AUGUST 2020

BRIDGE THE DIP:

The Advantages of Proactive, Countercyclical Infrastructure Policy

MADRUS

"BRIDGE THE DIP": THE ADVANTAGES OF PROACTIVE, COUNTERCYCLICAL INFRASTRUCTURE POLICY

As state and local governments face unprecedented challenges in the face of COVID-19 and its accompanying recession, they also have an opportunity to utilize recession dynamics to address existing infrastructure challenges. One potential silver lining is the once-in-a-generation opportunity to improve the quality of the nation's infrastructure by taking advantage of the dip in infrastructure costs, higher workforce quality, and the potential for economic returns brought about by the current economic climate.

Governments face significant fiscal constraints as the major downturn curtails revenues, limiting public funding available to finance large capital projects. However, there are a number of strategies governments can deploy to prevent undue disruption in their plans to deliver better infrastructure. Indeed, with a thoughtful approach to procurement frameworks, governments can bypass fiscal constraints to realize the benefits that accrue to projects developed during a recession by strategically utilizing private capital to finance the early development stage of projects to avoid disruptions in the delivery of essential infrastructure. In addition to creative thinking about the utilization of private capital, governmental owners of infrastructure should advocate for long-term changes in the way projects are delivered. Now is the time to remove or simplify needless constraints on our nation's ability to build for the future, including unduly cumbersome processes for project planning and permitting, unhelpful regulatory requirements, and antiquated constraints on infrastructure financing tools.

During economic crises, governments understandably are subject to the "tyranny of the urgent," which deprives them of the ability to devote resources to developing important plans for the future. While there are urgent matters that must be addressed in the COVID-19 recession, with a modest amount of effort, state and local policymakers can also position themselves to benefit from the coming "dip" – i.e., take advantage of better material costs, more qualified labor, and lower financing costs. In addition to cost savings, sound infrastructure investment will also help accelerate our nation's exit from the recession by creating jobs, providing job training opportunities, improving future productivity, and providing the infrastructure that is conducive for future economic growth.

This report details the benefits of "bridging the dip" and discusses how such a strategy might be implemented. Notwithstanding the multitude of challenges presented by the pandemic, policymakers can still position the nation for long-term economic growth by executing countercyclical infrastructure policy.

SILVER LININGS: THE BENEFICIAL EFFECTS OF RECESSIONS ON INFRASTRUCTURE

The concept of countercyclical investing in assets during a recession when they are relatively less expensive is well-understood in finance, embodied by the phrase "buy the dip". [1] However, the concept

[1] Cory Mitchell, "Buy the Dips," *Investopedia* https://www.investopedia.com/terms/b/buy-the-dips.asp

has not been fully explored when it comes to infrastructure investment. This is perhaps because of the association of infrastructure spending with job creation or broader economic goals during recessionary periods, rather than focusing on the improved value of the infrastructure investment itself.

State and local governments seeking to boost growth and improve the quality of their infrastructure should seize on this concept — which we call "Bridge the Dip"— by proactively enacting countercyclical infrastructure policy. In basic terms, countercyclical policy entails governments maintaining (or potentially increasing) infrastructure investment and project delivery to take advantage of cost savings and other benefits that can be realized by investing as the business cycle declines and reaches its nadir.

The benefits of immediate action at the outset of a recession compared to halting project development until the recovery has begun are manifold. Governments that forge ahead with projects can reap the following advantages:

- Lower construction costs
- Lower operating and maintenance costs
- Lower cost of capital
- Greater expertise and workforce quality

Together, these benefits serve to generate considerable savings for state and local governments while mitigating the economic costs of inadequate infrastructure (think of school buildings or courthouses in need of constant repair). The objective of a proactive countercyclical infrastructure policy is to advance procurement and development activities so that the public sector is positioned to take advantage of these benefits.

This section will detail the dynamics driving the benefits of deliberately timing infrastructure investment.

Lower Capital Costs

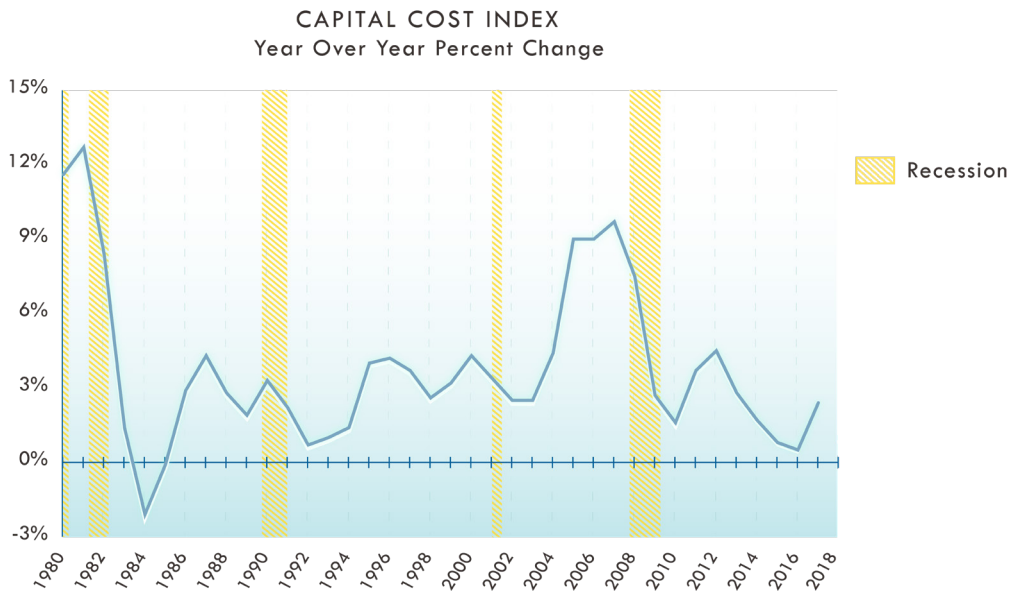
In addition to the economic potential of countercyclical infrastructure spending, former Federal Reserve Chairman Ben Bernanke recognized the cost advantages of countercyclical investment in 2010: "Maintaining or even increasing the pace of infrastructure construction when the economy is weak fosters economic development and provides local jobs, and it may even allow the state to get more bang for the buck because of increased competition among private contractors when demand is slack."[2]

Data detailing infrastructure construction costs indeed show lower cost growth during and immediately following recessionary periods than during expansionary periods. As shown in Figure 1, growth in the Congressional Budget Office's (CBO) infrastructure-specific capital cost index slows dramatically during and immediately following recessionary periods, producing significant comparable savings for

[2] Ben Bernanke, "Challenges for the Economy and State Governments," August 2, 2010, https://www.federalreserve.gov/newsevents/speech/bernanke20100802a.htm

well-timed projects that take advantage of the drop. In the last recession, the growth in construction costs slowed approximately 9% from the pre-recession highs.

FIGURE 1



Source: Congressional Budget Office, "Public Spending on Transportation and Water Infrastructure, 1956 to 2017," October 15, 2018, https://www.cbo.gov/publication/54539

While the CBO's analysis of infrastructure spending does not explicitly detail the reasons for these declines, the concept is intuitive to understand. Reduced demand for resources such as construction materials (e.g., concrete and steel) during a recession equates to reduced price growth. Similarly, wage inflation is suppressed due to reduced demand.

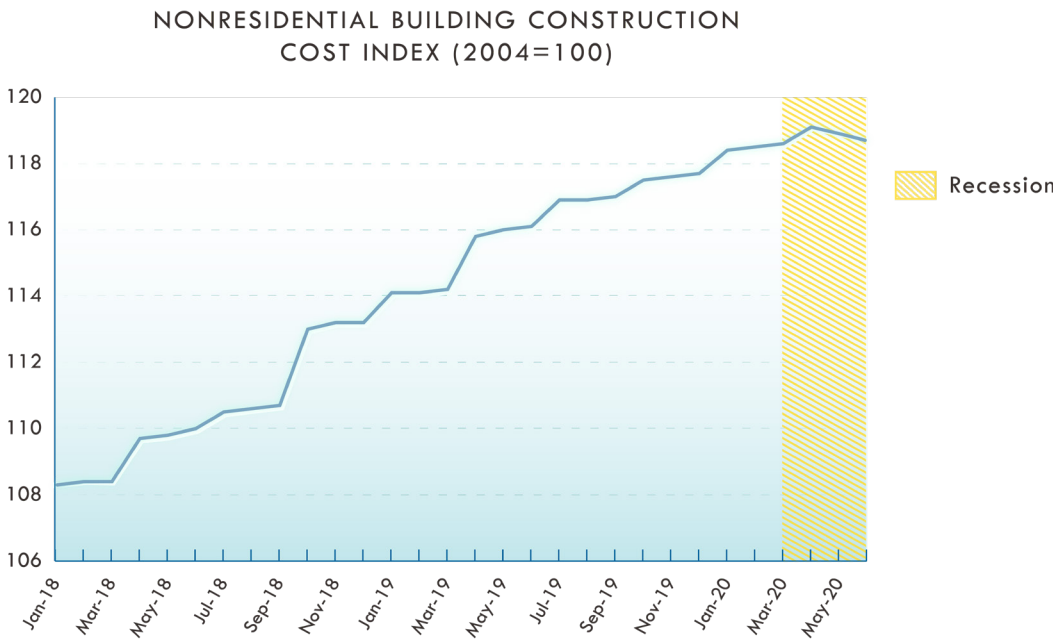
These trends are already becoming apparent during the current recession. Figure 2 depicts a cost index for nonresidential building construction assembled by the Bureau of Labor Statistics. While costs have increased by nearly 20% between 2014 and 2020, preliminary data for April through June 2020 show a decline in construction costs, the first such decline since 2016.

EFFICIENT EXECUTION:

In addition to affecting material costs, recessionary periods provide other benefits that can make infrastructure development more affordable. Frequently, infrastructure construction must be undertaken while the asset is in use. When user demand for infrastructure drops, construction on projects can advance more quickly and efficiently. This is likely to be especially the case during the COVID-19 recession, in which quarantine restrictions lessen use of infrastructure. For instance, undertaking capital improvements on social infrastructure assets, such as public office buildings, court houses, and educational facilities can proceed throughout the business day, expediting projects as the facilities' functions are conducted virtually and the normal occupation of buildings is significantly lower during business hours.

A similar dynamic is taking place on our highways. Maintenance of Traffic (MOT) seeks to minimize the impact of a road project on traffic and travel times for projects in congested or dense environments. MOT can comprise a significant share of project costs, ranging from a few percentage points to over 20 percent for highway projects. When there is less traffic in a recession due to lower travel demand, executing traffic management is less complex and provides DOTs with more flexibility, allowing projects to move more quickly and inexpensively.

FIGURE 2



Source: Bureau of Labor Statistics, Producer Price Indexes, https://www.bls.gov/ppi/

Lower Operations and Maintenance Costs

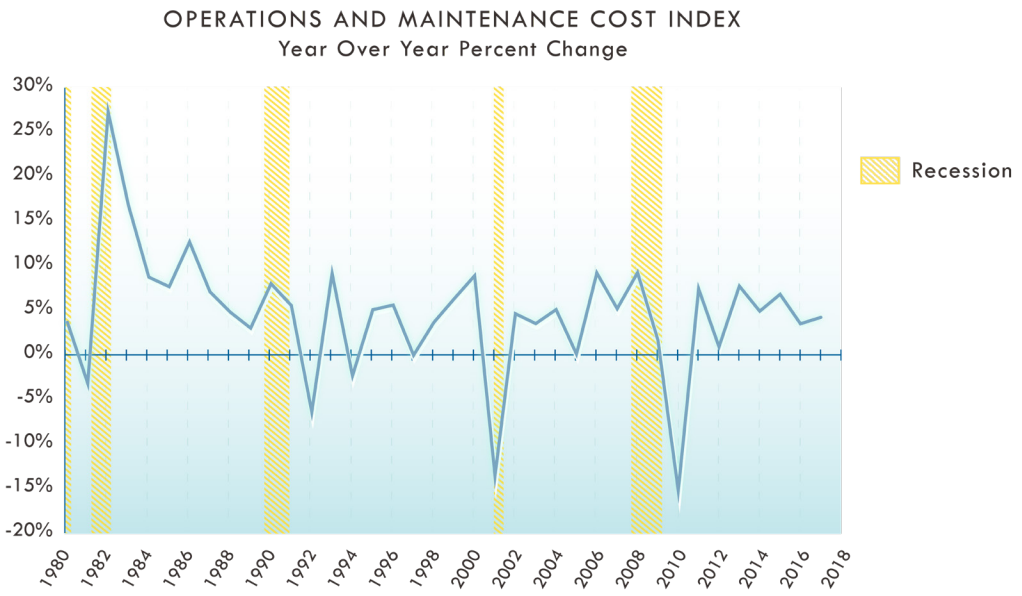
Maintenance costs tend to benefit from similar phenomena. While much of the focus on infrastructure delivery is centered on capital project costs, operations and maintenance costs can be more significant for certain assets when considering full life-cycle costs.[3] Thus, governments can benefit significantly over the long term by taking advantage of lower operations and maintenance costs available around recessionary periods.

As illustrated in Figure 3, operating and maintenance costs often can experience steep drops in the vicinity of recessionary periods, although the timing of such drops relative to the recession is less certain. (Note the large spike in costs during the 1980-1982 recessions is likely due to the high price of oil, which reached a record peak in the early 1980s, increasing prices economy-wide and likely causing these recessions).[4] In the last recession, the CBO's operating and maintenance cost index not only slowed, but fell dramatically, experiencing up to 15% year-on-year reduction. Similar to demand for construction materials and labor, the demand for operation and maintenance materials, equipment, and labor is reduced during a recession and for a period thereafter during the recovery, but the impacts on operations and maintenance cost can be much more pronounced.

[3] Peter Cholakis, "Operation & Maintenance Planning," Whole Building Design Guide, December 5, 2017, https://www.wbdg.org/facilities-operations-maintenance/operation-maintenance-planning; Darrell Rounds, "Design For Maintainability: The Importance Of Operations And Maintenance Considerations During The Design Phase Of Construction Projects," Whole Building Design Guide, August 1, 2018, https://www.wbdg.org/resources/design-for-maintainability

[4] See Lutz Kilian and Robert J. Vigfusson, "The Role of Oil Price Shocks in Causing U.S. Recessions," Board of Governors of the Federal Reserve System *International Finance Discussion Papers*, Number 1114, August 2014, https://www.federalreserve.gov/pubs/ifdp/2014/1114/ifdp1114.pdf.

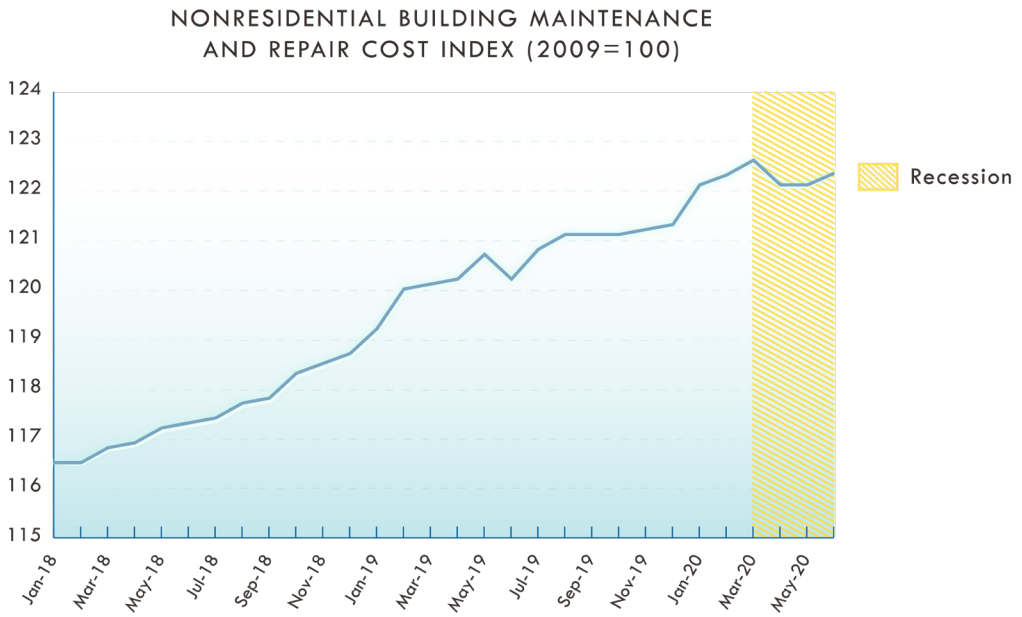
FIGURE 3



Source: Congressional Budget Office, "Public Spending on Transportation and Water Infrastructure, 1956 to 2017," October 15, 2018, https://www.cbo.gov/publication/54539

Today's recession appears to already feature such a decline in maintenance prices. As illustrated in Figure 4, recent data tracking the cost of nonresidential building maintenance and repair show a decline in prices beginning in March 2020, following an increase of more than 22% since 2009.

FIGURE 4



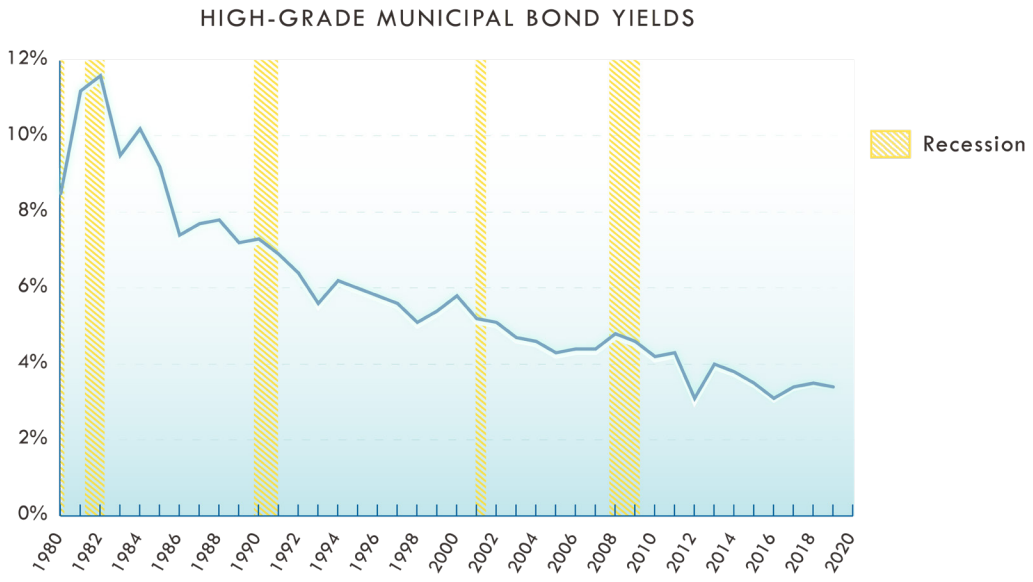
Source: Bureau of Labor Statistics, Producer Price Indexes, https://www.bls.gov/ppi/

Thus, maintenance projects that are initiated during today's recession will likely experience lower costs. Similarly, capital projects completed quickly during or immediately after the recessionary period will benefit from lower initial operating and upkeep costs than those that are completed during expansionary periods.

Lower Cost of Capital

In addition to lower project and maintenance costs, investing in infrastructure during a recession can also result in financing savings. The current recessionary environment presents highly favorable conditions for borrowing, allowing governments to minimize the cost of capital used to finance infrastructure investments. Recessions generally have not impeded the decades-long decline in interest rates, which have recently sunk to historic lows. Figure 5 depicts the steady decline in interest rates for state and local borrowers issuing high-grade municipal bonds since the early 1980s.

FIGURE 5



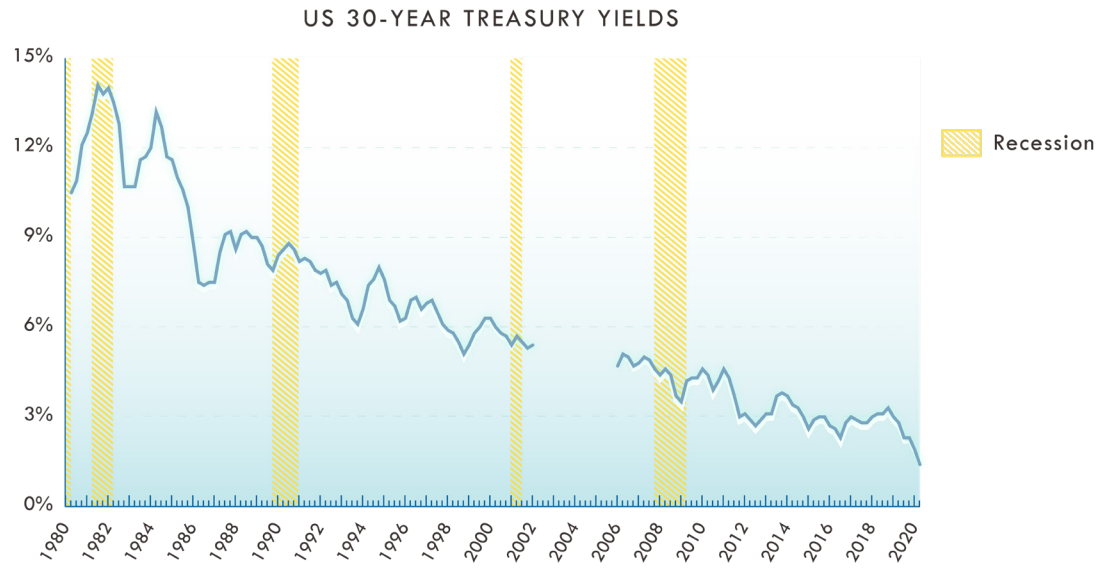
Source: Council of Economic Advisors, Economic Report of the President, Table B-41 https://www.govinfo.gov/app/collection/erp/2020

Building on this decline, the COVID-19 recession has dropped municipal bond yields to among the lowest ever. As anticipation of the pandemic began to spread in February 2020, municipal bond yields had fallen to a 38-year low of 1.6% for 30-year bonds.[5]

Similarly, the federal borrowing rate, to which interest rates for federal infrastructure lending programs such as TIFIA are pegged, has fallen to historic lows and appears to continually decline during and immediately following recessions (see Figure 6).

[5] Heather Gillers, "Rush to Invest in Municipal Debt Pushes Yields to Record Lows," *Wall Street Journal*, February 26, 2020, https://www.wsj.com/articles/rush-to-invest-in-municipal-debt-pushes-yields-to-record-lows-11582713001

FIGURE 6



Note: 30-year Treasury Bonds were discontinued between February 18, 2002 and February 9, 2006.
Source: Fed FRED, https://fred.stlouisfed.org/series/DGS30#0

Again, this trend appears to have been exacerbated during the current recession. The interest rate for 30-year TIFIA loan has fallen significantly, dipping below 1.0% on March 9, 2020, and having only climbed to roughly 1.5% by June.[6]

These rock-bottom rates, representing the recent low point of a 40-year decline of interest rates, present a tremendous opportunity for state and local governments to inexpensively finance long-term infrastructure investments.

Higher Labor Quality

In addition to benefitting projects by lowering the relative price of inputs, recessions can generate more subjective benefits. A less measurable benefit accruing to infrastructure projects deliberately proceeding during a downturn is the ability to access top talent as the market slows. As Chairman Bernanke stated previously, governments can realize better "bang for buck" because of stiff competition when demand is low.[7] With fewer projects available, the projects that do move forward will tend to have more market power as firms put forward their best talent to generate business during slow times. In essence, governments that proceed with projects are more likely to be able to pick an "A-Team" as various firms compete to acquire work in the soft market.

Construction firms in particular are more likely to retain their best workers and market them for projects during a recession. Indeed, construction consulting firm FMI noted that firms took significant steps to

[6] Build America Bureau, https://www.transportation.gov/buildamerica/

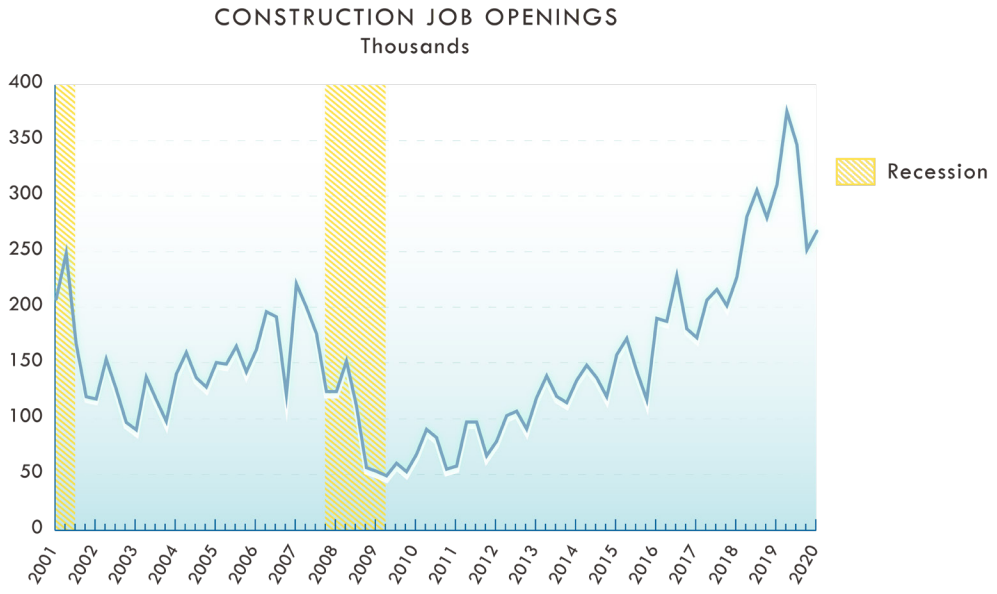
[7] Ben Bernanke, "Challenges for the Economy and State Governments," August 2, 2010, https://www.federalreserve.gov/newsevents/speech/bernanke20100802a.htm

retain their best employees while reducing their workforce during the Great Recession: "Although some were forced to reduce pay, decrease benefits, and cut back on learning and development, most firm owners took substantial hits to their equity as a trade-off to keep talented employees from suffering loss of jobs and benefits, as well as the security and esteem of holding a steady position. Owners making these difficult decisions justified the cost with the need to have qualified staff when the markets picked back up." [8] This suggests that firms take significant effort to ensure their most qualified employees are available to compete for and take on projects during a recession, which yields tremendous value to outcome certainty and much higher efficiency for projects performed during a recession.

One quantifiable metric that could be considered a rough indicator of significant market competition and a higher quality workforce is the number of job openings available in the industry. Firms cease hiring new workers and shed existing personnel in response to lower demand during a recession. Figure 7 shows the slowing construction labor market during economic slowdowns, indicating the market bottoms out towards the end of recessions. The steady increase in demand for construction labor since 2012 drove a labor resource shortage in 2019 that exceeded the 2007 peak by more than 60%.

Projects that forge ahead during a recession would be able to take advantage of these dynamics, enabling them to utilize the most talented supervision and workers before business recovers and demand resumes.

FIGURE 7



Source: Bureau of Labor Statistics, Job Openings and Labor Turnover Survey

[8] FMI Corporation, "You Kept Your Employees During the Great Recession: Now You Owe Them?" *FMI Quarterly*, September 1, 2013, https://www.fminet.com/fmi-quarterly/article/2013/09/you-kept-your-employees-during-the-great-recession-now-you-owe-them/

Quantifying the Economic Impacts of Countercyclical Investment

Coupled with access to the best workers, lower costs of construction, maintenance, and financing present significant advantages to governments who proactively act to "bridge the dip" with infrastructure projects. To illustrate these effects, compare the basic Net Present Value (NPV) of a $300 million availability-based[9] public-private partnership (P3) courthouse project under countercyclical conditions and expansionary conditions. This hypothetical example assumes the project can reduce construction costs by 10% (to $270 million) when delivered in the recession due to lower materials, labor, and soft costs and a higher quality team, as well as a reduction in interest rates from 5% to 4%. The overall cost (NPV of the availability payments, calculated with a discount rate of 5%) of the countercyclical project is $382 million, compared to the $464 million for the project delivered in an expansionary market. The overall savings from acting during recession in this example amount to nearly 20% of the project's total costs on a NPV basis.

Compared to the savings seen during the last recession, the assumptions used in this example are conservative.[10] Nevertheless, the example still illustrates the incredible value governments can capture by implementing a countercyclical infrastructure policy.

THE BENEFITS OF COUNTERCYCLICAL PROJECT TIMING: AN ILLUSTRATIVE EXAMPLE

PROJECT TIMING IN BUSINESS CYCLE	EXPANSIONARY	COUNTERCYCLICAL
Project Cost	$300 million	$270 million (-10%)
30 Year Interest Rate	5.0%	4.0% (-100bps)
Total Project Cost (NPV) [11]	$464 million	$382 million
Countercyclical Savings	____	$82 million (18%) [12]

In addition to these tangible savings on specific projects, advancing projects more quickly eliminates the future costs imposed on society by inadequate infrastructure. Repair costs and challenges caused by failing water systems, crowded public hospitals, or inadequate transportation infrastructure reduce economic activity and lower productivity. During a recession, governments often suspend or delay projects that address these societal costs, in effect worsening their magnitude as they are prolonged into future years when costs and risks of delivery are much higher and urgent.

[9] The availability payment model includes the design, construction, operations, and maintenance of the project over a 30-year term.

[10] Assumptions also exclude any operations and maintenance and lifecycle cost savings that can be realized for project developed during economic contractions.

[11] Net present value calculated using a discount rate of 5%.

[12] Of these savings, $35 million are derived from construction savings and $47 million from financing.

The broader societal impact of delaying critical infrastructure projects by several years is significant. One study conducted by engineering firm HDR found that delays in water projects decrease the societal value of each dollar invested by 37 cents per year for new construction and 17 cents per year for rehabilitation projects. The study concludes: "this suggests that a delay of three years in a construction project effectively doubles the social cost."[13] A broader study on the impact of permitting delays across all types of infrastructure—including the energy sector—estimates that a six-year delay in the construction of public projects costs the nation over $3.7 trillion from higher construction costs, lost economic activity, and greater levels of pollution (although some analysts have questioned the magnitude of this estimate).[14]

In sum, governments can generate significant, broad-based economic gains by forging ahead with infrastructure projects during a recession. Acting proactively allows them to capitalize on project-level savings while boosting employment levels; eliminating future costs associated with inadequate infrastructure; and lowering the disruption costs of infrastructure projects by shifting projects into periods of lower economic activity. In short, governments looking to maximize the value of public spending and stewardship of taxpayer dollars should prioritize infrastructure during economic downturns. The following section will detail how governments can do so despite current economic hardships.

STRATEGIES TO REALIZE BENEFITS OF INFRASTRUCTURE EXPANSION WHILE FACING FISCAL CONSTRAINTS

While the benefits of pursuing countercyclical infrastructure policies are evident, a critical challenge to realizing these benefits lies in other implications recessions have for state and local governments, namely the imposition of significant fiscal constraints. As economic activity declines, current and projected revenues fall, limiting governments' capacity to develop and fund long-term capital projects.

By most measures, the fiscal effects of COVID-19 have been dramatic. US Gross Domestic Product (GDP) contracted at an annualized rate of 4.8% in the first quarter of 2020[15] (which included pre-COVID-19 economic activity in January and February), while the unemployment rate surged to 14.7% by April.[16] CBO projections for the second quarter estimate a far worse impact: a decline in GDP of

[13] National Waterways Foundation, "Cost of Project Delays," June 2012, http://www.nationalwaterwaysfoundation.org/study/HDRstudy.pdf

[14] Philip K. Howard, "Two Years Not Ten Years: Redesigning Infrastructure Approvals," Common Good, September 2015, https://static1.squarespace.com/static/5db4d0eacb29b173254203d2/t/5ee3a6f2072df850bd9a0aa3/1591977716039/ 2YearsNot10Years.pdf;
Kevin DeGood, "Debunking the False Claims of Environmental Review Opponents," Center for American Progress, May 3, 2017, https://www.americanprogress.org/issues/economy/reports/2017/05/03/431651/debunking-false-claims-environmental-review-opponents/

[15] Council of Economic Advisors, "An In-Depth Look at COVID-19's Early Effects on Consumer Spending and GDP," April 29, 2020, https://www.whitehouse.gov/articles/depth-look-covid-19s-early-effects-consumer-spending-gdp/#:~:text=BEA%20estimates%20that%20real%20GDP,first%20decline%20in%20six%20years.&text=This%20drop%20in%20GDP%20serves,in%20response%20to%20COVID%2D19.

[16] Eli Rosenberg and Heather Long, "Unemployment rate drops and 2.5 million jobs added, after states reopened," *Washington Post*, June 6, 2020, https://www.washingtonpost.com/business/2020/06/05/may-2020-jobs-report/

roughly 40% on an annualized basis.[17] State and local revenues are expected to decline between 10% to 25% for fiscal years 2020 and 2021.[18]

The effect of these fiscal constraints on infrastructure is already palpable. State Departments of Transportation are facing estimated revenue declines of 30%, leading many states to cancel major infrastructure projects.[19] At the local level, a survey of municipal governments reveals that 65% of municipalities are canceling or delaying capital expenditures.[20] While many governments are looking to the federal government to provide infrastructure funding as a fiscal stimulus, policymakers have remained divided on the issue thus far and face significant political hurdles to passing a large, bipartisan bill in a presidential election year.[21]

While these fiscal constraints are very real, they do not have to cause infrastructure projects to grind to a halt at the very moment it is most advantageous to pursue them. Governments should also resist the urge to wait for federal funding before developing projects. Instead, state and local governments can employ the following strategies to get infrastructure projects up and running while facing budgetary constraints:

- Considering the use of private capital to fund project planning and permitting costs
- Streamlining current processes for delivering infrastructure
- Requesting flexibility from the federal government to allow federal funds to be used for most important projects, regardless of asset class
- Exploring creative financing options such as the Federal Reserve's Municipal Lending Facility and other experimental tools to increase fiscal resources and maintain project management capacity
- Readying projects to take advantage of a sudden federal stimulus push for "shovel ready projects"

[17] Phil Swagel, "CBO's Current Projections of Output, Employment, and Interest Rates and a Preliminary Look at Federal Deficits for 2020 and 2021," Congressional Budget Office, April 24, 2020, https://www.cbo.gov/publication/56335

[18] Jeffrey Clemens and Stan Veuger, "Implications of the Covid-19 Pandemic for State Government Tax Revenues," National Bureau of Economic Research, June 2020, https://www.nber.org/papers/w27426; Center for Budget and Policy Priorities, "States Grappling With Hit to Tax Collections," June 30, 2020, https://www.cbpp.org/research/state-budget-and-tax/states-grappling-with-hit-to-tax-collections; Jared Walczak, "Designing a State and Local Government Relief Package," Tax Foundation, May 12, 2020, https://taxfoundation.org/state-and-local-relief-package-coronavirus-relief-fund-cares-act

[19] Joe Deaux,"While Washington Dithers, States Put Infrastructure Spending on Ice," *Bloomberg Businessweek*, June 18, 2020, https://www.bloomberg.com/news/articles/2020-06-18/without-aid-states-are-canceling-infrastructure-projects; Bart Jansen, "Coronavirus cuts transportation funding, puts major road and bridge projects on hold," *USA Today*, May 4, 2020, https://www.usatoday.com/story/news/politics/2020/05/04/coronavirus-transportation-officials-urge-feder-al-aid-roads-bridges/3005467001/

[20] National League of Cities, "Canceled Infrastructure Projects, Furloughs and Economic Ripple Effects: NLC Survey Shares Latest Financial Impacts of COVID-19," June 23, 2020, https://www.nlc.org/article/canceled-infrastructure-projects-furloughs-and-economic-ripple-effects-nlc-survey-shares

[21] Jacob Greber, "Why Trump's latest $1.45trn infrastructure plan might succeed," *Australian Financial Review*, https://www.afr.com/world/north-america/why-trump-s-latest-1-45trn-infrastructure-plan-might-succeed-20200617-p553e5

This section will detail how state and local governments can pursue each of these strategies to forge ahead with infrastructure projects in the face of recessionary challenges.

Harness Private-Sector Capital and Expertise to Move Projects Forward During the Recession

The private sector can be a valuable partner in delivering infrastructure in normal economic times, allowing for governments to take advantage of innovative project delivery, up-front financing, and life-cycle cost optimization. Furthermore, analysis from the Congressional Budget Office shows that the cost of private capital, when adjusted for project delivery risks, is essentially the same as the cost of government capital.[22]

> *"In general, the overall cost of private financing is similar to that of public financing when interest rate subsidies, the cost of risk, and transaction costs are accounted for…. Even though the interest rates on tax-exempt municipal bonds are relatively low, ultimately the cost of the private financing itself is roughly equal to the cost of public financing…."*
>
> CBO Report on Public-Private Partnerships for Transportation and Water Infrastructure – Jan. 2020

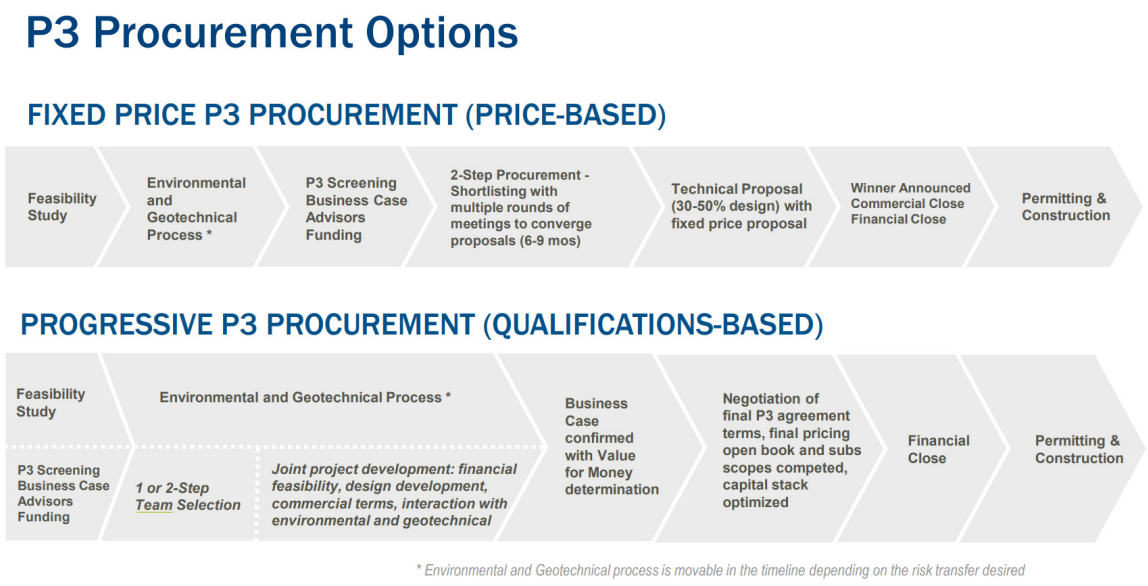
The value proposition of private participation becomes even greater during recessions when government budgets are tight. This is because governments can shift early development costs to private partners to alleviate the immediate liquidity issues facing state and local governments advancing a critical infrastructure project. This strategy allows the public sector to use the private partners to bear the up-front cost of moving projects ahead—getting them "shovel ready"—so the project is ready to proceed once budgetary trends become more certain or funding is acquired.

Leveraging Pre-Development Agreements to Expedite Projects

A key tool for governments wishing to take advantage of the private sector's willingness to carry early-stage project costs is the Pre-Development Agreement (PDA). PDAs can be a powerful tool to allow for the progressive development of certain projects that exhibit high levels of uncertainty around the project's potential scope and commercial structure and the need for optimization of scope, design, and capital costs. PDAs allow for the project to be developed in an ongoing, collaborative environment, as opposed to a typical, often adversarial fixed-price P3, in which the government solicits proposals that lock in aspects of design and a fixed cost. These different approaches are detailed in Figure 8 below:

[22] Congressional Budget Office, "Public-Private Partnerships for Transportation and Water Infrastructure," January 20, 2020, https://www.cbo.gov/publication/56044

FIGURE 8



Source: Association for the Improvement of American Infrastructure

The high level of collaboration between the public and private partners under a PDA enables the optimization of design as the project progresses, faster project development, and the opportunity to better understand and optimize risk transfer and the associated commercial structure.[23] Because risk inherently drives the cost of capital and cost of the project, the goal during the PDA should be to collaboratively eliminate risk through the skillsets and resources of both the private and public partners prior to finalizing contract and financing terms, rather than simply accepting or transferring risk, which often is the outcome in a traditional fixed-price procurement.

While the advantages to developing a project under a PDA are substantial, an element that is especially advantageous during a recession is the allocation of early-stage costs to the private sector, which also expedites the project timeline. As the U.S. Department of Transportation describes, "in some cases developers are willing to perform the preliminary engineering at a partially deferred cost, at risk, and with full payment at financial close. At the end of the planning process, the project is more likely to be bankable, obtain debt financing, and reach close of finance. By working collaboratively, both parties can obtain a better understanding of the project's risk profile and have the opportunity to develop more effective risk mitigation strategies."[24] While the government maintains the right to terminate the agreement as the developer carries out pre-development activities, it will be responsible for reimbursing the private partner for third-party pre-development expenses, such as design, geotechnical and environmental due diligence, and permitting activities.

[23] Association for the Improvement of American Infrastructure: Progressive Development Overview

[24] U.S. Department of Transportation, "Early Involvement of Private Developers in the Consideration of Long-Term Public Private Partnership Concession Options: A Discussion Paper," February 2017, https://www.fhwa.dot.gov/ipd/pdfs/p3/early_involvement_private_sector_p3s.pdf

As a result, a PDA allows the project to move ahead with early development stages at little to no initial cost for the public partner—a key advantage in periods of budgetary constraints. One case study of the benefits of this approach is the construction of the Travis County Courthouse in Austin, Texas. The project was progressively developed via a PDA, under which the developer funded the $7 million of pre-development costs through financial close. Delivering the project via a PDA reduced the overall project costs by roughly 15% and delivery by 18 months compared to traditional delivery methods.[25] Regarding the delivery method, the private partner summarized: "The beauty of this progressive design-build delivery is that the parties were able to advance the critical path of the project at the developer's risk without issuing debt or financially committing the County to the project until it was completely satisfied that it had achieved its design, cost, and schedule objectives."[26]

Thus, utilizing PDAs to foster the rapid completion of the early project stages will not only allow governments to realize countercyclical benefits, but also create projects that are "shovel ready" when funding becomes subsequently available.

Achieving Optimal Competition

Another advantage of utilizing a progressive P3 under a PDA is the ability to optimize competition for various components of the project. One of the challenges of fixed-price P3 contracts is that developers and contractors need to lock in prices before they have complete clarity of the final scope and project risks. As a result, contractors at different tiers have to add meaningful contingencies in their pricing to accommodate any potential changes and risk.

Under a PDA procurement, governments can utilize competition on developer, design, and construction fees as a percentage of cost as a component of the award, which ensures market pricing of fees prior to award.

As outlined in Figure 9, pricing is finalized later in the PDA process, when the design has been further developed and risk has been reduced or eliminated, thereby meaningfully reducing uncertainty and contingencies, resulting in better pricing for the owner. The benefit of transparent pricing of the work later in the process is especially relevant for social infrastructure projects, in which as much as 90% of the work is subcontracted to trade contractor firms. In addition, this delay in pricing subcontract work could also be beneficial to a project's affordability as costs decline.

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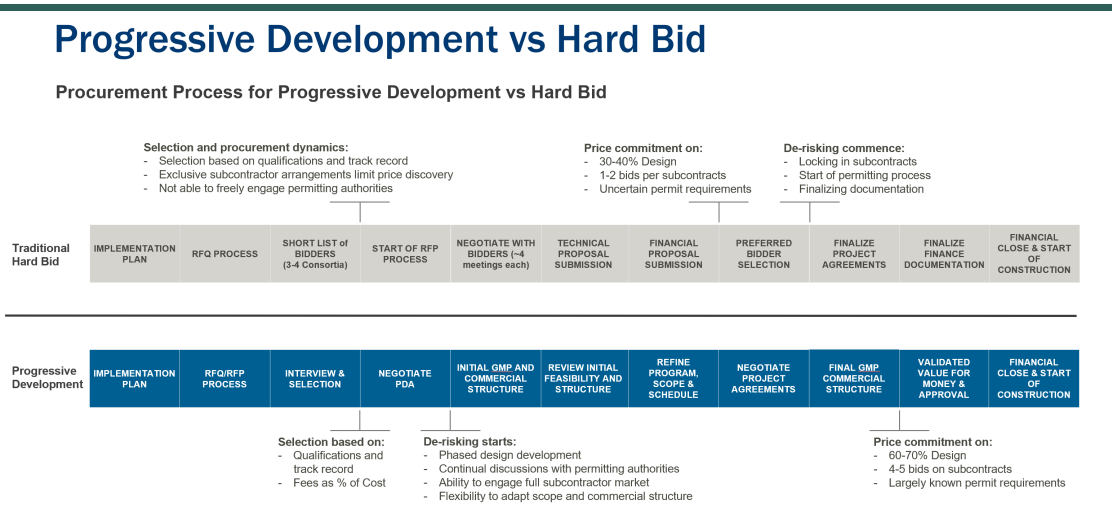
[25] Association for the Improvement of American Infrastructure: Progressive Development Overview

[26] Lisa Kopochinski, "Travis County Courthouse Facility Kicks Off Construction," *Correctional News*, July 15, 2019, http://correctionalnews.com/2019/07/15/travis-county-courthouse-facility-kicks-off-construction/#:~:text=AUSTIN%2C%20Texas%E2%80%94Construction%20began%20recently,for%20more%20than%2050%20years.

FIGURE 9



Source: Association for the Improvement of American Infrastructure

While the benefits of PDA procurements provide significant advantages, there are some potential downsides to this approach that governments should contemplate. Importantly, the PDA model is fundamentally built on trust, which may not be uniformly present across all developers participating in commercial transactions. For example, developers can have a built-in incentive to upsell the government once awarded the project. While data are limited, a study detailing 14 Australian infrastructure projects procured through Alliance Contracting—Australia's PDA equivalent—suggest that such projects may be at higher risk for cost overruns than more traditionally procured projects, with overruns averaging 50% across the 14 projects.[27] However, there are ways to introduce incentives to negate this problem. One method that has been utilized to limit this downside in Australia is the imposition of "gainshare/painshare" regimes, whereby non-owner partners share in a proportion of cost overruns or underruns (with the painshare capped at the size of the partner's fee).[28] Such an arrangement, as well as strengthened project governance and the imposition of a hard budget affordability cap in the PDA, are effective to ameliorate potential downsides to these transactions.

Overall, PDAs should be viewed as an advantageous delivery mechanism for governments during a recession. They allow governments to bypass fiscal constraints by shifting initial cost and schedule risks onto the private sector, progress project development, and optimize competition and risk transfer to drive down costs—all of which allow the governments to realize the full benefits countercyclical infrastructure development can offer.

[27] Marion Terrill, "Cost overruns in transport infrastructure," Grattan Institute, October 2016, https://grattan.edu.au/wp-content/uploads/2016/10/878-Cost-overruns-on-transport-infrastructure.pdf

[28] Owen Hayford, "Collaborative Contracting," PricewaterhouseCoopers, March 2018, https://www.pwc.com.au/legal/assets/collaborative-contracting-mar18.pdf

Review and Streamline Processes for Delivering Infrastructure

Despite significant advances in technology and innovative delivery methods, the time it takes to deliver state and local public infrastructure projects has increased over the last decade. Figure 10 shows that the time it took to deliver state and local infrastructure projects over $10 million increased by nearly 10% from 2008-2018 and increased across most major sectors of public infrastructure.

FIGURE 10

STATE/LOCAL PROJECT TYPE ($10MM+)	AVERAGE COMPLETION TIME (MONTHS)		INCREASE/DECREASE	
	2007-2008	2017-2018	Months	Percent
All Projects	25.6	28	2.4	9.4%
Office	28.1	24.8	-3.3	-11.7%
Educational	23.2	24.2	1	4.3%
Transportation	27.1	28.5	1.4	5.2%
Highway and Street	29.4	32.2	2.8	9.5%
Sewage and Waste Disposal	27.2	32.9	5.7	21.0%
Water Supply	25.9	30.4	4.5	17.4%

Source: U.S. Census Bureau, Construction Length of Time Statistics, Table 2. Average Number of Months from Start to Completion for State and Local Construction Projects, https://www.census.gov/construction/c30/length.html

State and local governments should evaluate their procurement methods to identify impediments to delivery and streamline the process and take advantage of the greater bandwidth in the design and permitting resources to more rapidly deliver projects during a recession.

Request Flexibility from the Federal Government

In conjunction with identifying local pinch points that can affect infrastructure delivery, state and local governments should request flexibility from federal mandates that inhibit the timely and cost-effective delivery of infrastructure during a recession.

One area state and local governments should seek flexibility is in capital planning requirements. A key problem in the planning process that prevents state and local governments from developing an actionable project pipeline during a recession are the requirements associated with capital project planning. In order to make projects eligible for funding, the federal government requires states and local governments to ensure their capital plans for transportation are "fiscally constrained."[29] While this federal requirement specifically applies to transportation improvement plans, state and local

[29] Specifically, the federal government requires states, local governments, and Metropolitan Planning Organizations to assemble and submit a Statewide Transportation Improvement Plan (STIP), Transportation Improvement Plan (TIP), and Metropolitan Transportation Plan (MTP), respectively. See 23 CFR § 450 and 49 § CFR 613.

governments also tend to impose fiscal constraints on their own broader capital plans.[30]

Fiscal constraint is well-intentioned to protect taxpayers and prevent political gamesmanship over which projects are truly affordable and likely to be built. However, it poses a problem for assembling a pipeline of projects ready for deployment as soon as a recession causes revenue forecasts to decline. Governments should request more flexibility from the federal government in crafting transportation improvement plans and consider flexibility from similar self-imposed local requirements to take advantage countercyclical development opportunities.

Another potential impediment is the environmental review process under the National Environmental Policy Act (NEPA). The NEPA approval process can take 4.5 years on average for completing an Environmental Impact Statement, and even longer (around 7 years on average) for larger projects.[31] Even when attempting to quickly disburse stimulus funding for projects during the 2009 economic recovery efforts, more than 192,900 projects were subject to NEPA reviews, of which over 7,200 were required to complete lengthy Environmental Assessments and 861 were required to complete even more time-intensive Environmental Impact Statements.[32] Although efforts were then and have since been made to expedite this process,[33] it is clear that the inefficiencies of the current approach to NEPA serve as an obstacle to the rapid deployment of infrastructure capital. State and local governments should encourage Washington and state Environmental Protection Agency counterparts to grant them flexibility from burdensome NEPA reviews when such reviews prove to inhibit the development of infrastructure projects during the recession.

Explore Creative Financing Options

States and local governments should think creatively about financing mechanisms available for project financing and how to fund critical governmental functions such as project management. One novel option is the Federal Reserve's Municipal Liquidity Facility. The Facility supports up to $500 billion in lending by purchasing eligible notes issued by states, cities with populations exceeding 250,000 residents, counties with populations exceeding 500,000 residents, multistate entities, and

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30 See, e.g., Office of the New York State Comptroller, "Multiyear Capital Planning," https://www.osc.state.ny.us/sites/default/files/local-government/documents/pdf/2019-01/capital_planning.pdf; City of West Palm Beach, "Capital Improvement Program," https://www.wpb.org/government/engineering/capital-improvement-projects-cip.

31 Testimony of DJ Gribbin, "On Paving the Way for Funding and Financing Infrastructure Investments," Before the Committee on Ways and Means, U.S. House of Representatives Wednesday, January 29, 2020, https://gop-waysandmeans.house.gov/wp-content/uploads/2020/01/Gribbin_Ways-and-Means-Testimony_Final.pdf

32 Council on Environmental Quality, "The Eleventh And Final Report On The National Environmental Policy Act Status And Progress For American Recovery And Reinvestment Act Of 2009 Activities And Projects," November 2, 2011, https://ceq.doe.gov/docs/ceq-reports/nov2011/CEQ_ARRA_NEPA_Report_Nov_2011.pdf

33 Executive Order Expediting Environmental Reviews and Approvals For High Priority Infrastructure Projects, January 24, 2017, https://www.whitehouse.gov/presidential-actions/executive-order-expediting-environmental-reviews-approv-als-high-priority-infrastructure-projects/

other revenue bond issuers. Governments can use proceeds provided by the facility for a variety of uses, including deferrals or reductions of tax and other revenues, increases in expenses related to or resulting from the COVID-19 pandemic, or requirements for the payment of principal and interest on obligations.[34]

While it represents an unfamiliar source of financing, the Federal Reserve's facility could be a helpful source of funding for state and local governments to retain internal project management capacity in the face of budgetary challenges. Key project management staff require years of expertise gained from adopting local knowledge and developing projects over a period of multiple years. If governments outright eliminate such positions in attempts to economize, they will lose institutional knowledge that will take years to replenish even under the best circumstances.

Other available vehicles that would provide advantageous financial assistance to finance projects are federal credit programs, including TIFIA (for surface transportation projects), WIFIA (water infrastructure projects), and RRIF (rail projects), as well as State Infrastructure Banks. The federal credit programs provide especially favorable terms, including the ability to borrow at low federal rates and the deferral of payments up to 5 years following substantial completion of the project, which yield significant advantages to projects undertaken during recessions.[35] A creative approach to project financing can be an important element in a government's ability to adequately maintain its infrastructure.

Be Federal-Ready, Not Federal-Dependent

State and local governments should resist the urge to wait for the federal government to provide "windfall" funding for infrastructure projects. At best, it is unclear when or how the federal government will provide infrastructure funding for state and local governments. Despite apparent bipartisan support for infrastructure spending,[36] lawmakers have not included major infrastructure funding in the $3.6 trillion approved for COVID-19-related efforts by Congress thus far (aside from funding meant to stopgap losses for transportation operators such as airports and mass transit).[37] While disparate pieces of infrastructure legislation have been introduced in the House[38] and Senate,[39] and

[34] Federal Reserve Board of Governors, Municipal Liquidity Facility Term Sheet, June 2, 2020, https://www.federalreserve.gov/newsevents/pressreleases/files/monetary20200603a1.pdf

[35] Build America Bureau, *Credit Programs Guide*, March 2017, https://www.transportation.gov/buildamerica/sites/buildamerica.dot.gov/files/2019-08/Bureau%20Credit%20Programs%20Guide_March_2017.pdf

[36] Paul La Monica, "It's finally time to spend money on infrastructure," *CNN Business*, June 15, 2020, https://www.cnn.com/2020/06/15/investing/infrastructure-spending-stocks-economy/index.html

[37] Committee for a Responsible Federal Budget, "COVID Money Tracker: Policies Enacted To Date," April 20, 2020, http://www.crfb.org/blogs/covid-money-tracker-policies-enacted-to-date

[38] Kathryn Wolfe, "House readies $1.5T 'infrastructure' plan including education, broadband, housing," *Politico*, https://www.politico.com/news/2020/06/18/house-infrastructure-plan-328946

[39] Lauren Schapker, "Consensus At Senate Hearing for Long-Term Highway Reauthorization," ARTBA Washington Newsline, June 4, 2020, https://newsline.artba.org/2020/06/04/consensus-at-senate-hearing-for-long-term-highway-reauthorization/

may soon be proposed by the White House,[40] a viable path forward for infrastructure legislation remains unclear and is complicated by politics surrounding the 2020 election.[41]

Instead, advancing projects as rapidly as possible should be considered as the dominant strategy for state and local governments. Advancing projects through pre-development stages and getting them ready for construction to optimally time the dip will not only yield the benefits discussed previously, but will also create a slate of active projects should the federal government eventually provide funding, allowing governments to put federal funding to use immediately. In short, proactively developing infrastructure independently of federal action is a win-win scenario for state and local governments.

FEDERAL AND LONG-TERM CONSIDERATIONS TO BETTER ENABLE COUNTERCYCLICAL INFRASTRUCTURE POLICY

While the bulk of action required to realize the benefits of countercyclical infrastructure policy falls immediately on state and local governments, there are broader and longer-term reforms that can be made at the federal level to augment local actions and foster a more conducive environment for state and local action:

- Incentivize New Non-Federal Funding: In addition to forging ahead on projects with the resources available, governments should think creatively about ways to generate new funding. Imposing novel user-based revenue streams may not generate immediate funding in the face of weak demand, but non-tax revenue streams can be tremendously valuable in the long-term. States and the federal government should consider ways of incentivizing lower levels of governments to generate new revenues to grow the overall investment in infrastructure. Such incentives could include providing funding contingent on the imposition of new local revenues, requiring higher matching shares from lower governments, or providing a "bonus" equating to a percentage of new revenues generated.[42]

- Make Funding Asset-Neutral: A key problem with federal infrastructure funding is that grants are generally limited to a certain type of infrastructure. For example, federal highway funds (the largest category of federal infrastructure funding) may generally only be spent on road projects and cannot be used to repair drinking water infrastructure. This is problematic because every government has different needs. A one-size-fits-all approach to infrastructure does not make sense given the drastically different needs of America's large cities, rural areas, and everywhere in-between. To the extent federal funding is made available for state and local infrastructure projects,

[40] Jeff Mason and David Shepardson, "Trump team prepares $1 trillion infrastructure plan to spur economy," *Reuters*, June 15, 2020, https://www.reuters.com/article/us-usa-trump/trump-team-prepares-1-trillion-infrastructure-plan-to-spur-economy-idUSKBN23N0D7

[41] Jacob Greber, "Why Trump's latest $1.45trn infrastructure plan might succeed," *Australian Financial Review*, https://www.afr.com/world/north-america/why-trump-s-latest-1-45trn-infrastructure-plan-might-succeed-20200617-p553e5

[42] One such incentives program was proposed in the President's 2018 "Legislative Outline for Rebuilding America,": https://www.whitehouse.gov/wp-content/uploads/2018/02/INFRASTRUCTURE-211.pdf

it should be made asset-neutral to maximize local flexibility and allow governments to undertake the projects that best address local needs and provide the highest return on investment. This flexibility will also be helpful in aiding state and local governments in the rapid deployment of funds during recessions.

- **Maximize the Availability of Infrastructure Financing Tools:** Finally, federal policymakers should maximize the availability of low-interest financing mechanisms for infrastructure projects. Lawmakers should start by expanding the availability and scope of existing programs such as TIFIA, WIFIA, RRIF, and Private Activity Bonds (PABs) by expanding the programs' eligibility to all governmental infrastructure and eliminating the caps on PABs.[43] In addition, lawmakers can consider introducing new credit instruments that could fill market gaps in the financing of infrastructure projects. One such instrument is the taxable direct payment bond, which can reduce state and local borrowing costs by providing direct federal interest payments to bond issuers.[44]

CONCLUSION

State and local governments are being battered by the demands placed on them by a global pandemic and the ensuing economic recession. Now is the time to be creative to ensure that all policy is not overtaken by the tyranny of the urgent. With a modest amount of effort and creativity, governments can focus the necessary resources on the unique demands of 2020 and still preserve their ability to deliver the critical infrastructure necessary for our nation's future growth and prosperity. Leaders can rise to the opportunity by focusing on capturing the little-recognized benefits of proactively developing infrastructure in a manner that takes advantage of recessionary trends. Those that do so will not only enjoy the short-term gains brought by investment but will also be rewarded over the long run as projects are deployed sooner than otherwise possible at a significantly lower cost to users and taxpayers. The time to realize the benefits of countercyclical infrastructure policy is now.

[43] Private Activity Bonds allow privately developed and operated infrastructure projects to borrow at rates similar to government-developed projects. Certain types of PABs are subject to state volume caps, limiting the amount of PABs each state can issue for projects, and a lifetime cap of $15 billion for surface transportation projects. See: Build America Bureau, "Private Activity Bonds," April 7, 2020,
https://www.transportation.gov/buildamerica/financing/private-activity-bonds-pabs/private-activity-bonds

[44] See, for example, Bipartisan Policy Center, "Authorize a New Direct Payment Infrastructure Bond," February 26, 2019, https://bipartisanpolicy.org/blog/infrastructure-big-idea-1-authorize-a-new-direct-payment-infrastructure-bond/