



REDUCING EXPENSES: WHY DEFERRED MAINTENANCE MAY NOT BE THE BEST OPTION

By Dave Zelenok, Centennial director of public works

WITH THE DOWNTURN IN THE economy, many Colorado municipalities are under increasing pressure to reduce spending to meet the new realities of revenue shortfalls and declining budgets. Not surprisingly, there is often political will and community support to continue to fully fund emergency services (primarily police and fire) and at the expense of other services — often thought to be “discretionary.”

Unfortunately for the managers of those “discretionary” programs, citywide budget reductions seldom are done “peanut butter style.” That is, cuts often are not spread evenly over the full spectrum of the municipal government, and the “hits” are imposed on what many believe to be “deferrable” spending — which often includes public works and other departments’ maintenance programs.

Simple math, though, reveals the impact of budget reductions on “discretionary” maintenance programs can be difficult, if not impossible, to absorb without long-term consequences. For example, in a municipality with a \$10 million annual budget in which police and fire services consume half of the budget a 10 percent citywide cut might mean a disproportionate 20 percent cut in the remaining half of the city’s services, and those hits may in turn be disproportionately assigned to impact maintenance programs — in some cases, completely *eliminating* them.

Difficult decisions

Some financially strapped cities have dealt with this problem by virtually obliterating some entire departments, and often parks and recreation and community service-related budgets are viewed as an “easy take.” After all, it is true that some of these programs (read, “adult softball”) can generate revenue by increasing fees to offset their expenses. Better yet, in some cases, they can even be removed from the balance sheet if they are converted to enterprises — following the lead that many public works’ utilities have taken — under a true “user pay” philosophy.

Other approaches to reducing budgets are related to a perception that certain services that are related to aesthetics (read “fresh flowers and irrigated parks”) and maintenance (e.g., street resurfacing) are less important and thus can be eliminated or at least deferred. Many municipalities have imposed their cuts in a targeted fashion and have opted to defer maintenance, a practice commonly known as “pushing the wreck down the track.”

As a result, some street department managers have had their paving and maintenance budgets zeroed out or left with enough money to adequately repair only a few streets per year. If one of those streets is Main Street, running through the heart of the central business district, and needs a full reconstruction (probably due to a lack of recurring

annual maintenance), it will probably get repaired, while other streets will have their problems and maintenance deferred.

Unfortunately, the consequence of deferring maintenance to the point where a reconstruction is required means it is probably too late to avoid the much more costly repair, and by that point, the dilemma leaves the city’s leadership with few options — and some huge expenses.

Pavement management programs

All street maintenance managers engage in a decision making process to best assign their limited resources. Some managers prepare a short list of streets by hand detailing an annual list of streets needing repaving; other (usually larger) cities contract a detailed and sophisticated inspection of every mile of their streets. Those “pavement condition” surveys are usually done every few years, since the conditions do not change much from year to year. The surveys in turn will generate a number of maintenance options for every street in the city and can even predict the cost in future years of deferring maintenance.

Usually, pavement condition surveys evaluate *surface* conditions, such as rutting, oxidation, smoothness, and crack propagation patterns, to establish a maintenance strategy. Unfortunately, experience often shows that pavement condition surveys do not penetrate

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A CASE STUDY IN RESURFACING EXPENSES

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HERE ARE FEW FACTS FROM CENTENNIAL'S STREET RESURFACING program (assumes a 36-foot wide street one mile in length, using 2010 prices):

Type of treatment	Life
Preventative maintenance (chip or slurry seal), ~ \$29,000	5-7 years
Rejuvenators (pavement surface reconditioner), ~ \$23,000	5-7 years
Microsurfacing (similar to slurry but adds strength), ~ \$77,000	7-10 years
Repair (milling, overlay, and concrete curb repair), ~ \$280,000	10-15 years
Reconstruction, ~ \$400,000-\$600,000 (depends on street)	15-20 years

Using the example of 100 centerline miles of street, this equates to:

- 10 miles of slurry seal every year in a 10-year program will have an ongoing cost of about \$290,000. Pretty manageable, if not deferred.
- 10 miles of milling and overlay would have an annual cost of \$2,800,000.
- 10 miles of reconstruction would cost perhaps \$4,000,000 to \$6,000,000. That could consume half of the entire small city's budget.

The lesson: It is important to note that some of the less expensive treatments (e.g., slurry seal) will not perform as long or as well as a reconstruction and may need to be repeated. However, looking at "life-cycle costs" — even when applied multiple times — a slurry seal will cost only about \$6,000 per mile per year of life extension; a milling and overlay will cost more than \$20,000 per mile per year of extension; while a reconstruction can cost a whopping \$40,000 per mile per year of life extension.

In 2008, the City of Centennial (population 100,000, with 401 centerline miles of streets) made a strategic shift in strategy in how it manages its pavements. Although its pavement managers used a management system for years, it employed only reconstruction and overlay for several years due to budget shortfalls. Now, the City employs both a pavement management system and a wide variety of treatments. As a result, it has established a citywide, long-term preventative maintenance program combined with a smaller amount of reconstruction and milling and overlay (which are viewed as repair programs).

The results are striking. From 2008 to 2011, the City will have resurfaced roughly 30 percent of its entire street system. Some streets needed no treatment, while other streets needed more expensive treatments — and those will have to be deferred until funds are available. Perhaps more important, by adding a preventative maintenance strategy and not deferring it, the City is now well positioned to save millions of dollars in the long run.

In essence, municipalities have two courses of action: "If it's not broke, don't fix it" (defer maintenance as long as you can, and prepare to make major repairs at a high price or, in other words, "pay me now, or pay me — much more — later"); or make the investment in an unglamorous but critical preventative maintenance program.

Clearly, with Colorado now in its third or fourth year of tough budget times, the time is now to reconsider the consequences of deferring that maintenance. True, advocating on behalf of a slurry or chip seal program is not glamorous, and the public probably won't understand why you are spending "perfectly good money" pouring some thin gravy-like substance on their "perfectly good street." But then, you can ask them if they ever change oil in their car. How much is a preventative maintenance oil change versus an entirely new engine if you choose to defer the maintenance today?

Cities simply cannot keep deferring maintenance work without expecting to pay a big price in the future. Conventional wisdom says to keep putting a little money in every year and avoiding paying big costs "down the road."

beyond the pavement surface. As a result, problems with a pavement's load bearing capacity — often resulting from a pavement "mat" that is too thin to support the weight of heavy trucks — may be hidden from the surface inspection. As a result, the survey's results may be somewhat skewed, often leading to a more conservative prediction, but at other times overestimating the problems, urgency, and cost of repairs.

Deferred maintenance

Another point of agreement among pavement managers is that much maintenance, in fact, can be deferred for a year or two, often with virtually no significant consequences, unless a "bad spring thaw" hits. Under the right freeze/thaw, moisture, and weather conditions, a seemingly "smooth as silk" street that was not built properly or has not had much preventative maintenance for years can be reduced to a sea of potholes in a single springtime pothole season.

To address this problem, most pavement managers will agree that something — a preventative maintenance technique, perhaps an overlay, a surface treatment, and/or complete reconstruction — should be done to about 10 percent of the city's street system every year. What that goal equates to is, for example, in a city of 25,000 people with 100 "centerline" miles of streets, an annual program should treat about 10 miles of streets — every year.

So, the questions are: What is proper maintenance technique? What are the consequences of deferring that maintenance? And what will it cost — this year and in the future — if we don't?

INTERGENERATIONAL EQUITY IN ASSET MANAGEMENT

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ONE OF THE KEY ISSUES INVOLVING MAINTENANCE IS WHAT IS OFTEN referred to as “asset management.” In some countries — for example, New Zealand — “federal law” requires local governments to simply not allow their maintenance to ever be deferred in the interest of “intergenerational equity.”

In short, it is illegal to defer maintenance in that country. Every generation pays its own way, and no one generation pushes a bill onto another. Talk about long-term planning!

The moniker “asset management” in the United States usually brings to mind visions of Wall Street financial advisors. In the American public works profession, the term often is used in context with the Government Accounting Standards Board (GASB) 34 requirements that (among other things) account for the amount of services (*think*: street resurfacing) that are shifted into future years on a government balance sheet.

In the United States, many local governments and public works agencies seem to view asset management as a mere suggestion. The reality is maintenance budgets and infrastructure standards often are redefined annually based on what the government can afford in next year’s budget. In short, the American asset management system has been developed largely by accountants and, in many locales, has little practical influence on the technical decisions regarding maintenance standards or levels of service.

In New Zealand, the term asset management has a dramatically different twist — it’s the law. Simply put, local governments are required to maintain their infrastructure for the long term — truly, looking at life-cycle costs. A guiding principle is that the longevity of infrastructural assets means planning horizons are measured in decades, resulting in consideration of intergenerational equity. An “equitable” solution is one that both minimizes costs over the planning horizon and distributes them fairly between current and future generations. This requirement ensures later generations are not unduly burdened by capital investment decisions made, or debt created, now.

The law has some interesting consequences; for example, local governments cannot pave (they use the term “seal” or “chipseal”) a gravel road unless they can demonstrate they have the funds available to maintain it to that level of service for the long term. Underground pipes must not deteriorate to the point they require major reconstruction if there is a preventative maintenance effort that could be employed to prevent it — and local governments must make the funds available. There, the term asset management has real teeth, and it now has gained international recognition and wide acceptance — along with global use.

