Every four years, the American Society of Civil Engineers (ASCE) compiles a report card for the infrastructure in the United States. The organization looks at all of the nation’s infrastructure—from dams and airports to water and sewer.

**2021 Report Card**

The newest report card was released March 2021. Table 1 shows a comparison over the past 20 years. The grades are bad; so bad that I would be dismissing you from Florida Atlantic University, where I teach. The new report shows slight improvements in water and sewer, but a C- and D+ are not very good grades.

This points to the significant need for infrastructure renewal and replacement in our industry, as well as the accompanying fields for power, roads, drainage, and more. It also suggests that, as utilities have invested over the past four years, we can move the grades upward; it’s just that much more needs to be done.

Our representatives in Washington have been talking about this problem for many years, but little has come from them. We got some money in 2009, but since then, very little, other than Water Infrastructure and Finance and Innovation Act (WIFIA) funds. Now, it’s President Biden’s chance to do something—and our chance, too.

### Federal Investment in Water Infrastructure

The reality is that our infrastructure condition probably peaked in the 1950s or early 1960s. The major roadway, water and sewer piping, and treatment expansions were well underway or nearing completion. Rural areas had running water and sewers, something that did not exist before the Great Depression, especially in the South. The construction of infrastructure has always been critical for economic development; look no further than China to demonstrate this.

The Biden Plan starts with $2.3 trillion dollars, about 15 percent of the total economy per year, which is less than the value of private property in south Florida (which doesn’t make Biden’s plan sound quite as expensive as it initially seems).

The package would include investments for the following:

- Fixing 10,000 bridges (there are over 600,000 bridges and nearly 50,000 that are inadequate).
- Repairing 20,000 miles of roads (there are 4.2 million miles of roads in the U.S.).
- $120 billion for water and sewer (AWWA says the need exceeds $1 trillion in the next 20 years).
- $150 billion for transit and rail.
- $100 billion for broadband so rural and underprivileged areas have better access to the internet.

There are also funds for the electrical grid, which is woefully inadequate in many places. Oh, and billions to address unplugged wells.

The funds would be spent over eight years. The payback is expected to exceed 2:1 in private-sector economic activity, which is what economists show on the low end. Most of the funds would be directed by governments to the private sector for design and construction (the Engineer and Contractor Employment Act), which translates to millions of jobs. People can easily see how this benefits them by increasing employment, and it likely increases wages due to tightening job markets. In fact, every job we create in the water sector adds another 3.68 jobs to the national economy. As a result, there is a lot of support for this in much of the country, and long overdue.

There are contrarians in Congress who argue that the proposal costs too much, or oppose it for other reasons. But look at the statistics—one could easily argue that the proposed expenditures are 10 percent of what is really needed, so the bill does not go nearly far enough. If this is only a start to returning American infrastructure to its glory days, the economy appears to have taken notice.

Bloomberg forecasts the economy will increase 5.5 percent this year, while Goldman Sachs thinks that’s conservative. The more federal dollars that move to the private sector, the more fuel there is in the economy.

Several countries have experimented with this idea and it seems to work. Getting unemployment in the construction industry down from the current 9.6 percent is part of that plan. The Federal Reserve is keeping inflation in check, but it needs to ensure that secular stagnation does not appear (a stalled economy). Continued...
investments by both the public and private sector can prevent this. Hopefully, growth will overcome those pesky deficits.

**Industry and Private Investment in Water Infrastructure**

Returning the infrastructure to the conditions in the 1950s is not going to be enough in the 21st century. The systems are far more complex and extensive, and more people need to be served than ever before. We should not expect the federal government to foot the entire bill; think of this as seed money. Local communities will need to invest significantly more, as will the states and the private sector.

The U.S. has permitted its infrastructure to decline because people have figured that if it works fine, we don't need to worry about it—until it fails. Then, there is a big discussion to assign blame. The blame should go back to many people many years ago when actions could have been taken; but we all know that's not how it works. Instead we end up doing reactive maintenance, which is the expensive kind. Proactive replacement is easier to plan and develop and less costly, but does not defer rate increases. As noted in an elected officials course at the AWWA Annual Conference and Exposition (ACE) a few years back, there are no statues to politicians who deferred tax and rate increases.

While we know that we have an infrastructure problem, what we need to acknowledge is that there is an argument that our lack of attention to infrastructure has weakened our economy. Again, look no further than China. We invested heavily in automation in the 1990s and early 2000s to increase our productivity (through robotics, which created massive job losses for factory workers, but also created a set of jobs to fix robots).

Displacement of labor is a major concern to address as the economy changes, something we have not done. There is an argument that part of the Rust Belt's problems is antiquated infrastructure (think of the recent water crisis in Flint, Mich.).

There is an argument that rural dissatisfaction in the U.S., especially toward government, is directly related to the fact that little investment in infrastructure has taken place in rural communities, causing the economy to pass them by. Fewer jobs, lower pay, higher unemployment, poorer healthcare, and less access to quality education are common rural complaints. These complaints are not without merit because we know that relying on the private sector to construct the energy, cable, and telephone grids means that it will invest where the payback is highest, which is larger populated areas. That is why these differences between rural and urban areas exist and continue to widen (hence the broadband cost in the Biden proposal). The situation is no different than the rural electrification efforts that started in the 1930s with the Works Progress Administration (WPA) construction of rural water and wastewater systems.

The ASCE estimates that delays to infrastructure upgrades may cost U.S. households $3400 per year, increasing with time. This includes water and sewer utilities. A study conducted two years ago indicated that only about 20 percent of Florida utilities were spending the needed amount on infrastructure. Some of those that did relied on larger periodic bond issues that come with rate increases to accomplish their upgrades. Pay as you go can be demonstrated to be cheaper, but it too is subject to trimming for political reasons.

The question is how to get elected and appointed officials to buy into the long-term upgrade plans so we can make that C- and D+ into at least a B, but note that A grades in big cities will not help F grades in rural communities—both need to be raised. That way, perhaps we can move toward a solution where all segments of the population can participate in the economic growth. That, however, is a topic for another column.

In the meantime, let's get to work. Let's get some federal infrastructure funding out there. Let's rebuild our existing systems, and build new ones. Let's leverage federal funds to help states and local communities invest more in their systems. And let's encourage the private sector to join us. Good, functioning infrastructure benefits us all.

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1. [http://www.thevalueofwater.org/the-facts/waters-value; The Value of Water Campaign](http://www.thevalueofwater.org/the-facts/waters-value; The Value of Water Campaign)