Benefiting from Comparative Performance Statistics in Local Government

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Mel Nathanson / Raleigh News & Observer

Performance measurement was once a path-breaking management technique, undertaken only by the most progressive local governments. Today it is accepted as a professional norm for demonstrating operational accountability for service delivery and for creating an environment for productivity improvement. Although adoption of performance measurement systems is common, full implementation remains rare.[1] "Adoption" refers to the creation and collection of measures for tracking service performance. "Implementation" is the actual use of these measures for improving the efficiency and the effectiveness of service delivery. The distinction is critical. Given the expense of adoption, an adequate return on a local government's investment hinges on effective implementation.

When an organization engages in "benchmarking"— the comparison of its performance with relevant performance standards or the performance of other organizations — the investment is greater, and so is the desire for an adequate return.[2] Benchmarking consumes more organizational resources than internal performance measurement, given the difficulty of ensuring data accuracy, reliability, and comparability across multiple organizations. As the return on its investment, an organization hopes to gain ideas for operational improvement.

The North Carolina Benchmarking Project is a collaborative effort among participating municipalities that compares performance and cost data across ten service areas: residential refuse collection, household recycling, yard waste and leaf collection, police services, emergency communications, asphalt maintenance and repair, fire services, building inspections, fleet services, and human resources.[3] The School of Government manages the benchmarking project under the guidance of a steering committee consisting of representatives from each participating municipality.

This article describes how the municipalities are using performance and cost data from the benchmarking project to improve the efficiency and the effectiveness of service delivery, including how one municipality used the data to prompt an analysis of fleet maintenance. It also discusses the importance of focusing on the higher-order measures of efficiency and effectiveness, and the benchmarking project's contribution to improving the quality of performance measures.

Overview of the North Carolina Benchmarking Project

The impetus for the benchmarking project came from two groups: city managers and budget officials. In 1994

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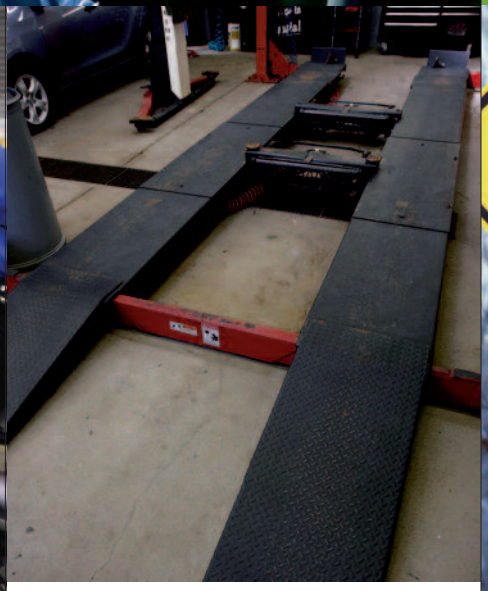

the North Carolina League of Municipalities hosted a meeting of city managers from the state's larger municipalities, focusing on privatization. Discussions at this meeting turned to the topics of competition, performance measurement, and, eventually, cooperative benchmarking.[4] In 1995, local officials who were affiliated with the North Carolina Local Government Budget Association met to discuss the possibility of creating a benchmarking project. They wanted the capability of examining the performance of their own organizations in the context of performance statistics from other local governments, thinking that even good performers could learn from the practices of others. The pilot phase of the benchmarking project started in fall 1995 after the Institute of Government hired a project coordinator.

The following three goals guide the benchmarking project: (1) develop and expand the use of performance measurement in local government, (2) produce reliable performance and cost data for comparison, and (3) facilitate the use of performance and cost data for service improvement. By February 2007, the project had produced eleven reports containing data on the performance and the costs of service delivery in participating municipalities. The larger story, however, is participating municipalities' use of statistics on comparative performance to enhance their performance measurement systems and to improve service delivery.

Methodology

The findings reported in this article were derived from a review of the experiences of the fifteen municipalities that participated in the benchmarking project during fiscal year 2004–5: Asheville, Cary, Charlotte, Concord, Durham, Gastonia, Greensboro, Hickory, High Point, Matthews, Raleigh, Salisbury, Wilmington, Wilson, and Winston-Salem. Municipal representatives were queried in an e-mail survey in spring 2005. The survey was followed by in-person interviews and subsequent telephone and e-mail contacts in summer 2005.

Improvement of Service Efficiency and Effectiveness

The survey asked local officials whether the benchmarking project's performance and cost data had supported operational change in the service areas under study. When changes had been made, the survey asked for specific examples. Some of these examples are noted in the following sections and are substantiated by clearly documented outcomes. Others are more recent initiatives with promising but unconfirmed results. Operational changes tied to the benchmarking project data were documented in eight of the ten service areas: residential refuse collection,

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household recycling, yard waste and leaf collection, police services, emergency communications, asphalt maintenance and repair, fire services, and fleet maintenance.

Residential Refuse Collection

The participating municipalities have used benchmarking data most frequently in the service area of residential refuse collection. Hickory, for example, used the comparative statistics to justify automated collection with one-person crews. The city reduced its cost per ton collected from $98 in 1995–96 to $69 in 2003–4, a savings of $29 per ton.[5]

Concord used the benchmarking data to negotiate more favorable terms with its private hauler. The city was paying $7.07 per collection point when its refuse collection contract expired. The private hauler's proposal for a new contract called for payment of $7.76 per collection point. The city countered using data from the benchmarking project that showed Concord's service costs to be relatively high and the contractor's service quality to be relatively low in comparison with costs and quality in other municipalities. The parties agreed to continue the service at a rate of $7.07 per collection point, subject to adjustments tied to changes in the Consumer Price Index and fuel prices.

One of the major success stories during the decade-long history of the benchmarking project was in this service area. Winston-Salem used a private hauler to provide residential refuse service to about 6,500 households. After the benchmarking data revealed underused capacity within the city's own operations, it discontinued its contract with the private hauler and extended service by city crews into the affected neighborhoods without adding staff or equipment. This move improved efficiency and produced annual savings of approximately $395,000.[6]

Household Recycling

Comparative statistics for household recycling helped Asheville municipal officials monitor the effects of service expansion. Program changes yielded an increase in the rate of waste diversion from 14 percent in 1998–99 to 24 percent in 2003–4. The principal impact of program success has been the extended life of the Buncombe County landfill.

Benchmarking data helped Wilmington officials decide to privatize the household recycling program, producing an annual savings of about $75,000.[7] This change in service delivery also decreased the cost per ton collected from $308 in 1994–95 to $234 in 2000–1 (see Figure 1). Further expansion of the program decreased the cost per ton collected to $128 by 2003–4.

Concord has used benchmarking data to assess the possibility of altering truck and crew configurations. Hickory has used the data to evaluate the cost per collection point, for contract negotiations.

Yard Waste and Leaf Collection

Comparative statistics for yard waste and leaf collection supported the use of seasonal labor in Hickory and justified a recommendation for a leaf machine in High Point. The program

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change in Hickory helped reduce the cost per collection point from $51 in 2001–2 to $30 in 2003–4. Analysis in High Point showed that the new equipment would reduce the cost per ton collected.

Police Services

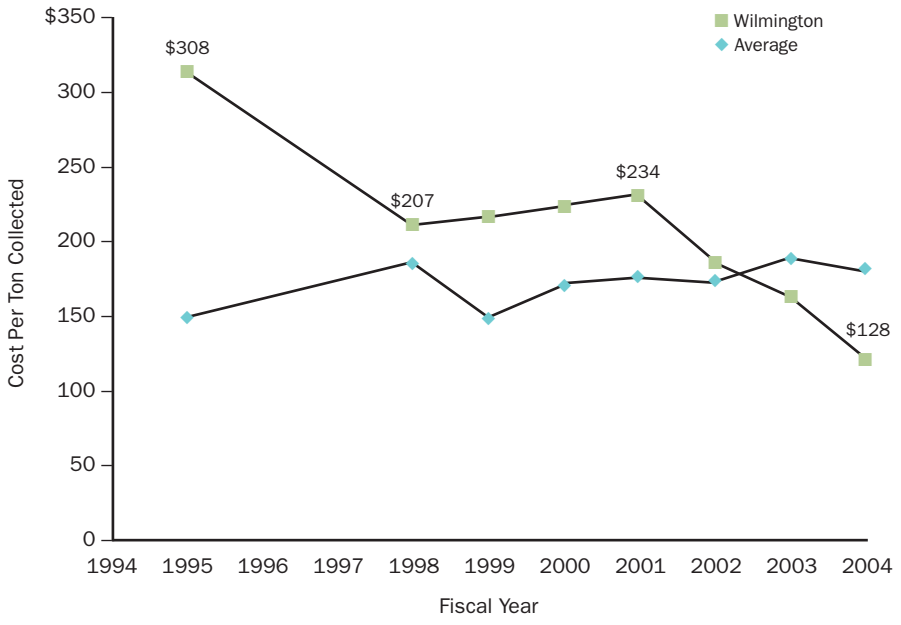
Although most of the implementation examples focus on service efficiency, some are aimed at improving service quality. Greensboro, for example, used the benchmarking results in a management study of police patrol staffing.[8] The study found that Greensboro was below average in number of sworn officers per 1,000 residents and had a slower-than-average response time for high-priority calls when compared with Durham, Raleigh, and Winston-Salem. A workload analysis indicated a "patrol-availability factor" of only 6.6 percent, signaling little ability to engage in proactive patrol. In response, city officials presented staffing options to the city council (see Table 1). The city council eventually approved an additional thirty-two sworn officers for its police department to increase proactive patrol and to decrease crime in specified neighborhoods.

Other examples of data use in police services included analyzing a proposal to add a patrol beat in Cary, gauging the efforts of community policing in Concord, and investing in a telephone-response unit to reduce calls per officer in Wilmington.

Emergency Communications

Asheville eliminated three dispatcher positions in emergency communications following an analysis of the benchmarking results. This action allowed the

Figure 1. **Household Recycling in Wilmington**



Note: Data were not collected for 1996 and 1997. The service in Wilmington was privatized in the middle of 1998.

Table 1. **Staffing Options for Police Patrol in Greensboro**

	Additional Officers	Administrative Time	CFS Time*	Proactive/ Patrol Time	Increase
Current	—	20.5%	72.9%	6.6%	—
Option 1	17	20.5	68.0	11.5	5%
Option 2	37	20.5	63.0	16.5	10
Option 3	60	20.5	58.0	21.5	15
Option 4	99	20.5	51.0	28.5	22

*CFS = calls for service, the percentage of time that patrol officers spend responding to service calls.

city to reallocate more than $100,000 to other programs.

Cary officials used the benchmarking project's comparative statistics to identify the need for an additional supervisory position in emergency communications. Concord employed the statistics to make changes that led to an Insurance Services Office (ISO) rating improvement. An ISO rating indicates the "fire readiness" of individual communities as an information service to potential insurers.[9]

Asphalt Maintenance and Repair

Deciding on the amount of resources to appropriate for asphalt maintenance and repair is an annual challenge faced by municipal officials. Typically, administrators urge adherence to a policy that calls for the municipality to resurface a specified number of lane miles every year. Depending on revenue projections, however, municipalities sometimes defer this capital investment in favor of other programs. With the support of the benchmarking results, several jurisdictions have solidified their ongoing commitment to a systematic street-resurfacing program.

Two municipalities have used the comparative statistics to analyze the

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cost-effectiveness of using in-house crews versus contract crews for resurfacing projects. Asheville decided to use contract crews for additional projects. Concord opted to increase in-house capacity.

Hickory used the comparative statistics to justify a new automated patch truck for pothole repair. The city reported 85 percent of potholes repaired within twenty-four hours in 1997–98, which was well below the benchmarking group average of 96 percent. After the capital investment, the city reported 97 percent of potholes repaired within twenty-four hours in 2001–2, which was slightly above the group average of 95 percent for that fiscal year.

Fire Services

Some municipalities have used the comparative statistics to analyze the need for fire personnel. As a result of its analysis of fire inspectors' workloads, Cary established a staffing plan for determining when to add new inspectors. High Point used the comparative statistics to analyze and approve a request for twelve new firefighters in response to a merger with two volunteer stations.

The most notable use of comparative statistics on fire services occurred in Hickory. The city's high cost per response suggested the underutilization of personnel and equipment and prompted a decision to begin responding to emergency medical calls as well as fire incidents. This increase in workload allowed the fire department to spread its fixed costs across more calls for service. That substantially lowered the department's cost per response, from $3,246 in 1998–99 to $1,832 in 2003–4. The workload change apparently had some impact on average response time to high-priority calls, which increased from 4.0 minutes to 4.4 minutes during the same time period.

Fleet Maintenance

Asheville and Hickory used the benchmarking results to establish productivity goals for billable hours, turnover of parts, and percentage of rolling stock available per day. Also, the benchmarking data prompted an analysis of fleet maintenance in Concord, which is described in the following section.[10]

Figure 2. **Fleet Maintenance in Concord: Hours Billed as a Percentage of Available Hours, Fiscal Year 2001–2**

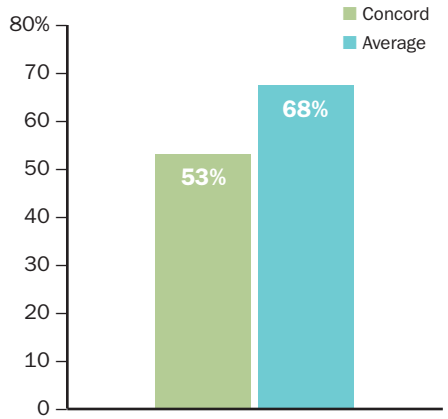
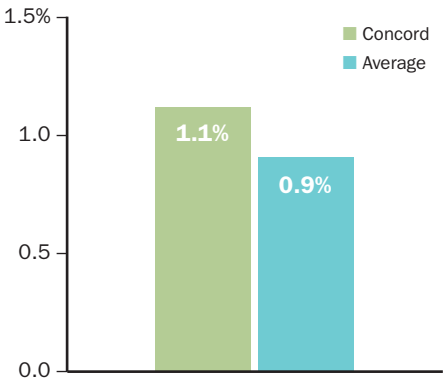


Figure 3. **Fleet Maintenance in Concord: Percentage of Work Orders Requiring Repeat Repair within 30 Days, Fiscal Year 2001–2**



Benefits of Benchmarking

The municipalities were asked to identify the overall benefit of participating in the benchmarking project. Following are selected responses:

- Reporting on the performance of service delivery within the context of comparable performance statistics enhances program accountability.
- Benchmarking has helped change the organizational culture by increasing the emphasis on performance measurement.
- Benchmarking has given program managers a broader perspective on how services are provided. They have become more open to the idea that reviewing processes in other organizations can help them improve their own service performance.
- Program managers are more concerned with data accuracy and reliability and are more open to data analysis.
- Budget staff members have become more knowledgeable about the programs under study. That helps reduce the communication barriers between staff members and program managers.
- Reporting on comparative statistics has spawned other management initiatives. For example, citizen surveys have been conducted to supplement the performance and cost data. The surveys have resulted in allocation of more resources to priority service areas.
- Benchmarking has assisted organizations in progressing toward performance budgeting. They have used the performance and cost data in reorganization of selected programs, in allocation of additional or fewer resources based on needs assessments, and in contract negotiations with external vendors.

One of the best anecdotal observations regarding the value of project participation came from a budget director who said that she crossed her fingers every time she received an information request from the city manager regarding a program. Her hope was that the program would be one of the ten currently under study in the benchmarking project, making it easier to give a timely and informative response.

Analysis of Fleet Maintenance in Concord

Comparative performance and cost data for fleet maintenance were collected and reported for the first time in the *Final Report on City Services for FY 2001–2002*.[11] The data for Concord, when compared with the data for other participants in the benchmarking project, revealed several potential problems, including low shop productivity (see Figure 2) and excessive repeat repairs within thirty days (see Figure 3). Concord also had experienced a relatively high number of breakdowns of equipment while it was in use, which affected the productivity of the departments needing to use the equipment.

Scheduled maintenance is the most cost-effective, productive form of vehicle maintenance. By emphasizing preventive maintenance, it decreases the likelihood of costly breakdowns. In Concord the work of fleet maintenance increasingly consisted of unscheduled maintenance (repair of breakdowns) and decreasingly of scheduled maintenance (preventive maintenance).

Analysis

A review of comparative benchmarking data alerted Concord officials to the presence of underlying problems. Concord's marks did not compare favorably with those of other municipalities. Closer examination revealed several causes. Before introducing the measures of the benchmarking project, fleet management collected few measures and was largely unaware of performance shortcomings. Mechanics' workdays were not carefully scheduled, and mechanics were given no performance targets or guidelines for job efficiency or shop productivity. Procedures for state inspections, preventive maintenance, and scheduling and prioritizing work were inefficient. Also, the method for buying parts increased vehicle downtime. Warranty issues were not weighed against downtime. Lack of communication between fleet maintenance and other city functions increased repair costs. Fleet maintenance software was cumbersome and consumed excessive amounts of management's time. Furthermore, vital scheduled maintenance was not being performed.

Actions

Concord officials acted to increase accountability. They set performance standards for mechanics and provided them with monthly reports on indi-

vidual and team productivity accomplishments. Also, they created check sheets on preventive maintenance to ensure quality and promote accountability.

Further, they brought federal and state inspections in-house, saving the cost of outsourcing and travel time. They changed purchasing practices to promote competition. They made arrangements with multiple vendors for the quick purchase of parts to increase the percentage of repairs completed within twenty-four hours. They focused greater attention on systematic replacement of worn equipment, carefully flagging vehicles near retirement to reduce unnecessary maintenance.

Additionally, they reorganized the second shift of mechanics and focused its efforts on preventive maintenance rather than repairs. They created special forms (called "trouble forms") to improve communication between first- and second-shift supervisors. Finally, they directed special attention to preventive-operation checks in an effort to reduce unscheduled maintenance work orders.

Concord officials found that they could implement all these changes and still eliminate one management position in fleet maintenance.

Outcomes

The operational changes helped drop maintenance costs per mile traveled from 18 cents in 2002 to 15 cents in 2005. The decrease represents a three-year savings of about $120,000 for fleet maintenance. Also, the elimination of a management position created an annual savings of approximately $45,000. Hours billed as a percentage of hours paid to mechanics increased from 53 percent in 2001–2 to 70 percent in 2003–4. The percentage of work orders completed within twenty-four hours increased from 81 percent to 86 percent, and the percentage of work orders requiring repeat repairs within thirty days decreased from 1.1 percent to 0.4 percent during the same period.

Another area of improvement was replacement of transmissions. After the program implemented a preventive maintenance program on transmissions, the number of transmissions replaced decreased from twenty-four in 2002 to five in 2005.

Concord officials had collected a host of basic workload measures for fleet maintenance, but they found that higher-order measures of efficiency and effectiveness were more useful than workload measures in diagnosing problems and improving operations. Fleet managers now track these measures monthly rather than annually.

Concord officials also found that sharing performance information and getting those actually doing the work to buy in to proposed changes—as they did with fleet mechanics—are crucial to successful performance management.

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Utility of Efficiency and Effectiveness Measures

The benchmarking project compiles three types of performance measures for each service area under study: workload, efficiency, and effectiveness. Workload measures are important for providing information on service demand (for example, the number of applications processed, arrests made, meters read, and so forth), but they simply report how much work has been done. Efficiency and effectiveness measures are considered higher-order measures. They report on the relationship between inputs and outputs (efficiency), on the one hand, and the quality or impact of service (effectiveness), on the other hand. Municipalities that were more active in using performance measures to improve operations tended to rely more on measures of efficiency and effectiveness, rather than simply on raw workload measures.[12]

Several municipalities participating in the benchmarking project were prompted to make changes in their operations when they compared their efficiency with that of their counterparts. In fact, a majority of respondents indicated heavy reliance on efficiency measures. This should not be surprising, given the benchmarking project's emphasis on cost accounting from the outset. Participating officials have gained confidence in these measures over the years and have come to rely on them.

In fact, several of the officials have credited the benchmarking project with providing them with the ability to calculate accurate and reliable efficiency measures for the first time.

The total cost in each service area, including direct costs (personal services and operating expenditures), indirect costs (overhead for staff support), and capital costs (depreciation), is determined to ensure comparability across multiple service providers. The total cost is then used to calculate the resources consumed per service output.[13]

Another reason for the heavy reliance on efficiency measures, according to the respondents, is that program managers respond more readily to changes in efficiency than to changes reflected by quality indicators. Several of the respondents reported that elected officials also tend to focus more on service efficiency than on service quality. One possible reason for this focus is that elected officials are keenly aware of the importance of cost control in the public sector. Understandably, they prefer to avoid an increase in the property tax rate.

Refinement of Measures

Although respondents reported a host of benefits from participating in the benchmarking project (see the sidebar on page 40), one of its fundamental benefits has come in helping participating municipalities improve the quality of their performance measures, not only in service areas included in the project but in others as well, indirectly.

Within service areas included in the benchmarking project, participants have tackled some thorny measurement problems and resolved them to the group's satisfaction. A review of household recycling, for example, revealed problems of inaccuracy and inconsistency in the calculation of household recycling participation rates. To remedy this problem, project participants established a uniform effectiveness measure, reporting the community set-out rate (percentage of households setting out recycling bins).

Another example comes from the service area of fleet maintenance. After the service area became part of the benchmarking project, participants thought that the number of rolling stock units per full-time-equivalent technician would provide useful feedback on workload and efficiency. Subsequent review revealed that a more robust measure was needed to track this service dimension. The measure was changed to number of vehicle-equivalent units per full-time-equivalent technician, a weighted statistic of the maintenance effort associated with different classes of vehicles. This measure is more aligned with industry standards.

Several municipalities credited their participation in the benchmarking project as a catalyst for improving their performance measurement systems organization-wide. Local officials reported that the project's focus on meaningful performance statistics has improved the quality of measures being tracked and reported even in service areas outside the project's scope. This finding provides evidence that the benchmarking project is making progress toward its first goal: to develop and expand the use of performance measurement in local government.

Conclusion

This review of the benchmarking experiences of the fifteen municipalities that participated in the benchmarking project in 2005 reveals that the municipalities have used comparative statistics at the program level to support a variety of decisions about service delivery. Prior research has suggested that time is a factor in moving from collection of measures to actual use of them in management decisions.[14] Indeed, some of the municipalities that have the most experience in performance measurement and the longest participation in the benchmarking project were among the leaders of this group in the use of performance data. Time is no guarantee, however. Even some municipalities with shorter experience in performance measurement have moved beyond reliance on raw workload measures and now are using measures of efficiency and effectiveness as they convert information into action.

Notes

1. Patricia de Lancer Julnes and Marc Holzer, "Promoting the Utilization of Performance Measures in Public Organizations: An Empirical Study of Factors Affecting Adoption and Implementation," *Public Administration Review* 61 (2001): 693–708.

2. Comparison of performance statistics is one of three approaches to benchmarking in the public sector. *See* David N. Ammons, "Benchmarking as a Performance Management Tool: Experiences among Municipalities in North Carolina," *Journal of Public Budgeting, Accounting and Financial Management* 12 (2000): 106–24.

3. For the definition of each service area, *see* William C. Rivenbark, *Final Report on City Services for Fiscal Year 2003–2004* (Chapel Hill, N.C.: School of Government, University of North Carolina at Chapel Hill, 2005).

4. Paula K. Few and A. John Vogt, "Measuring the Performance of Local Governments," *Popular Government*, Winter 1997, 41–54.

5. The savings reported in this article are stated in current dollars rather than constant dollars. If adjusted for inflation, the reported savings would be greater.

6. Ann Jones, "Winston-Salem's Participation in the North Carolina Performance Measurement Project," *Government Finance Review* 13, no. 4 (1997): 35–36.

7. David N. Ammons, "Benchmarking as a Performance Management Tool: Experiences among Municipalities in North Carolina," *Journal of Public Budgeting, Accounting and Financial Management* 12 (2000): 106–24.

8. City of Greensboro, Budget and Evaluation and Police Departments, *Patrol Staffing Study* (Greensboro, N.C.: 2004).

9. David N. Ammons, *Municipal Benchmarks,* 2d ed. (Thousand Oaks, Calif.: Sage Publications, 2001).

10. For information on additional case studies, *see* William C. Rivenbark, David N. Ammons, and Dale J. Roenigk, *Benchmarking for Results* (Chapel Hill, N.C.: School of Government, University of North Carolina at Chapel Hill, 2005).

11. William C. Rivenbark and Matthew H. Dutton, *Final Report on City Services for Fiscal Year 2001–2002* (Chapel Hill, N.C.: School of Government, University of North Carolina at Chapel Hill, 2003).

12. For more information on factors that increase the likelihood of local officials using performance and cost data to influence management decisions, *see* David N. Ammons and William C. Rivenbark, "Factors Influencing the Use of Performance and Cost Data to Improve Municipal Services: Evidence from the North Carolina Benchmarking Project," *Public Administration Review,* forthcoming.

13. For more information on the benchmarking project's cost accounting model, *see* William C. Rivenbark, ed., *A Guide to the North Carolina Local Government Performance Measurement Project* (Chapel Hill, N.C.: School of Government, University of North Carolina at Chapel Hill, 2001).

14. *See* note 1.