

Effective Cost Estimating: 4 Tenets for Federal Construction



The staggering size and variety of the federal real estate portfolio presents a unique challenge. Government is tasked with the operation and upkeep of thousands of facilities, ranging from office buildings to hospitals to defense sites.

When it comes to maintaining and upgrading these sites, cost estimation methods may not be up-to-date or accurate. This can lead to time delays and spiraling expenses. It can undermine an agency's credibility and potentially impact mission-critical operations.

Reliable cost estimates are fundamental to ensuring the responsible use of public funds — and accurate data is essential to driving accurate estimates.

This playbook, developed in collaboration with Gordian, a provider of construction lifecycle solutions, will look at the four tenets of reliable cost estimating. It will also explore strategies for avoiding common pitfalls in federal construction, and consider the technologies needed to ensure that government can manage the lifecycle cost-effectively across its vast portfolio of properties.

NEED TO KNOW

GSA: A Study in the Challenge of Facility Maintenance

The U.S. General Services Administration (GSA) operates almost 8,400 buildings, totaling 363 million square feet of property. Of that square footage, 86.9 million — almost a quarter of GSA's total footprint — is in poor condition. Here's a look at how the challenges in maintaining and repairing those properties multiplies over time.

The degradation of government facilities and their grounds can take a toll on agency effectiveness. **Ineffective facilities inhibit the delivery of essential services** to both the public and intra-government clients. Inoperable workstations reduce points of contact and increase service delays. Damaged parking lots cut down on the number of clients an agency branch can serve. Outdated HVAC, plumbing, IT and electrical systems can consume operations budgets, while malfunctioning systems can temporarily shut down entire facilities.

Studies conducted by the GSA have found that **government costs for facilities repairs and alterations trend 15% to 20% higher** than those for private projects. Part of this is due to extra requirements for government projects, like contractor vetting and security clearances. All of that adds extra time and cost to the project.

The rate of outdated federal facilities is rising. Pre-pandemic estimates of government real properties note that roughly **45,000 of the 130,000 federally owned facilities were underutilized**. This number has likely grown as remote working has expanded significantly since that time.

Outdated facilities cost 15% more on average to own and operate. The costs associated with the outdated and underused facilities pull funds away from maintaining those that remain mission-critical.

The snowball of outdated federal facilities creates a race to maintain them before some degrade beyond repair. Unfortunately, **extra steps in federal procurement processes slow down** the speed at which the government can complete necessary repair and maintenance projects.



NEED TO KNOW

Emerging Solutions

Here are some key tools that can help agencies manage facilities more proactively:



Cloud-based solutions drive toward a future in which both physical and digital technology work hand in hand to monitor job site conditions, project progress and supply chain movement, then transmit that information to agency centers around the world. This level of connectivity allows for project timelines to be adjusted proactively, rather than reactively, reducing waste. It can also communicate any issues with design or material performance to other project sites, minimizing the spread of risk.



Digital inspection tools are now commonplace in the industry. Advanced features such as smart scanning for asset labels, geo-tagging problem sites and mapping pictures or videos of potential risks onto floorplans can all increase both the speed and accuracy of inspection work. This reduces the likelihood of gaps in data or user errors, thus setting a reliable floor for capital planning.



Advanced analytical systems driven by artificial intelligence will help calculate the cost of materials and assemblies or the time required to build them, offering greater efficiency and consistency to the federal planning and design phase. Additionally, when those calculations are able to account for changes in building sites and conditions, federal leaders will be able to use them to standardize the planning process.

THE PLAYBOOK

4 Tenets for Reliable Estimating

A reliable federal cost estimate generally stands atop four principal tenets: comprehensiveness, documentation, accuracy and credibility. These are the fundamental pillars, and when they are all in place, they give steady support to accurate planning.

When one or more are missing, the foundation of the estimate can be shaky or untrustworthy, leading to delays and cost overruns. Planners need to be able to give solid answers to several vital questions as they evaluate and implement bids:

Does the cost estimate cover all the components needed to complete the project?

Has the agency clearly demonstrated sourcing for each part of the estimate?

Are the sources used in the estimate all reliable and up to date?

Is the estimate reasonable, believable and up to par with industry best practice standards?

Here we'll examine why each of these tenets is important, and how they can be achieved in the federal space.



Comprehensiveness

For any construction, renovation or maintenance project, it's essential to have a complete list of what's onsite and what will be required in the future. But the list of components that go into making a civilian or defense facility run smoothly is a sprawling affair: from walls, windows and doors to roofing HVAC components and various mechanical pieces.

To operate effectively, project managers must be able to track all of their components. That includes not just nuts and bolts but "capability components" as well: anything electrical, anything that enables the servers. With technology evolving constantly, "you have to have the right support systems, the right types of receptacles," said Martin Izzzi, Senior Director of Federal Solutions at Gordian.

"Most of the time when people think of construction work, they think of a large structure that's being built brand new, from the ground up," he said. "In fact, most of the work being completed today — especially in the DoD and DHS space — is on maintenance projects. Your expected life for a structure is normally somewhere between 20 and 50 years, and during that time you need to keep it running."

Ideally, federal managers support the comprehensiveness tenet with a technology solution that tracks the age, condition and expected maintenance needs over the lifetime of each of those components. This, in turn, ties to a cost system that projects what the maintenance budget is going to be for the coming years. With a comprehensive facilities condition assessment, "you can basically plan out the entire expected spending needed for the maintenance of your building over its lifetime," Izzzi said.



Documentation

Federal agencies have a special obligation to clearly demonstrate the sourcing for each part of the cost estimate. "Accountability is the key word," Izzzi said. "These are taxpayer dollars that are being put toward specific missions by the government, missions that are supposed to care for and better the lives of the people."

To be fully accountable and transparent, government leaders need to not only make a rigorous effort to secure accurate estimates, but also be able to demonstrate that the estimates they are using represent a reliable and impartial measure of the expected maintenance costs. When questions arise, they need to be able to show the data points that have gone into supporting all decisions.

"Good documentation means having a paper trail, or these days an electronic trail, that shows why you've made these decisions with the money that you have been allocated. You need a system that can store all that information and that can readily produce it," Izzzi said.

Such a system helps ensure that federal decision-makers can justify their choices in a way that stands up to public scrutiny.

"Sooner or later, questions will be asked about how those funds were allocated," he said. "Good documentation supports transparency, both externally and internally. Ideally, you don't want just one person's eyes on it. You need a solution that makes that documentation readily accessible and sharable across key stakeholders within the organization."

Accuracy

The accuracy of estimates likewise speaks to the issue of accountability: A federal agency must be able to demonstrate that its estimates were accurate to ensure that fair play has been done and to keep project costs aligned with budgeting. Accuracy in estimates helps keep construction expenses from spiraling, a key concern for any budget-constrained organization — and an area where government sometimes falls short.

“Too often, government organizations will build the estimate by relying on historical data that’s been accumulated over time: This screw cost eight cents last year,” Izzi said. In reality, these costs are changing all the time, and even recent historical data will rarely align with the facts on the ground by the time a bid turns into an actual project. Without accurate estimates, change orders too often become the norm.

Government pays a high price for inaccurate estimates. The predicted cost might be slightly out of alignment for a given job, but that impact gets magnified exponentially when it unfolds at federal scale. “With so many federally funded projects happening around this country year in and year out, a decimal place off in one project here or there quickly adds up to a lot of money,” Izzi said. “That takes a toll on agency budgets, and it diminishes public trust.”

What’s needed is a reliable and accurate cost database, a technology solution with a strong track record of accuracy. Such a solution is backed by independent research; is comprehensive, spanning hundreds of locations nationwide; and is highly specific, giving detailed cost figures for tens of thousands of individual line items. As it is beyond the reach of a single federal agency to compile such a resource, a third-party provider needs to be the source for this solution.

Credibility

To make a credible case for their decisions, government agencies must be able to demonstrate that the estimates on which they base their plans are reasonable, believable and in line with the current industry standards. That means partnering with a provider of data and solutions that has demonstrated correctness over time.

“Credibility means having a long track record of success in support of the three previous points: comprehensiveness, documentation and accuracy of the data,” Izzi said.

A credible estimate will be based on data describing the vast array of items and process variables that go into making a project work — materials, equipment, trades and locations. Ideally, that data set will always be kept current. This continuously updated raw data will in turn provide the basis for credible, predictive cost estimating for units, assemblies and square-foot models, localized across hundreds of North American locations.

Credible data gives agencies the ability to better understand today’s costs, and to accurately predict the future lifecycle costs of their facilities.

As an example of credibility, Gordian’s RSMeans Data has been specified in many federal civilian and DoD contracts and has been used to defend budget choices on the floor of Congress.



USE CASES

Common Pitfalls and Solutions

In the realm of cost estimates, there are three areas where government typically runs into trouble. Here is an exploration of each of these scenarios and how they can be avoided.



1 Higher Project Costs

The nature of the low-bid methodology in government contracting invites the possibility of cost overruns.

Let's say a military installation needs to build a new barracks. It puts out a call for proposals, and contractors submit their bids for what it would cost them to do the work. The government, wanting to spend wisely, is often going to choose the lowest bidder. Whether by design or inadvertence, that low bid doesn't reflect the real price of the work, and soon the change orders start rolling in. Project costs escalate rapidly.

To safeguard against this, government leaders need a ready means to validate the accuracy of the costs as presented in each bid. Cloud-based technologies play a key role.

"Cloud-based software allows you to get those consistent cost updates as they're produced, so that you can have the most up-to-date and accurate costs against which to validate that contractor's estimate," Izzi said. "If you need to go into a period of negotiation, you have something to ground your cost estimation of what you say the cost should be."

2 Neglected Facilities

Underutilized facilities represent a significant potential liability. They need ongoing maintenance work, but with low utilization they will typically drop to the bottom of the to-do list. The longer they go without remediation, the worse the problems will get.

If neglected facilities aren't tended to in a timely manner, "that is almost certainly going to cost more in the future and take up more of your budget down the road," Izzi said.

To ease the pain, agencies need a solution that will help them track the condition of those facilities, to predict when maintenance will be needed and to accurately estimate the cost of doing the work now versus putting it off. This analytic capability will help agencies know what to repair, and perhaps what to jettison.

The General Services Administration (GSA) is a good example of this. It oversees almost 8,400 facilities across the country. Some of those are office spaces, and as more people are working hybrid or fully remote, divestment rather than maintenance is going to become more of a strategy for. The right insights would help GSA preserve its funding so it can reinvest funds that would have been dedicated to maintaining underused facilities, putting them toward the ones that are still mission-critical.

When an agency bears responsibility for managing multiple facilities across the nation, it needs to be able to identify those that are up to date, and those that are languishing. It needs a comprehensive view across the entire portfolio to make effective, strategic decisions about which maintenance investments make the most sense.



3 Slower Procurement for Maintenance and Repairs

The government procurement process can hinder effective cost estimates. By the time bids are gathered and assessed, it's likely that prices will have changed.

Instead of taking a conventional approach to contract awards, agencies can get ahead by leveraging the indefinite delivery, indefinite quantity (IDIQ) contracting model.

Rather than a per-project basis, the IDIQ model is an umbrella contract that lasts for multiple years. Agencies are allowed to award that contract to a single contractor or a small group of contractors, using a predetermined cost book that comes from a reputable costing company.

In support of this model, it makes sense to partner with a third-party provider that can deliver a reliable, accurate cost book as the foundation for a long-term contract. The reliability of that data ensures government leaders can plan for long-term maintenance and respond to emergency-repair requirements in a way that is both cost-effective and justifiable.

INDUSTRY SPOTLIGHT

The Case for Bigger, Better Data in the Federal Construction Lifecycle

When it comes to cost estimates, government lacks timely inputs. It typically relies on historical data around key materials, a practice that can lead to cost overruns and delays that put mission-critical facilities in peril.

For effective estimating in support of both maintenance and repairs, agencies also need visibility across their facilities portfolios. They need to know the state of their buildings, the emerging needs and the likely costs associated with timely upkeep.

“At Gordian, we advocate taking a ‘lifecycle’ approach to data. That means you aren’t just building your facility and figuring out what it’s going to cost you to get the building standing and get people in it,” Izzi said.

Once that building is in use, “you need to be measuring its performance and the performance of its components, and the condition of those facilities based off that performance. Then you need to be putting that into a system that allows you to project the cost for the lifetime,” he said.

Data Drives Planning

With all that data in hand, planners can build 10- and 20-year capital plans that are reasonably accurate: They’ll know what they need to invest to keep that facility performing. By augmenting the data with predictive inflationary measures, they’ll have a good idea of what to allocate in the year 2030 or 2035 for that facility.

“In the federal space, Gordian offers tools that have proven to be particularly successful in supporting this lifecycle approach,” Izzi said. **“These tools support a three-step approach: plan, procure, optimize. You need to plan what you’re going to build, you need to procure the work to build it, you need to optimize it for the future, whether that’s new construction or the maintenance of existing construction.”**

On the planning side, RSMeans Data sets the standard of excellence. “It’s the most robust costing dataset in North America, and it’s expanding internationally now as well,” he said. By building estimates and budgets off that kind of reliable database, grounded in historic trends logged across almost a century, “agencies are able to accurately project what costs will be up to three years in the future.”

When it comes to procuring the needed work, Gordian data helps ensure that bids are in line with current industry standards. That is especially helpful when emergency work is necessary: Federal agencies need some means to know that they aren’t being overcharged for urgent repairs.

Data plays a key role in optimization as well. “That’s about measuring how your facility is performing, documenting that in a system that tells you when you’re going to need to change,” Izzi said.

“You have your facility, and that facility is going to go through this cycle of planning, procuring and optimizing with different maintenance tasks nearly continuously,” he said. “You’re going have to plan out the costs of current and future maintenance, and data is what makes that possible.”



CONCLUSION

Reliable Estimates Drive Success

Given the sheer size and complexity of the federal portfolio, government agencies need accurate cost estimates to ensure they can keep facilities running in support of mission goals, while making responsible use of taxpayer money. Outdated information can lead to costly delays and expensive budget overruns.

With reliable estimates, agencies are better positioned to ensure they are using public funds responsibly — and accurate data is key to driving accurate estimates.

By leveraging modern tools from a proven provider, agencies can align themselves with the four tenets of reliable cost estimating, enabling them to manage construction cost-effectively over time, across all their varied properties.



Thank you to Gordian for their support of this valuable resource for public sector professionals.

About GovLoop

GovLoop's mission is to inspire public sector professionals by serving as the knowledge network for government. GovLoop connects more than 300,000 members, fostering cross-government collaboration, solving common problems and advancing government careers. GovLoop is headquartered in Washington, D.C., with a team of dedicated professionals who share a commitment to the public sector.

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