



STRETCHING NEW YORK CITY'S CAPITAL DOLLARS

A Blueprint for Fixing NYC's Broken Capital
Construction Process for Social Infrastructure

Stretching New York City's Capital Dollars is a publication of the Center for an Urban Future. Researched and written by John Surico and edited by Eli Dvorkin, Jonathan Bowles, and Laird Gallagher. Additional research by Naomi Weinblatt and Charles Shaviro. Designed by Rob Chabebe.

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Executive Director: Jonathan Bowles

Editorial & Policy Director: Eli Dvorkin

Associate Editor: Laird Gallagher

Data Researcher: Charles Shaviro

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STRETCHING NEW YORK CITY'S CAPITAL DOLLARS

Faced with an era-defining fiscal crisis, New York City's next mayor will almost certainly need to identify new options for raising revenues and reducing costs. One of the most promising opportunities to do just that lies in fixing the city's highly inefficient capital construction process for libraries, parks, cultural organizations, public plazas, and other critical social infrastructure.

Investing in this social infrastructure will be essential to the city's recovery from the COVID crisis. But the inefficiencies that plague the current process have driven up costs to levels that border on absurd. A ground-up library project can easily take more than seven years to complete and cost more than \$1,500 per square foot to construct, roughly triple the cost and time required to build a Class A office building.¹ A park bathroom facility currently under construction will cost the city nearly \$4 million.² A heating and cooling system replacement in a branch library racked up a bill of more than \$3 million.³

These are cost inflations New York can no longer afford.

The good news is that they also are not inevitable. They go well beyond the usual New York premium on construction and can be attributed to a deeply flawed and unnecessarily bureaucratic city process for managing projects.

Reforming this process could save the city at least \$800 million over five years, according to our analysis of estimated cost overruns tied to major problem areas plaguing the capital construction process for public buildings. That's nearly enough money to clear the entire backlog of state-of-good-repair needs across the city's three library systems, or pay for 150 full-time parks maintenance workers for the next decade, or fund more than 1,300 miles of protected bike lanes.

The City's Department of Design and Construction (DDC) has shown that progress is possible. The suite of capital reforms it launched in January 2019 has already begun to shave time off the process and lower costs. But deeper improvements are needed. To achieve them, DDC will need to continue and expand on its initial reforms. But the agency will also need far more help than it has received to date from other parts of city government that contribute mightily to the inefficiencies in the capital process, including the Office of Management and Budget (OMB).

This help is unlikely to happen without a strong push from the highest levels of City Hall. Indeed, more than any other single policy change, this report urges the next mayor to go all-in on reforms to the capital process by creating a new Deputy Mayor for Infrastructure. This official would be empowered to direct and oversee a reform process involving every agency involved in the capital project process—and possess the political muscle to hold every party accountable. Other actions are needed, too, including a reform to the state's procurement law that mandates the selection of the lowest bidder on capital projects, which too often ends up costing the city more money despite good intentions.

Together, these changes will help the city find significant cost savings during a period of deepening fiscal uncertainty while enabling continued investment in vital social infrastructure.

KEY FINDINGS

- Reforms to New York’s capital process could save the city at least **\$800 million over five years**, according to our analysis of estimated cost overruns tied to major problem areas plaguing the capital project design and construction process for public buildings.
- That \$800 million in savings could be used to **clear nearly the entire backlog of maintenance needs across the city’s three library systems** or **pay for 150 full-time parks maintenance workers for the next decade**, or **fund more than 1,300 miles of protected bike lanes**.
- Library branches recently completed or in the process of construction show the need for reforms. The new Greenpoint branch cost over **\$1,500 per square foot**. The Hunters Point library was nearly **\$1,900 per square foot**. The new Rego Park branch is budgeted at over **\$2,100 per square foot**. The new Far Rockaway branch will cost at least **\$1,800 per square foot**.
- The report’s analysis of reforms enacted by DDC beginning in January 2019 finds notable improvements in **front-end planning, project management, payment, avoiding change orders, and pre-qualifying contractors**. As a result, the average project duration decreased from 96 months to 90 months as of June 2020—a promising achievement in a year and a half.
- However, five ongoing challenges continue to hold up the capital construction process: **an underwhelming pool of contractors resulting from the low-bid requirement; delays across multiple government agencies with a role in the process; time-consuming approvals for change orders; lackluster project management; and constraints on the ability of sponsor agencies to manage their own projects**.
- While projects vary, the state- requirement to award contracts to the lowest bidder can delay the average project by **at least six to nine months** and adds at least **20 percent** to the original bill due to poor performance and delays, or at least **\$1 million** on a typical project. With approximately 100 DDC-managed public buildings projects in construction each year, including approximately 35 library projects, we estimate that the low-bid requirement annually costs the city **at least \$100 million**.
- Delays created by the change order process, on average, can add **at least \$600,000** to each project annually—on top of the cost of additional work. With approximately 100 DDC-managed public buildings projects in construction each year, we estimate that change-order-related delays cost the city more than **\$60 million** each year.
- While some improvements to project delivery have been made, capital project staff at sponsor agencies say that too few DDC project managers are **acting as the client’s best advocate** and could do more to anticipate roadblocks, navigate approvals, and speed up the process. At the same time, sponsor agencies can help improve project delivery by limiting scope changes after a project is initiated.
- But other agencies have to act, too. Multiple capital eligibility reviews by the Office of Management and Budget—conducted for every budget modification—cumulatively add between **four and six months** to the average project timeline, while the requirements for registering contracts with the Comptroller’s Office has **delayed projects hundreds of times**, as initial applications are denied and returned with additional questions.
- When allowed to self-manage projects via pass-through funding, sponsor agencies like libraries can complete projects in just **20 percent of the time** of DDC-managed projects, and at **one-third of the cost**.

New York can no longer afford to squander its limited capital funds. The city's infrastructure needs are simply too great and capital funding too limited.

The city's public library system alone faces nearly \$1 billion in state-of-good-repair needs, not surprising given that the average branch library is over 60 years old. The same dynamic is at play across the city's built environment, where public parks are straining to accommodate a surge in use amid the pandemic, the city's bike infrastructure needs a major expansion, and a range of public buildings—including cultural institutions and schools—require upgrades to ventilation systems. At the same time, New York faces an urgent need to protect coastal communities from storms and sea-level rise, upgrade its broadband infrastructure, and address deteriorating conditions in NYCHA buildings across the city.

Investing in these and other infrastructure projects could give New York a crucial boost during this COVID-19 crisis, strengthening the communities hit hardest by the pandemic, creating jobs for New Yorkers who are out of work, and laying the groundwork for an inclusive recovery. But right now, the city's broken capital construction process is standing in the way.

As we documented in the Center for an Urban Future's 2017 *Slow Build* report, building a new library or cultural project in the five boroughs takes seven years to complete and costs a staggering \$930 per square foot—roughly twice the cost of a Class A office tower.⁴ (Newer data suggest that the average cost per square foot to build a new library has risen to well over \$1,500 per square foot.) The result is that the city's limited infrastructure funds don't stretch very far, leaving many needed projects on the drawing board and causing unacceptable trade-offs between maintaining current infrastructure and building innovative new structures to meet growing demand.

Reforms Are Taking Hold, But Need to Go Much Further

The good news is that progress is finally underway. In January 2019, the city's capital project management agency, the Department of Design and

Construction, announced a major overhaul of its processes. The agency's *Strategic Blueprint for Construction Excellence* mapped out plans to expand front-end planning to reduce delays before construction even starts; modernize the procurement process; implement more effective project management within DDC; and improve coordination among sponsor agencies, oversight agencies, and vendors across hundreds of different projects.

This report provides the first assessment of DDC's reform efforts. Supported by the Charles H. Revson Foundation, the study is informed by more than 30 interviews with designers, contractors, engineers, and agency officials with years of experience working on city-managed capital projects.

Early signs suggest that DDC's reforms are beginning to work. Since the agency's blueprint was launched, DDC reports that process improvements have reduced the average timeline of a capital project from 96 months to 90 months, a promising achievement in just over a year. The interviews conducted for this report confirm that DDC's reforms are taking hold, resulting in more thorough front-end planning, more responsive project managers, better avoidance of lengthy change order delays, faster payments, and better-qualified contractors.

But while things are heading in the right direction, the city has a long way to go. A capital process where the average project still takes 90 months remains badly broken.

DDC hopes to shave off an additional 30 months in the coming years as additional measures are put in place. But this can only be achieved alongside major new reforms across other agencies and throughout city and state government.

Five Keys to Fixing NYC's Broken Capital System

Our research identifies five key problem areas that must be addressed if the city is to make further progress controlling capital construction costs at this pivotal moment. These choke points are analyzed in more detail on page 11 of the report.

1. DDC is not yet getting the help it needs from OMB and other city agencies that play a significant role in the delays that plague the capital process.

Although DDC has made progress on several crucial reforms, other city agencies and government partners with an oversight role in the capital process—from the Office of Management and Budget and the New York City Comptroller to the Procurement Policy Board and the Department of Buildings—have yet to implement similar agency-wide reform plans. For example, capital eligibility reviews conducted by OMB each time a budget modification is requested can delay library projects up to four to six months, while contract registration with the Comptroller’s Office routinely results in delays when applications are kicked back with additional questions—on hundreds of occasions over the past several years, restarting the clock on the mandatory 30-day review.

2. The low-bid requirement produces an underwhelming pool of contractors, leading to subpar performance and routine delays.

The state-mandated “low-bid” requirement creates a marketplace where vendors are either unqualified or underestimating costs, effectively discouraging the city’s top talent from bidding on public projects. This often results in subpar performance—costing the city time and money. While the details of specific projects vary widely, this brief found that the low-bid requirement delays an average project by at least six to nine months and adds approximately 20 percent to the original budget. This would mean extra costs of \$8 million for a \$40 million library development or \$1 million for a more modest \$5 million repair project. With approximately 100 DDC-managed public buildings projects in construction each year, we estimate that the low-bid requirement and design-bid-build sequence annually costs the city at least \$100 million.

3. The approval process for change orders still takes too long.

Change orders are an inevitable part of all construction. But the city’s approvals process for a single change order can take far longer than similar projects elsewhere, and these delays have a cascading effect on project timelines that drives

up costs. Each month that a change order delays a project can add up to \$200,000 to the price tag for new builds and potentially even more for ongoing renovations. A typical change order approval takes three to six months to negotiate, according to capital project managers and other parties involved. In total, we find that change order approvals, on average, can add at least \$600,000 to city projects. With approximately 100 DDC-managed public buildings projects in construction each year, change-order delays to these projects could cost the city up to \$60 million annually.

4. Projects still suffer from inadequate project management.

While DDC’s Strategic Blueprint is showing important early results, the agency has more work to do. In particular, the architects, contractors, and sponsor agency staffers we interviewed told us that DDC needs to improve its project management. DDC project managers help guide a project through the city’s convoluted capital construction process while keeping all stakeholders aligned. But although some project managers proactively head off issues before they grow, too many others lack the drive—or incentive—to fight hard for faster timelines and lower costs.

5. Libraries and cultural institutions lack the authority or capacity to self-manage more projects

When self-managing capital projects via pass-through grants, sponsor agencies like libraries can complete projects in 20 percent of the time and at one-third the cost of comparable DDC-managed projects. This suggests that the city should allow many more pass-throughs. But to do so, libraries will need more financial support to build in-house capital project capacity—and sponsor agencies will have to commit to project scopes and budgets at inception, resisting the urge to expand the scope as new funding becomes available.

A Glimmer of What's Possible: DDC's Performance During COVID

For those who know the process inside and out, the greatest challenge lies in the interagency web of duplicative reviews and adversarial bureaucratic oversight—inefficiencies that ensnare far more agencies than just DDC and will require top-level leadership to untangle.

Difficult as this challenge may be, a more efficient and effective process is possible—and in fact, it's already happening. DDC leveraged emergency powers granted in response to the pandemic to overcome the usual restrictions and procedural hurdles and execute projects at warp speed. For example, a new outpatient healthcare facility in the Bronx was completed in just six months, while DDC was also building 15 new testing centers and two temporary field hospitals—a pace that would be unthinkable under the current process. But even in normal times, the typical project managed by the School Construction Authority spends just 41 months in the design and construction

phases—less than half the 84 months facing the average DDC-managed project.⁵

“We're at a very critical point. We have this infrastructure nightmare that exists, and we've demonstrated that we could vastly improve our commitment rate and get this done,” says Kristie Maduro, vice president of real estate and capital finance at Brooklyn Public Library (BPL). “All of this coincides with a time that we can have an impact. So, it's time to pay attention. But when you look at all these other parts of the process, it all comes to one point: we need to change the system.”

New York City is at a crossroads, threatened by record unemployment and massive revenue losses even as infrastructure needs continue to grow. At this moment of crisis, the city needs to maximize the impact of every dollar invested into vital social infrastructure—and seize the opportunity to transform a dysfunctional capital construction process. DDC's nascent reforms show that change is possible. But the next mayor and the City Council will need to build on this progress and go a lot further.

New York City's Capital Projects at a Glance

Capital construction is the public process by which New York City builds for its residents. From vital social infrastructure, like parks and libraries, to the backbone of the city's day-to-day needs, like sewers and firehouses, the largest share of this work is managed by the Department of Design and Construction, which works with “sponsor agencies”—that is, entities that receive city capital dollars—to renovate or develop their structures. The agency has two divisions: Infrastructure, which oversees assets like retaining walls, sewers, and plazas; and Public Buildings, which works on built structures such as libraries and government buildings.

In FY 2020, DDC completed 85 design projects and 108 construction projects, with an overall budget of \$530 million. Nearly a third of Public Buildings design projects were not completed on time, and 15 percent of construction contracts were not completed within budget, according to the city's own performance metrics. (Note that work deemed non-essential was temporarily paused in March 2020 due to the coronavirus pandemic, with effects on performance metrics for the second half of FY 2020.)

SUMMARY OF RECOMMENDATIONS

- 1. Create a new Deputy Mayor for Infrastructure to ensure DDC, OMB, and all other agencies involved in the capital process embrace reforms.**
- 2. Reform the state's procurement law that mandates the selection of the lowest bidder on capital projects, which too often ends up costing the city more money despite good intentions.**
- 3. Expand city efforts to reform the overly bureaucratic change order approval process.**
- 4. Create a single, dedicated interagency inspection team to streamline approvals.**
- 5. Train and empower DDC project managers to be more proactive with sponsor agencies and contractors.**
- 6. Give libraries authority to self-manage a greater share of capital projects—and support them through a toolbox of build options.**
- 7. Encourage sponsor agencies to commit to a project scope and budget at the outset of a capital project—and allocate sufficient expense and capital funding to ensure that long-term capital planning is possible.**

SIGNS OF PROGRESS IN THE CAPITAL CONSTRUCTION PROCESS

In January 2019, DDC released its *Strategic Blueprint for Construction Excellence*, which put forth measures to speed up the five phases of capital construction: planning, initiation, design, procurement, and construction. By July 2020, agency officials said that all measures in the blueprint had been advanced, and new strategies to streamline project delivery were being developed and implemented.

Interviews with sponsor agency staff, architects, designers, and contractors suggest that some of these improvements are already being felt. While most say they are yet to see any notable gains in the design and construction—the two longest phases of any capital project—sources did attest that DDC’s reform effort has resulted in some tangible improvements.

Front-end planning is saving time on the back end.

The Center for an Urban Future’s 2017 *Slow Build* report, which analyzed 114 library and cultural building projects between 2010 and 2014, found that 86 percent of delays occurred before construction even began.⁶ Too often, capital project managers said insufficient or inaccurate project scoping, during which projects are thoroughly examined for scale and cost, would lead OMB to deny the Certificate to Proceed (CP), returning parties to the drawing board or creating problems later on.

Since the release of *Slow Build*, DDC has built out its Front-End Planning (FEP) unit, which mandates scope and budget requirements before allowing projects to proceed. OMB also created the Capital Coordination Unit, which coordinates with DDC. In FY 2020, FEP reviewed 132 projects, with an average scope time of two months.

“It has helped us,” says one senior library official who has worked on multiple capital projects throughout their career. “DDC is being more thorough in how things are being scoped, doing site visits, and I think it has helped raise visibility for certain issues. Now

we’re all better informed at the beginning in terms of how much money it will take. As our portfolio is concerned, we have made progress, and a lot has gone out to construction.”

In Brooklyn, DDC’s FEP unit helped library officials conduct a building conditions assessment for five branches in need—a pilot that DDC hopes to expand to other branches.⁷ Likewise, a thorough Capital Project Scope Development plan, along with regular asset condition assessments, can help get ahead of these unanticipated costs and challenges—but this sort of planning typically requires sponsor agencies to tap limited expense dollars to initiate.

Proactive project managers are getting slow projects moving.

In interviews, multiple agency officials, architects, designers, and engineers say having a good project manager is critical. This representative within DDC can help “move the ball forward,” as one capital project manager described it, relaying communication between varying agencies and predicting issues before they arise. But for years, experts say, DDC’s project managers often lacked the training and direction to push for process improvements, adopt modern project management technology, and use their discretion to advance project delivery with creative problem-solving. In its blueprint, DDC acknowledged this internal issue and announced measures like agency-wide retraining and authorizing project managers to take more control of the capital process.

Clients and vendors have taken notice. Amir Ibrahim of Akela Contracting, who regularly works on DDC-managed projects, says he receives responses from project managers much faster than he did before 2019, leading to fewer delays. David Leven, a partner at architectural firm LEVENBETTS, says that the project manager on a current library project is acutely aware of issues that disproportionately affect small firms like his, such as cash flow problems

that stem from slow payouts and changes to a project's scope. "At the beginning of our work with DDC, there was a lot of confusion and unintentional misguidance."

At meetings in years past, BPL officials say project managers would sometimes show up unaware of the project's progress and need time to catch up. Recently, however, that has changed. "Our relationship with DDC has improved tremendously," one official who works on capital projects says. "The PMs seem to be driving projects, which is obviously important."

Weston Walker, the partner who leads the New York office of Studio Gang, credits an attentive project manager with pushing for the 2019 completion of the FDNY Rescue Company 2 station in Brownsville, which had suffered from delays attributed to a subpar contractor. "Credit goes to her ability to get through silos," Walker says. "She kept focus and momentum on this project. This building was a high priority for FDNY and DDC, but you still need a really committed team player that understands the project to keep it moving through New York City bureaucracy."

Architects and contractors are getting paid faster on newer projects.

There is widespread agreement among those we interviewed that the city's capital process for public buildings would be greatly improved if more of the city's experienced architects and contractors worked on these projects. But the city's reputation for dragging out payments has long deterred many of New York's best architects and contractors from bidding on DDC-managed projects.

Reimbursements, especially on change orders, can take years—a burden that falls especially hard on smaller firms, which typically have fewer cash reserves to make up for a long-delayed payment. That toll is only heavier amid the current economic crisis.

In its blueprint, DDC prioritized reducing payment delays. The agency set a goal of streamlining the process with OMB, which must approve all budget modifications before new invoices can be processed, and other oversight agencies like the Comptroller's Office and the Mayor's Office of Contract Services (MOCS). Though older projects still have outstanding bills, sources say that on newer projects, money is going out on time.

"We are definitely getting paid timelier than two years ago," says Amir Ibrahim of Akela Contracting, who has worked on a range of city-managed capital projects. "Back then it'd be months. But now we get paid in less than 30 days. It's definitely much better."

The Expanded Work Allowance pilot is preventing construction delays.

Change orders are a routine part of nearly every building project, from single-family home construction to major office tower developments. But rarely do they throw projects off track for months or even years, as has often been the case in city-managed projects. During construction, an unforeseen structural or technical issue will often halt a project, as DDC and OMB must negotiate a budget adjustment before approving the necessary change order.

Fortunately, DDC is now working in tandem with OMB and the Comptroller's Office to address the delays caused by the torturous change order approval process. The joint Change Order Task Force has piloted an initiative called "expanded work allowance" that gives parties access to a sustained pot of money during construction, so a project does not need to be put on hold while a blanket order that meets OMB-approved criteria is negotiated. DDC predicts the pilot could reduce the average three-year construction timeline by 30 percent. Currently, nearly 30 projects are taking part in the pilot.

The East Flatbush branch renovation is one of those pilot projects. The architect, Stella Betts of LEVENBETTS, says that the project is progressing well, and the allowance may be helping. "With small change orders that would normally trip you up for months, this has kept the process going," she says. "There was always a small contingency for anticipated unforeseen conditions, especially when renovating existing buildings, but it never covered everything. This is working." According to BPL officials, expanded work allowance could save a year's worth of construction at East Flatbush.

"Anything you can do to streamline that process helps," says one city official.

PERSISTENT PROBLEMS WITH THE CAPITAL PROCESS

1. DDC is not yet getting enough help from OMB and other city agencies that have a central role in the delays that plague the capital process.

Nearly a dozen city agencies have an oversight role in New York’s capital construction process. But a lack of coordinated efforts to improve project delivery and cut down on duplicative reviews lead to unacceptably high costs and unnecessary delays.

Although DDC is the city’s primary manager of capital projects, reviews undertaken by many other city agencies and government entities contribute to egregious delays throughout the capital construction process. But to date, DDC is the only government entity to publicly acknowledge its shortcomings and launch a major reform effort. According to experts who work on DDC-managed projects, significant time and cost savings can only be achieved if every agency with a role in the capital process commits to sweeping process improvements.

“It’s easy to criticize DDC, but it’s a fundamentally flawed system,” says one library official. “Everything is intertwined—and there has to be a better system.”

OMB’s outsized role in capital project timelines

Our research suggests that OMB’s capital eligibility reviews are a major factor in dragging out project timelines. For libraries and cultural institutions, requests for information and slow approvals from OMB have added months to project durations and contributed to rising costs.

To be sure, the agency plays a vital role in protecting taxpayer dollars against fraudulent spending, and it has taken steps to improve project delivery in recent years. Still, sources say that the scrutiny it gives to capital projects triggers delays that inadver-

tently end up costing the city and sponsor agencies significantly more money in the long run.

“That circuit through OMB, which is constantly returning applications for further additions—it takes so long, it’s incomprehensible,” says Wendy Evan Joseph, principal of Studio Joseph, a firm that has designed several cultural projects as part of the DDC Design Excellence Program. “It’s not a 100 percent DDC problem. They submit to OMB, OMB reviews it, and then they send back one question, and that restarts the clock. Three months go by, the process happens again, and next thing you know it’s two years from now. There’s something wrong with that.”

In addition to processing certificates to proceed (CPs) and change orders, OMB determines whether certain building elements, like seating or staging, can be paid for using capital dollars, using strict criteria overseen by the Comptroller’s Office. According to several capital project managers at sponsor institutions, the multiple rounds of capital eligibility review typical of a major construction project can add approximately four to six months to a project timeline. (To its credit, OMB says the agency has reduced the duration of each CP review to an average of 25 days, a reduction of approximately 60 percent since 2013. OMB has also allocated \$2 million since 2019 to a DDC “expense pot” that is used to cover the costs of capital-ineligible items—a helpful measure that sources say should continue in the years ahead.)

At the Arverne branch of Queens Public Library, where the existing facility will be expanded by 4,800 square feet, a new community room is being outfitted with chairs. When the capital eligibility review was conducted, library staff say OMB came back with a list of questions that are indicative of the larger issue. “OMB may initially deem the chairs in the room to be ineligible, because each individual chair is below the threshold dollar amount of eligi-

bility, and they don't view the chairs holistically," says one senior agency official. "We have to waste time pushing back, saying no—it's 50 chairs. It's the entire room. This can go back and forth for 30 to 60 days." (The project is expected to be completed in 2024.)

Alongside capital eligibility review and cost estimations, OMB must sign off on change orders before DDC can pay architects, engineers, and contractors for work associated with those changes. Several architects and designers say they have outstanding bills for work completed between two and four years ago—another major obstacle to encouraging high-quality firms from bidding on city projects.

Experts say that delays in payment not only

contract registration approvals from the Comptroller's Office—typically required within 30 days—have ended up delayed on hundreds of occasions in recent years, as applications are returned with a slew of "super forensic" questions. These requests for additional information can vary from contract to contract, and cumulatively they require other city agencies and project sponsors to devote thousands of hours each year to collecting information in order to respond.

"If things get hostile between the mayor and the Comptroller, then all of your change orders and contracts will get held up," says David Burney, who served as DDC commissioner from 2004 to 2014. "And DDC gets trapped in the middle."

“Given delays in capital eligibility and change order reviews, contractors bid knowing that it'll take a while [to get paid],” BPL's Kristie Maduro says. “They pad their quotes, and we pay the price.”

disincentivize vendors from working with the city, but also end up driving up the bids that contractors make. “Given delays in capital eligibility and change order reviews, contractors bid knowing that it'll take a while [to get paid],” BPL's Kristie Maduro says. “They pad their quotes, and we pay the price.”

The Comptroller's Office

Another key player in the capital process is the NYC Comptroller's Office, which registers CPs and change orders after OMB's approval. Like OMB, the Comptroller's role is intended to protect public dollars from wasteful or fraudulent spending, and both OMB and the Comptroller have worked collaboratively with DDC on the expanded work allowance pilot. But experts say that the Comptroller's Office will need to make a major commitment to project delivery improvements to help shave more time off the cumbersome review process.

One senior leader at a capital agency says that

Another senior official at a capital agency says that time savings gained from current reform efforts are diluted if a project hits a snag elsewhere in the interagency process. “A project approval can go to the Comptroller's Office, and I'll still have to wait for them,” they explain. “We all know that after 30 days, we're going to get something back on Day 29, with more questions.”

Beyond OMB and the Comptroller's Office, sources say all agencies with an approval function need to commit to improvements—and these system-wide reforms will require strong leadership from the mayor. On several DDC-managed projects, says a principal architect at a firm that works on many public buildings, a lack of clarity about when and how other agencies would review elements of a project—including the Fire Department, Police Department, Department of Buildings, and others—led to conflicting guidance over safety standards and egress that ultimately resulted in at least a year and a half of delays.

“A lot of the delay for these projects is in getting coordination between the different agencies,” says the architect. “It just kept going around and around. DDC has been pushing these projects really aggressively, but they’re being held back by really poor decision-making among other entities.”

2. The low-bid requirement produces an underwhelming pool of contractors, leading to subpar performance and routine delays.

The state-mandated “low-bid” requirement creates a marketplace where vendors are either unqualified or underestimating costs, effectively discouraging the city’s top talent from bidding on public projects. This often results in subpar performance—costing the city time and money.

The state requirement to award contracts to the “lowest responsive and responsible” bidder remains one of the chief catalysts for delays and cost overruns in the city’s capital process for public buildings. Originally intended to prevent corruption, the requirement has had the adverse effect of saddling city projects with inflated price tags from the cascading problems of poor performance. While projects vary in size and scope, multiple experts interviewed for this report estimate that an average DDC-managed project is delayed by at least six to nine months and sees cost overruns of 20 percent—or \$1 million on a typical \$5 million capital project—due to issues stemming from the low-bid requirement. With approximately 100 DDC-managed projects in construction each year, this report estimates that the low-bid requirement annually costs the city at least \$100 million.

Nearly every expert interviewed for this report cites the low-bid requirement as a key problem area, which at its worst, plays out in a familiar pattern: The contractor, lacking the relevant experience for the job or necessary resources due to a purposely pared-down bid, ends up performing subpar or incomplete work, which must then be revised through a change order. (This process, which has its own delays, is explored in the following section.) More money is then spent on revisiting work and extending contracts for other parties involved, like design teams and architects, who must account for the mistakes made.

Whether stuck with a subpar contractor or saddled with the challenge of switching vendors, the city is left with major delays and a higher bill to pay. “The delays are horrendous,” says Burney, the former DDC commissioner. “If you accept from a not responsible bidder, and that bidder gets into difficulties, or you have a bonding company involved, I’d say six to nine months is a conservative estimate. It could be more than a year to get out of a situation like that.”

On a recent public building project, say members of a New York-based project team at a multi-city architectural firm, the general contractor and subcontractors made a cascade of mistakes. The architects were surprised to find concrete walls without designated openings for mechanical equipment. Several pipes and conduit had to be rerouted as a result—sending delays rippling across the build schedule. “We encountered construction delays every step of the way,” says one architect at the firm. “We created a design using straightforward materials and systems, but the on-site crew made many mistakes. They continually had to redo work, which meant that we couldn’t approve next steps to keep the project on schedule.”

For major building projects, these day-to-day errors and omissions can add up to millions of additional public dollars and years of delay. The Hunter’s Point Library project ground on for 15 years before opening in 2019, at a cost of \$41.5 million. The California-based contractor assigned to the bid lacked experience with projects of similar complexity, according to members of an engineering firm with direct knowledge of the project. The foundation alone took more than a year. Poorly poured concrete had to be redone section-by-section. One official closely involved with the project estimates that the low-bid requirement alone caused 24 to 30 months of schedule delays and added between \$6 and \$10 million to the final cost.

The low-bid requirement also has a chilling effect on talent: higher-qualified contractors will often not bid on contracts, knowing that profit margins are slim. What remains is a narrow selection of contractors who are less familiar with specific types of projects and the complexities of the capital process, which inevitably encourages the problem to persist and limits what’s possible for the city.

3. The approval process for change orders still takes too long.

Change orders are an inevitable part of construction. But the city’s approvals process for a single change order can take months, which has a cascading effect on the project timeline and drives up costs.

Despite the promise shown by the expanded work allowance pilot program, the change order approval process continues to be one of the major catalysts for delays and cost overruns. While change orders may be unavoidable, the delays they create do not have to be. Fairly simple changes stemming from the need to value engineer a project to reduce costs or make up for subpar contract work can snarl projects in months

time back up to 87 days in FY 2021.) Improved initial planning has also helped reduce the share of projects that experience costly change orders later in the process.

However, most projects will undergo multiple change orders at some point, and the cumulative effect can seriously derail timelines. According to multiple interviews with capital project managers, architects, designers, and engineers, each month that a change order delays a project can add at least \$200,000 to the final bill for new builds and even more for renovations. Meanwhile, experts say that change order approvals can still take three to six months from start to finish. In total, our research finds that change order approvals can add at least \$600,000 to a typical library capital project. With approximately 35 library projects in construction this year, and an aver-

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of delays for each change order and drive up expenses as progress grinds to a halt.

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In its March 2020 update to the strategic blueprint, DDC states that process improvements implemented in partnership with OMB have brought the processing period down by 60 days to a median of 31 days for public buildings in FY 2020—an impressive sign of progress. (However, delays stemming from the pandemic have pushed the median processing

age of three change order per project, these projects may incur change-order-related overruns amounting to \$63 million—more than enough to build a new library from scratch, even at current prices.

When a change order gets delayed, one senior agency official who has dealt extensively with the process described it as a “ripple effect that can add up quickly.” The delay in finalizing the work done by one trade ends up impacting whether another getting started. That means that on-site crews end up being paid to sit idle, and rental equipment bills pile up even as machines remain unused. Work may have to be redone, and shop drawings revised. In doing so, the pay periods for contractors, subcontractors, and designers may have to be extended, and fees renegotiated.

“And of course, if change orders become contentious, legal fees could be incurred,” says the official.

David Burney, the former DDC commissioner, says stagnation is embedded in the process. In private sector projects, contracts normally come with a 10 percent contingency, he says, to cover unforeseen conditions, which are commonplace in construction. “But the city doesn’t work that way,” he adds. Without the authority to spend money beyond the initial budget allocation in most cases, DDC is obligated to request additional funds through a change order, which OMB must approve. In some cases, staff turnover during lengthy construction projects has led OMB to assign budget analysts to projects for which they have little prior knowledge. “They take weeks and weeks to evaluate it,” Burney says. “Theoretically, the contractor is supposed to stop working until that change order is evaluated and approved.”

4. Projects still suffer from inadequate project management.

Project managers help guide a project through the city’s convoluted capital construction process while keeping all stakeholders aligned. But although some project managers proactively head off issues before they grow, others may lack the drive—or incentive—to fight hard for faster timelines and lower costs.

Although DDC has made significant strides since January 2019, experts with first-hand experience on current capital projects say that the agency still has room to improve on project management. A project manager is critical in pushing capital projects along, acting as both a representative of DDC and a liaison among the sponsor agency, oversight agencies, vendors, and other parties involved. Several sources who have worked on multiple DDC-managed projects in recent years say that project managers still too often struggle to help the sponsor agency overcome the hurdles posed by the city’s cumbersome process.

“My biggest frustration about DDC is with the project management staff. No one has any ‘oomph,’” says one senior official who has worked on dozens of DDC-managed projects. “There’s not enough professional desire to do it better, to do it right. They are

still stuck in their original process—and that process is misguided.”

On one recent project, a change order relating to concrete work had to be submitted to OMB for approval. An architect on the project says the project manager should have helped expedite the concrete changes by anticipating and troubleshooting issues between the contractor, architect, and OMB. Instead, the submissions were sent back from OMB to the sponsor agency eight times for additions and clarifications before approval.

In other cases, interventions by project managers can trip up projects unnecessarily. The Coney Island BPL branch renovation, which finished in January 2020, required a change to attach new supports to an existing beam and parapet in order to shore up the building’s strength. Among engineers and contractors, the addition was considered a simple fix and was signed off quickly. But DDC’s project manager held up the change, requesting a site visit and additional calculations. The quick fix ended up taking two weeks to complete, adding unnecessary delay to a common procedure.

“That’s just one occurrence—but across the timeline of a project, that might happen 10, 15, 20 times, and on bigger projects, that might happen 100 times,” says a manager involved with the renovation project. “So, weeks add up.”

The problem is most acute, sources say, when it comes to holding contractors accountable for subpar work—a too-frequent occurrence under the low-bid rules. One architect, who has worked on multiple DDC-managed projects, says that the reluctance of some project managers encourages bad behavior. “The city isn’t aggressive enough, so the contractors feel like they can get away with everything,” he says. “The contractors should be doing everything they can to move projects forward; not nickel and diming and being slow. I’m very frustrated that the city can’t enforce better quality.”

5. Libraries and cultural institutions lack the authority or capacity to self-manage more projects—and are restricted from using design-build and other alternative project delivery methods that can improve performance.

Libraries and other cultural institutions are occasionally allowed to self-manage capital projects, giving them more control over the process while cutting costs and project durations. But restrictive procurement rules and limited capital and expense funding prevent this effective approach from scaling up.

On certain capital construction projects, libraries and cultural institutions are permitted to self-manage the process. Our research finds that these projects—known as “pass throughs”—experience far fewer project delays and much lower costs. In fact, delays are reduced by 80 percent, and costs are two-thirds lower than on comparable city-managed projects, according to interviews with agencies, contractors, and engineers with direct experience on these projects.

These remarkable time and cost savings suggest that pass-throughs should be granted on even more projects. Doing so would require some changes to how these capital projects are funded, as today sponsor agencies may be obligated to commit funds up front to initiate a pass-through project or required to secure a match from private funding sources. In addition, sponsor agencies would need additional resources to hire support staff and expand in-house project management teams. But the results would likely be worth it.

“DDC needs to empower the client to lead the design process. It makes me more accountable,” says Iris Weinshall, chief operating officer of New York Public Library (NYPL). “We are beholden to DDC’s project managers and their schedules. When we’re manag-

ing, if we have issues, they can be resolved quickly.”

The Andrew Heiskell Braille and Talking Book Library on East 20th Street in Manhattan needed to replace five aging boilers. A front-end scope from DDC returned a \$2.2 million price tag and a multi-year project timeline. One official involved in the project says the in-house team deemed the situation too dire, and NYPL used its limited operating dollars—which require less oversight—to address the issue itself. The NYPL Facilities Department ended up completing the boiler work for less than \$400,000 and in just six months.

“We did it ourselves, and it took roughly one-fifth of the time that DDC management would’ve been,” says the library official.

By accepting city capital dollars, libraries and cultural organizations are limited in their ability to self-manage projects—an approach typically allowed only for smaller pass-through grants and interim branches—and to use alternative project delivery methods like design-build or construction-manager build. But changes to the state’s outdated procurement rules can change this.

QPL’s John Katimaris says expanding design-build authority—when the design and construction work is bundled—to more routine library building upgrades could result in significant savings. “Having a well-established design-build organization who’s been pre-qualified to take on targeted building systems projects such as replacing HVAC units or boilers would streamline the entire process,” says Katimaris. “That means saving time, reducing cost, and quite possibly freeing up manpower at DDC.”

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RECOMMENDATIONS

For the Next Mayor:

Make fixing the broken capital process a mayoral priority and a centerpiece of efforts to make city government more efficient in responding to crisis.

New York City's next mayor should seize the massive opportunity to fix the city's deeply flawed capital process, unleashing millions of dollars that currently go to waste to rebuild vital social infrastructure. Launching a full-scale reform effort is an immediate step the city can take to make government smarter and more cost-effective during this fiscal crisis—and ensure that limited city capital dollars stretch as far as possible. As the fallout from the pandemic strains vital social infrastructure including libraries, parks, and cultural institutions, cultivating an equitable recovery will require a new level of investment in these assets—even amid severe fiscal constraints. But this can only be accomplished by ensuring that limited capital dollars can stretch further and make a greater impact. As this report shows, simply leaving the responsibility to reform the capital process to DDC is not enough. Too many other parts of government need to initiate and follow through with bold reforms as well, and that's unlikely to happen without a significant and sustained push from the mayor. The next mayor should also send a clear signal to the next DDC commissioner that the agency's nascent capital reforms should continue and expand.

Create a new Deputy Mayor for Infrastructure and charge them with executing a reform process involving every agency in the capital project process.

DDC deserves significant credit for reexamining its processes and enacting reforms to the city's capital process. But the agency cannot go it alone: every single agency with a hand in the process—from OMB and the Comptroller's Office, to the libraries and mayoral agencies, to the Procurement Policy Board, Fire Department, Department of Buildings, and Public Design Commission—should produce similar blueprints of action that identify sources of delay and redundancy and implement concrete steps to address them. To ensure that this interagency effort is successful, Mayor de Blasio or his successor should create a new Deputy Mayor of Infrastructure position in City Hall and charge them with developing and executing a full-scale reform effort across government. Using DDC's strategic blueprint as an example, a larger citywide master plan should be formed, comprised of agency-specific reform plans and a wider effort to coordinate legislation at the city and state level that will support the goal of vastly improved project delivery.

For State Legislators:

Pass legislation to expand procurement options and reform the low-bid requirement.

No policy change will likely do more to reduce project delays and costs on city capital projects than reforming the state law mandating that publicly funded capital projects select the lowest bidder through a design-bid-build process. As this report concludes, these rigid requirements cost the city at least \$100

million a year. Mayor de Blasio—and his successor—should make reforming the antiquated provisions of General Municipal Law 103 a key state legislative priority. State legislators and the governor should support efforts to revamp the law through legislation that allows a wide range of industry best practice procurement models, including construction-manager build and CM at-risk models; authorizing a full range of design-build practices; and allowing best-value contracting. Though perhaps counterintuitive, experts say the city can save millions of dollars that are wasted when work by subpar contractors has to be redone or bid out again, causing significant delays and major overruns.

For City Agencies & Sponsors:

Expand agency efforts to reform the overly bureaucratic change order approval process.

Of all things that can be addressed solely by city government, reforming the change order approval process would have the greatest impact. This will require a continued push from DDC, and a new level of commitment from OMB, to embrace reforms to change order approvals. The two agencies must build upon the significant progress made in coordinating their efforts by codifying interagency coordination into practice, so no change order delays a project indefinitely. This means expanding the highly promising Expanded Work Allowance pilot—overseen by DDC, OMB, and the Comptroller’s Office—to all DDC-managed projects and to projects managed by other capital agencies, such as the Department of Parks and Recreation, as well as growing the “expense pot” allocated to cover costs ruled capitolly ineligible to avoid costly delays.

Create a dedicated interagency inspection team to streamline inspections performed by multiple oversight agencies.

In addition to the major role played by DDC, OMB, the Comptroller’s Office, and the mayoral offices, several other agencies contribute to lengthy delays through staggered, uncoordinated inspections and approvals. Mayor de Blasio—or his successor—should create a single, dedicated interagency inspection team to streamline these approvals, including the Fire Department, Department of Buildings, and other agencies where mandated.

Train and empower project managers to be much more proactive with sponsor agencies and contractors.

DDC should make significantly more progress in improving the performance of its project managers, who are critical to delivering projects on time and within budget. This report finds that too many of its project managers fall short when it comes to enforcing deadlines, navigating the approvals gauntlet, dealing with subpar vendors, and anticipating problems at other agencies before they occur. While the agency has already taken steps to train and coach its project management teams, more can be done.

DDC should ensure that candid feedback from sponsor agencies and vendors is considered through post-project assessments with architects, designers, contractors, and clients; in recent years, less than half of eligible projects completed post-construction surveys, which could help guarantee collaborative accountability. Post-construction satisfaction has also wavered around 50 percent or lower in that same timeframe. Furthermore, the agency should see that project managers receive consistent professional development on modern software tools and innovative management techniques; and that senior leaders are creating a culture in which project managers are expected to serve as the sponsor agency’s fiercest advocate.

Give libraries authority to self-manage a greater share of capital projects—and support them through a toolbox of build options.

When given the chance, sponsor agencies like libraries and cultural institutions can complete capital projects at a fraction of the time and cost of comparable DDC-managed projects. This results from sponsor agencies having a tighter grip over procurement and construction, with greater authority to push the process forward—or change vendors if results are lacking. However, sponsor agencies are currently allowed to self-manage only a small number of projects and lack the staffing and capacity to do more. Elected officials, including the next mayor, the five borough presidents, and members of the City Council can reap the rewards of more efficient capital projects by supporting increased expense funding for sponsor agencies. This funding can be used to plan and commence new projects outside of the city’s capital program, which will require additional staff, and to maintain enough cash on hand to keep projects on track when new costs arise, like building conditions that necessitate change orders or costs that stem from process-related delays.

With design-build authority extended to more DDC-managed projects as of January 2020, an equal effort should be made to provide sponsor agencies with a toolbox of alternative delivery options, like design- and construction-manager-build, for their own projects. Doing so would require state legislation to clarify these rules and expand use of these tools, as well as new guidance from OMB and the Comptroller’s Office.

Encourage sponsor agencies to commit to a project scope and budget at the outset of a capital project—and allocate sufficient expense and capital funding to ensure that long-term capital planning is possible.

New public buildings and major renovations are often funded piecemeal, with total project budgets cobbled together from a mix of mayoral, City Council, and private sources—often over the course of several years. At the same time, sponsor agencies have too often changed course during the design phase of a major project, broadening the scope and adding new elements long after a project is first initiated. These factors combine to extend project timelines and drive up costs, complicating the efforts of DDC and other agencies to improve project delivery.

As part of a citywide reform effort, sponsor agencies should commit to a project scope at the beginning of a major capital project and resist amending the scope whenever new funding is made available. City leaders can help ensure that this happens by including libraries and cultural institutions in a comprehensive capital budget that meets the real infrastructure needs of these institutions over the next ten years—including nearly \$1 billion in documented, unmet needs at the libraries alone. In addition, the mayor and City Council should increase expense funding for libraries to build in-house capacity to self-manage capital projects. Expense dollars invested in this way will generate a significant return for New Yorkers, as capital costs are up to two-thirds lower when libraries have the ability to manage their own projects—meaning more projects can be completed with the same capital funding.

ENDNOTES

1. Center for an Urban Future analysis of data from the New York Building Congress' 2020 "Construction Costs" report. Available at: <https://www.buildingcongress.com/advocacy-and-reports/reports-and-analysis/construction-outlook-update/Construction-Costs.html> [Accessed 17 Sep. 2020]. Estimated cost of new construction derived from public reports on the total budget for the recently completed Greenpoint branch library, which cost approximately \$1,533 per square foot to build. Other new ground-up buildings, such as the Rego Park branch library, are projected to cost even more.
2. Data from the NYC Department of Parks and Recreation Capital Project Tracker. The total cost of constructing a new comfort station with facilities for use during Little League at Marcus Garvey Park in Harlem is \$3,871,000.
3. Center for an Urban Future analysis of data on DDC-managed projects.
4. Center for an Urban Future and Citizens Budget Commission, *Slow Build*, 2017, by Eli Dvorkin, Maria Doulis, and Jonathan Bowles. Data is for median new library and cultural project, based on our analysis of 144 capital projects for libraries and cultural organizations that were managed by the city's Department of Design and Construction (DDC) and completed between fiscal years 2010 and 2014.
5. Citizens Budget Commission (2019). *Cut Costs, Not Ribbons* | CBCNY. [online] [cbcny.org](https://cbcny.org/research/cut-costs-not-ribbons). Available at: <https://cbcny.org/research/cut-costs-not-ribbons> [Accessed 22 Oct. 2020].
6. Center for an Urban Future, *Slow Build*, April 2017, <https://nycfuture.org/research/slow-build>
7. Reuven Blau and Sandoval, G. (2019). *Never-ending Story: Brooklyn Library Revamp Drags 14 Years*. [online] THE CITY. Available at: <https://www.thecity.nyc/2019/8/19/21210867/never-ending-story-brooklyn-library-revamp-drags-14-years> [Accessed 17 Sep. 2020]



Center for an Urban Future

120 Wall Street, Floor 20

New York, NY 10005

This report and all other publications issued by the Center for an Urban Future can be viewed at www.nycfuture.org. Please subscribe to our monthly email bulletin by contacting us at cuf@nycfuture.org or (212) 479-3344.