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PRIMER ON PERFORMANCE MEASUREMENTS FOR MUNICIPAL PUBLIC WORKS DEPARTMENTS

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This report answers these questions.

- What is performance measurement?
- What terms apply?
- What public works tasks are candidates for performance measurement?
- Why would municipal public works departments want to do performance measurement?
- What steps are needed to set up a program?

Before we define performance measurement, let's look at why municipal public works departments exist. Public works are a big part of overall city operations in terms of budget, customer service, number of employees, projects, and essential functions. Donald C. Stone, the founder of the American Public Works Association (APWA), defined public works thusly:

> Public works are the physical structures and facilities that are developed or acquired by public agencies to house governmental functions and provide water, power, waste disposal, transportation, and similar services.

So, public works departments exist to build, operate, and maintain infrastructure and provide services that benefit the public. The APWA has identified 145 different functions that are related to public works. They can be classified into 8 broad categories.

1. **Transportation.** This includes streets, bridges, sidewalks, bike paths, airports, seaports, traffic control, and storm water management. Public works is responsible for the design, construction, and maintenance of these facilities.
2. **Sanitation.** Traditionally cities collect solid waste, brush, leaves, and bulky items within the corporate limits. Cities, counties, or private companies may own disposal facilities such as landfills, compost facilities, and incinerators. Also, many cities are involved in recycling operations.
3. **Utilities.** This includes water, wastewater, gas, and electric. It may also include storm water and flood control. Utility operations may be a function of public works or other city departments, or other governmental entities may handle utilities.
4. **Buildings and grounds.** This includes the design, construction, maintenance, and management of public buildings and facilities. It may include urban forestry.
5. **Municipal engineering.** This includes civil and environmental engineering functions such as new facilities design, technical studies, construction inspection, and surveying. Larger departments tend to perform some of their own engineering services; small departments will contract these services. Major and complex projects are almost always contracted.

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6. **Fleet management.** This function involves the procurement and maintenance of city-owned equipment and vehicles. Some public works departments manage only their own equipment; some provide this service for all city departments. Many cities (departments) contract maintenance services.
7. **Management and administration.** This includes operations management and supervision, financial management and reporting, public relations, procurement of professional services, requesting and evaluating proposals, awarding bids and managing contracts.
8. **Other.** Various other functions such as parks maintenance, cemetery operation, airport services, animal control, dead animal pickup, etc. may be included under public works.

WHAT IS PERFORMANCE MEASUREMENT?

Performance measurement (or "management"—the terms are used interchangeably) is a means of evaluating how well services are performed. It involves *regular* and *continuous* data collection and *reporting on* selected services or programs. Performance measures are generally reported as numeric indicators. Such indicators tell what was accomplished and at what cost, what citizens receive for their tax dollars (or fees), and how well the services were performed. They also may be used to quantify worker productivity.

Cities can measure virtually any public works service. The following activities are candidates for performance measurement:

1. The number of garbage carts collected per day (week, month, year);
2. The tons of garbage collected;
3. The cost per household for garbage collection;
4. The number of citizen complaints associated with garbage collection;
5. The number of brush (and/or leaves) pickups per day (week, month, year);
6. Cubic yards or tons of brush (and/or leaves) collected;
7. Cost per household for brush (leaves) collection;
8. The number of citizen complaints associated with brush (leaves) collection;
9. The miles of street resurfaced;
10. The cost per mile of streets resurfaced;
11. The number of potholes repaired;
12. The number of citizen complaints associated with potholes;
13. The number of culverts cleaned;
14. Cost per culvert cleaned;
15. Miles of right of way mowed;
16. Cost per mile of right of way mowed;
17. Miles of streets swept;
18. The gallons of drinking water produced;
19. The gallons of drinking water sold; and
20. The unaccounted for water (water produced but unbilled).

WHY USE PERFORMANCE MEASURES?

> "Unless you are keeping score, it is difficult to know whether you are winning or losing. This applies to ball games, card games, and no less to government..."
>
> Harry Hatry
> *Public Administration Review*
> January/February 1978, page 28

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If you don't measure results, you can't tell success from failure.
If you can't see success, you can't reward it.
If you can't reward success, you're probably rewarding failure.
If you can't see success, you can't learn from it.
If you can't recognize failure, you can't correct it.
If you can demonstrate results, you can win public support.

Reinventing Government

WHAT ARE THE TYPES OF PERFORMANCE MEASURES?

There are four types of performance measures:

1. **Workload or output measures.** These measures indicate the amount of work performed or number of services received. Workload or output measures indicate what was done but not how well it was done. Examples are
   - Number of potholes repaired;
   - Number of garbage carts collected; and
   - Number of invoices processed.
2. **Efficiency measures.** These measures show the relationship between the work performed and the resources required to perform the work. Efficiency measures are often expressed as unit costs. Examples are
   - Cost per pothole repaired;
   - Cost per garbage cart collected; and
   - Tons of garbage collected per crew (or worker).
3. **Effectiveness or outcome measures.** These measures reflect the quality of work performed. They tie together work, resources and results. Examples are
   - Water meters read per day with less than 1 percent error;
   - Number of invoices processed without error within two days of receipt; and
   - Number of cold patch pothole repairs that last for three months.
4. **Productivity measures.** These measures add efficiency and effectiveness. Productivity ties together work, cost, resources, and results. Examples are
   - Unit cost per effective meter repair (effective meter repair means that the meter was not returned for further repair within six months);
   - Unit cost of effective cold patch pothole repair (effective cold patch pothole repair means that the patch held up for at least three months); and
   - Cost of successful hires within 60 days of vacancy (successful hire means that the hire satisfactorily passed the probation period).

THE HARD WORK OF STARTING PERFORMANCE MEASURES

All this sounds good, doesn't it? So, why aren't more municipal public works departments using performance measurements? Usually because

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(1) they do not see the value, and (2) starting and maintaining the program requires extra effort. Managers need to realize on the front end that performance measurement is a continuous improvement process. It will not be perfect in the beginning. But, once started and continued, it becomes just part of the way the department does business.

The biggest effort may be deciding to implement performance measures in the first place. The tendency is to "keep doing things the way we've always done them." As noted, there are lots of good reasons to implement performance measures, but starting a program can be a hard sell, especially internally. Overcoming employee resistance may be the most difficult part of starting a performance measurement program. Employees will make statements such as

- We already tried that. Didn't work then; won't work now.
- Performance measures are unfair because we don't have control over outcomes.
- This program will only be used to hurt us.
- This may be a great idea, but it won't last. The next manager (mayor, administrator, council) won't continue it. (Silently, they'll say, "I'll just wait this out.")
- There is no way to measure what I do.

The manager will need good communication skills to work through these and other staff concerns. It's a vital first step because the enthusiastic participation of workers is essential to the success of a performance measurement program.

The manager could talk about the following points in favor of performance measures:

1. They provide mission and focus for the workers;
2. They indicate how well the job is being done;
3. They provide information for decision making;
4. They serve as a communication tool;
5. They identify areas where productivity can be improved; and
6. They increase program accountability.

Once employee resistance is overcome, consider essential elements for developing a program for your department. The International City/County Management Association (ICMA) recommends the following elements.

1. **Usefulness.** How helpful will the information be in decision making?
2. **Clarity.** Will those who collect the data know what they should be looking for? Will those who analyze and interpret the data understand their meaning? Will those who read the performance measurement report understand what it tells them?
3. **Relevancy.** Do the measures selected apply to the department's most important activities?
4. **Uniqueness.** Do the measures selected provide information not available elsewhere?
5. **Timeliness.** Do the measures provide information in time for leaders to use it in making decisions (about budget, purchases, etc.)?
6. **Controllability.** Does our department have control over the performance of the program or service?
7. **Completeness.** Does the measure provide a complete picture of the service and its objectives?

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8. **Comparability.** Can the measures be used for comparison (against ourselves, with other departments)?

TERMINOLOGY

Next, nail down terminology so that everyone will be on the same page in communicating the performance measurements program. Common terms include the following:

Inputs—the resources the department (or municipality) puts forth to provide service. Examples are number of staff, budget, number of garbage trucks, etc.

Outputs—indicates the amount of service provided. Examples are tons of garbage collected, number of potholes repaired, miles of street overlay, etc.

Outcomes—measures that indicate how well objectives were accomplished. Outcome measures indicate the quality or effectiveness of a service. Examples are response time for fire engine(s) to arrive on scene after notification, the percentage of city streets passable 24 hours after a major snowstorm, cleanliness rating of city streets following street sweeping, etc.

Efficiency—a measure of the resources required to produce a certain outcome. Examples are the cost to pave each residential street mile, the cost per ton of garbage collected, cost per liner foot of water line installed, etc.

Program target or goal—a statement of the level of performance that the department wants to achieve. Examples are to reduce the number of on the job injuries by 10 percent in the next fiscal year, increase the amount of garbage collected per crew by 15 percent in the next fiscal year, etc.

HOW DO I TO SET UP A PERFORMANCE MEASUREMENT PROCESS?

The performance measurement process involves three phases. If you are measuring a complicated program, you will use all the steps discussed below. When measuring a discrete, narrowly defined program, you may not use all the steps. The steps are not necessarily in sequential order.

1. The Pre-performance Measure Phase involves the following steps:
   a. Identify the program or service;
   b. Identify vision, mission and objective;
   c. Identify program activities; and
   d. Determine program targets.

2. The Performance Measures Phase involves the following steps:
   a. Determine program inputs;
   b. Determine program outputs; and
   c. Determine program efficiency measures.

3. The Performance Measures Reporting Phase. This provides an explanation to help the reader analyze and understand the results.

Here's an example.

PRE-PERFORMANCE MEASUREMENT STEPS

Step 1—Identify the program or service. (State the program or service you are going to measure.) The (your city's name) Sanitation Department.

Step 2—Identify the vision, mission, or objective. To provide the residents of (your city's name) with timely, cost effective collection of household refuse.

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Step 3—Identify program activities. (List or describe the program service or activities.)

- Provide once-per-week curbside collection of household refuse.
- Leave carts (cans) upright and undamaged.
- Keep equipment (trucks) in good operating condition.
- Provide three people per crew.

Step 4—Determine program targets (criteria against which to measure success).

- Provide service without overtime.
- Reduce customer cart-related complaints by 10 percent.
- Keep equipment operational (ready for service) 85 percent of work week (34 out of 40 hours).

PERFORMANCE MEASUREMENT STEPS

Step 5—Determine program inputs (resources your government will spend to operate or implement the program or service).

- $500,000 budget.
- Two crews of three people each.
- Three rear-end loaders (one is a spare).

Step 6—Determine program outputs (the amount of program activity or workload).

- 4,100 households

Step 7—Determine program efficiency measures (costs per unit of output).

- Cost per ton.
- Cost per household.
- Cost per 1,000 population.
- Number of complaint calls related to cart damage.
- Percentage of time each truck is out of service.
- Percentage of time each crew is fully staffed.

PERFORMANCE MEASUREMENT REPORTING

The last step is reporting on the process. As with any major initiative, communication is vital to success. The manager needs to report performance measures results internally to staff, upward to city management and elected officials, and outward to the public. The information learned from the performance measurement process should be used to manage. It should help determine which services to deliver, how to prioritize, how to allocate resources, and how to reward performance.

ADDITIONAL RESOURCES

For those who want to know more, there are many resources on performance measurement. An MTAS consultant would be happy to provide technical assistance to your department. A few informational sources are listed below. Other resources are available on the Internet.

1. The American Public Works Association. See www.apwa.net.
2. The International City/County Management Association. See www.icma.org.
3. Baldrige National Quality Program. See www.quality.nist.gov.
4. David N. Ammons, *Municipal Benchmarks*, 2nd Ed., Sage Publications, Thousand Oaks, London, New Delhi, 2001.
5. MTAS Tennessee Municipal Benchmarking Project. See www.mtas.tennessee.edu.

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