OVERVIEW

KEY TAKEAWAYS

- Despite widespread acknowledgment that America’s infrastructure needs are an urgent policy challenge, government financial statements provide limited information on the condition of infrastructure.

- The infrastructure assessments conducted by public works departments are often inconsistent.

- The rules that accountants use to measure infrastructure health allow for wide variation in reported numbers, and better accounting standards are needed.

- An analysis of large U.S. cities shows that age of plant in the city sector has been rising for several consecutive years.

- GASB’s “modified approach” could help illuminate the cost of deferred maintenance in certain cases.

Over the past decade, policymakers, voters, civil engineers and others have become increasingly concerned with the disrepair of America’s infrastructure. The American Society of Engineers assigns a grade of D+ to U.S. infrastructure health, and it estimates that on the current trajectory, existing funding streams will fall $1.4 trillion short of required improvements over the next 10 years. The EPA estimates that an additional $384 billion is needed for drinking water infrastructure investments over the next 20 years and the Federal Highway Administration concludes that another $170 billion of road, bridge and transit investments are needed. The size of these figures is alarming given that public infrastructure investment is at its lowest level in decades (see Figure 1) and legacy pension and retiree health care costs are increasingly crowding out resources for projects. These concerns are magnified by the need for resilient infrastructure, as climate change poses new risks such as more intense weather and rising seas.

President-elect Trump and Congress have strongly hinted that infrastructure funding will be a top legislative priority next year. But despite widespread acknowledgment that America’s infrastructure needs are an urgent policy challenge, government financial statements provide limited information on the condition of infrastructure. The Government Accounting Standards Board (GASB)
rules leave room for subjectivity and manipulation in reported numbers. It is perhaps for this reason that major rating agencies rarely quantify the cost of maintenance needs in their reports.

In this white paper, we explain why municipal financial disclosures only loosely reflect actual capital needs. We then highlight some sector-wide trends for U.S. cities and discuss the curious case of San Jose, California, which is an outlier among large U.S. cities. San Jose reports its infrastructure condition with unusual clarity and, if accurate, the city’s numbers suggest that the cost of repairing its infrastructure may exceed its unfunded pension debt. Lastly, we mention an alternative reporting standard for infrastructure assets—GASB’s “modified approach”—which could help illuminate the cost of deferred maintenance in certain cases. Ultimately, better accounting standards are needed to improve transparency with regard to infrastructure decay.

MORE CLAY THAN BRICK: WHY FINANCIAL STATEMENTS ONLY LOOSELY CONVEY INFRASTRUCTURE NEEDS

Municipal governments are capital intensive enterprises. They maintain fixed capital assets such as roads, bridges, schools and all manner of essential service equipment. To keep an accurate record of assets needing repairs or reaching obsolescence, many large governments conduct detailed asset condition reports. These inform multiyear capital plans and debt issuance needs.

Despite the care with which these reports are created, they have little to do with the capital asset information generated by accountants and reported in a government’s audited financial statements. Accountants think about infrastructure costs differently than public works departments. GASB rules require accountants to value, or capitalize, issuers’ assets and record depreciation, a measure of the assumed rate of decline in the value of the assets over time.5

By contrast, public works managers are less concerned with the value of infrastructure assets. Instead, they seek to estimate the costs required to sustain the assets over time. As Figure 2 illustrates, the length of time an infrastructure asset remains in serviceable condition can be extended for very long periods with sufficient maintenance and upkeep. Since budget requests are based on the judgments of engineers and other professionals, a government’s actual capital needs often diverge from the information presented in the financial statements.
INFRASTRUCTURE ACCOUNTING: A BLIND SPOT FACING INVESTORS?

A LOOK AT LARGE U.S. CITIES’ INFRASTRUCTURE CONDITION

Notwithstanding the lack of consistency between the infrastructure assessments conducted by public works departments and the way infrastructure is recorded in the financial statements, investors can ascertain infrastructure decay for a municipal sector, in the aggregate, based on a multiyear analysis of financial data. Below we take a look at data for U.S. cities with populations exceeding 100,000.

As Figure 3 illustrates, age of plant in the city sector has been rising for several consecutive years. This finding is consistent with concern in the engineering and business communities that America’s infrastructure needs are on the rise. Age of plant measures the average age, in years, of a government’s facilities and infrastructure. It is calculated by dividing accumulated depreciation by annual depreciation expense.

Figure 3: Infrastructure Condition is Worsening Among U.S. Cities

Source: IRC International Water and Sanitation Centre, as of August 2010.
Not only is age of plant increasing, but average useful life is decreasing. This, too, is consistent with the theme of infrastructure decay and deferred maintenance. Useful life measures the length of time, in years, that a government’s capital assets will remain in serviceable condition. It is calculated by dividing net depreciable capital assets by annual depreciation expense.

THE PITFALLS OF INFRASTRUCTURE ACCOUNTING

While financial statement data in aggregate appears to confirm deterioration of public infrastructure, the information disclosed at the individual city level can be unreliable. The rules that accountants use to measure infrastructure health allow for wide variation in reported numbers. This presents several major conceptual challenges for investors, taxpayers, and policymakers, including the following:

- The value of public infrastructure is uncertain. Establishing a capitalized value for many public infrastructure assets can be challenging. It is not clear how to properly value streets or water pipes that have been in service for many decades and will never be sold. These assets are typically valued at historical cost of purchase or construction, but it might be more accurate to record them at the current equivalent market value if the streets were tolled or the water system privatized. This task is made more complex for a large issuer where estimates are typically required for an inventory of thousands of assets (e.g., New York, Chicago, Los Angeles).

- Indexing infrastructure assets to inflation is not performed consistently. Under current accounting rules, infrastructure assets are not adjusted for inflation. This can produce confusing infrastructure condition metrics. For example, Chicago’s financial statements show that its infrastructure has aged while the estimated useful life of its infrastructure has grown. This makes little sense. Assuming a constant rate of depreciation, useful life should decrease as the city’s infrastructure ages. The discrepancy is best explained by the city’s recent addition of new assets booked in today’s dollars while older assets go under-maintained. The older assets are reported at recorded values that have not been adjusted for inflation.

- No standardized method for estimating the useful life of infrastructure. Estimating the useful life of public infrastructure is as much art as it is science. GASB provides only guidance on establishing lifecycles for various classes of assets. It requires no set standards. Among other things, useful life can be influenced by geography and construction materials. Revising useful life assumptions can, therefore, result in significant changes in reported infrastructure health from one year to the next. In 2015, Henderson, Nevada, revised its lifecycle assumptions for buildings and infrastructure from 50 years to as long as 100 years. This lowered the city’s annual depreciation expense and produced a dramatic rise in its age of plant in just one year.
INFRASTRUCTURE ACCOUNTING: A BLIND SPOT FACING INVESTORS?

The true pace of asset deterioration may not be reflected. Depreciation methods rarely capture the actual rate of decline of an infrastructure asset. The vast majority of governments choose to depreciate their entire capital asset inventory using the straight-line method. This is the simplest way to record depreciation expense because it recognizes the rate of economic decline evenly over the life of the assets. But, in reality, infrastructure does not decline in a uniform fashion and different capital asset classes may decline more rapidly than others.

The proper accounting method for deferred maintenance is unclear. Accounting rules are generally silent on the issue of deferred maintenance, which represents the accumulation of forgone routine maintenance expenses. This is a problem because depreciation expense assumes that ongoing, regular maintenance of infrastructure assets is performed each year. As illustrated in Figure 2, an asset ages faster than what is assumed in the depreciation schedule when this maintenance is put off.

Moreover, there is also much subjectivity regarding what constitutes “maintenance expense.” The GASB standards for depreciation accounting specify that routine maintenance costs be recorded as operating expenses, while spending that adds new value to an asset or extends its useful life should be capitalized. However, in reality, the distinction between maintenance costs and capitalized expenses is murky.  

GASB gives significant latitude as to what should be expensed as a capital asset. Governments have broad latitude to decide which long-lived assets to capitalize. A computer that lasts five years should, in theory, be capitalized. But if it costs only $500, it can just as easily be expensed to operating and maintenance costs. GASB rules permit governments to establish both the dollar threshold and useful life over which assets of this kind must be capitalized. The higher the dollar threshold and longer the useful life, say, $50,000 and 10 years, the fewer the number of items that can be capitalized.

Many governments set capitalization thresholds at low levels, in part to increase the number of needs that can be funded from resources outside the operating budget. As a result, thresholds vary significantly, even for comparably sized cities. New York City capitalizes assets with monetary value greater than $35,000 and a useful life greater than five years. However, Chicago and Los Angeles capitalize anything with a value greater than just $5,000 and a useful life of one year. One conclusion from this data is that Chicago and Los Angeles may be including more operating-like expenses in their capital budgets than is New York.

I LEFT MY HAMMER IN SAN JOSE

Among large U.S. cities, San Jose, California, is unique with respect to its reporting of infrastructure decay. San Jose’s financial reporting is unusually clear and reflects the rhetoric of its elected officeholders and findings from
its public works department. The city has publicly acknowledged the need for increased infrastructure spending for its aging roads and bridges, and an extensive survey conducted by officials has identified a large backlog of deferred needs that must be funded to bring its infrastructure back to a serviceable condition.\footnote{11}

For investors, it is worth considering San Jose’s situation because the city’s financial statements suggest that its infrastructure needs exceed its net pension liability. San Jose’s age of plant has increased by 4.3 years between 2010 and 2015. Likewise, its capital replacement ratio (capital spending divided by annual depreciation expense) has averaged a low 20 percent over the same time frame. Together, these metrics evidence a run-up in capital needs of about $1.5 billion in just the past five years alone.\footnote{12} By comparison, San Jose’s reported net pension liability, which is to represent what has been accumulated over many decades, is the same amount ($1.5 billion).\footnote{13}

In our view, San Jose’s example should raise concerns for investors. The city’s financials hint that other issuers may have very large unmet capital needs unknown to rating agencies or taxpayers. Opacity of this kind creates problems for efficiently allocating capital and may dampen public support for building and maintaining essential public assets.

**THE MODIFIED APPROACH**

While the vast majority of issuers choose to depreciate their infrastructure assets, GASB allows an alternative method of infrastructure cost accounting known as the modified approach. This option was added by GASB to satisfy those that argue that depreciation of public infrastructure assets is inappropriate because its value does not diminish over time.\footnote{14} With this in mind, the modified approach allows a government to forgo depreciation of infrastructure as long as it can demonstrate that it is maintaining its assets in reasonably good condition. Requirements include a detailed inventory of infrastructure assets and generation of regular condition assessment reports with disclosure of the annual maintenance spending necessary to maintain the assets in a “state of good repair.”

Unlike depreciation accounting, the modified approach provides insight into how governments actually manage their infrastructure assets. Furthermore, it provides for more transparent disclosure of deferred maintenance. Despite these benefits, the modified approach is rarely used by full-service local governments because the process of complying with GASB standards is burdensome, time-intensive and costly. For financial statement reporting purposes, it is much easier to use the depreciation approach, since it requires little work after the value of the asset has been established. Issuers that use the modified approach often do so for some assets but not others. For example, Bellevue, Washington, uses the modified approach only for its roadway infrastructure, and straight-line depreciation for all other types of infrastructure assets.\footnote{15}
The modified approach may be preferable to depreciation accounting, but it, too, is far from perfect. For one thing, governments are able to choose the asset condition level that constitutes a “state of good repair.” This introduces a level of subjectivity to the analysis and makes comparability across issuers difficult.

**CONCLUSION**

Funding public infrastructure is essential. But under current accounting rules, the cost of public infrastructure is often obscured from investors and policymakers. As the country embarks on fixing its aging stock of public works, a revamp of accounting rules might be helpful. In particular, greater use of the modified approach for infrastructure cost accounting might better incentivize governments to consider the costs of infrastructure decay.

**FOOTNOTES:**

4. For example, San Francisco International Airport estimates that $200-$300 million in shoreline protection improvements are needed to combat the long-term impacts of sea level rise. See 2016 bond prospectus: Series 20168CD POS, p. 29.
5. See GASB Statement No. 34. Available at: http://www.gasb.org/cs/BlobServer?blobkey=id&blobwhere=1175424063624&blobheader=application%2Fpdf&blobcol=urldata&blobtable=MungoBlobs
6. For a nice illustration of the impact of inflation, see: http://www.efc.sog.unc.edu/sites/www.efc.sog.unc.edu/files/BeyondTheOperatingRatio.pdf
7. City of Henderson, NV FY 2015 CAFR.
8. Conclusions based on Breckinridge conversations with municipal accountants.
10. FY 2015 CAFRs for NYC, LA, Chicago.
11. See City of San Jose’s “Status Report on Deferred Maintenance and Infrastructure Backlog”. Most recent version available at: https://www.sanjoseca.gov/DocumentCenter/View/60621
12. Annual depreciation expense in San Jose has averaged roughly $360 million per year for the past five years ($360 million x 4.3 years of aging = $1.55 billion). Aggregate depreciation expense over the five-year period has been $1.8 billion compared to $358 million in aggregate capital spending ($1.8 billion - $358 million = $1.45 billion).
13. City of San Jose FY 2015 CAFR; excludes enterprise funds’ portion of liability.
14. Ruppel, 196–197

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