irrelevant as it was defined as “*a cost that has already been incurred and cannot change regardless of what a manager decides to do*” (Brewer, Garrison & Noreen 2022, p. 511). When Olivera prepared a differential analysis, she

considered the cost behavior - variable or fixed costs - to develop the relevant cost amounts between alternatives. A variable cost varied *“in total, in direct proportion to changes in the level of activity”* (Brewer, Garrison & Noree 2022, p. 33). A fixed cost was *“a cost that remains constant, in total, regardless of the changes in the level of activity”* (Brewer, Garrison & Noreen 2022, p. 35). As a result, a clear understanding of relevant costs and cost behavior served to assist Olivera in developing her recommendations.

The Dilemma

Finding a solution that would avoid an increased cost to the citizens of Fayetteville while maintaining the same quality of service or higher would take a lot of work!

The City had already invested over \$3 million to replace existing cans with larger cans to modernize the recycling services to meet the then-current demands. With the change of cans in place, an outsourcing decision needed to be made. Value was the utmost consideration. Olivera knew this decision was critical and that whatever path was chosen would have long-term financial and service implications for years. As Olivera began the task of sourcing, collecting, and considering the financial and non-financial information, she felt the pressure that came with her job. She needed to ensure that the cost of going greener would be an overall success.



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