THE PARADOX OF EFFICIENCY

by Paul D. Epstein

Like many other cities, this city was in a tight fiscal squeeze. The budget officer saw the need for the city to save money and increase efficiency wherever possible. Through the chief executive, the budget officer called on all departments to make existing resources go as far as possible. The city committed a large proportion of its budget each year to resurfacing streets and roads, which the city did with its own work force. The city council did not want to cut this program because of its economic and political spin-offs. Surveys showed that the public thought that city streets were in poor shape; potholes and cracks were a big source of citizen complaints and media coverage.

An industrial engineer working for the city was assigned to the resurfacing program to see if it could be made more efficient. The engineer's initial analysis indicated that the program had an operating efficiency of $17,500 per lane-mile resurfaced; this unit cost was based upon $10,000 labor cost per lane-mile and $7,500 asphalt cost per lane-mile.* At the current rate of productivity per labor hour, the agency's resurfacing crews would be able to resurface 75 lane-miles in one year.

After carefully charting out the entire resurfacing process, work sampling the resurfacing crews in action, and analyzing the results, the engineer determined that it was possible, in a relatively short time, to improve the schedule of delivery of asphalt, vary the size of resurfacing crews to meet the needs of each job, and improve work methods. The engineer concluded that such changes would increase the productivity of the resurfacing labor force by 33 percent in the first year of implementation alone. He concluded:

• the existing resurfacing work force would be able to resurface 100 lane-miles in a year.
• the unit cost of labor would be reduced to $7,500 labor cost per lane-mile.
• the program's operating efficiency would improve considerably; the total unit cost would be reduced by $2,500, making the new unit cost $15,000 per lane-mile resurfaced (calculated at $7,500 labor cost and $7,500 asphalt cost per lane-mile).

Trying to get the okay to go ahead with the resurfacing improvements, the engineer told the budget officer that the improvements would have an annual "efficiency value" of $250,000 to the city. This figure was based on the benefit realized by resurfacing 100 lane-miles at a reduced unit cost. The engineer calculated benefits as equal to the reduction in cost per lane-mile multiplied by the number of lane-miles resurfaced: benefit = ($2,500)(100) = $250,000 “efficiency value.”

Impressed by these figures, the budget officer supported the engineer's recommendations to the chief executive, who approved them. The chief executive was pleased to be able to show the public—and press!—a more productive use of the city’s workforce. The program was implemented quickly, productivity increased as predicted, and the projected $2,500 reduction in unit cost resulted. By the end of the fiscal year, the existing work force had resurfaced 100 lane-miles of streets and roads.

However, the budget officer was angry with the engineer by fiscal year's close. Very angry. The budget officer had expected a $187,500 savings but, when all the bills were totaled, he saw that the "improved" program had actually cost the city’s budget an additional $187,500. How had this happened?

Under the original program of resurfacing 75 lane-miles at a higher unit cost, the total cost would have been

• labor ($10,000 per lane-mile)(75 lane-miles) = $750,000
• asphalt ($7,500 per lane-mile)(75 lane miles) = $562,500
• total program cost = $1,312,500.

Under the "improved" program of resurfacing 100 miles at the lower unit cost, actual costs were
• labor ($7,500 per lane-mile)(100 lane-miles) = $750,000
• asphalt ($7,500 per lane-mile)(100 lane-miles) = $750,000
• total program cost = $1,500,000

The result was a net increase in agency expenditures of $187,500 ($1,500,000 -$1,312,500).

*Note that this case was published originally more than two decades ago—a classic!—and the costs of resurfacing roads are from the original.

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**Problems**

1. Who was right and who was wrong, and why? Was the engineer, who calculated a “benefit” of $250,000, or the budget officer, who calculated a savings of $187,500? When thinking about this, remember that both the budget officer and engineer know about variable costs. [See the Web site resource, Analyzing the Costs of Public Programs ▶️.]

2. What went wrong? What is the problem here?
   a. Chapter 1 says, “In government, it is illegal and improper to spend public resources in ways and amounts other than set out in law.” How does this case illustrate this budgeting rule? Think about what happened to the option of resurfacing the usual 75 lane-miles.
The city could have taken the improved productivity in cost savings, which could have amounted to $187,500 in reduced labor cost.

b. Chapter 5 says, “Budget managers must constantly monitor spending against the budget and respond as soon as possible to a looming deficit.” How does this case illustrate this “best practice?”

**Think about It**

1. How could a government or public organization be tempted into taking a benefit it cannot afford? What sounds better, anyway—$250,000 worth of increased services or $187,500 in savings?

2. How does this case illustrate the difference between efficiency and economy? Given that increasing services generates a higher dollar “efficiency value,” when should productivity gains be taken in the form of actual savings?