



Dermody, Burke & Brown, CPAs, LLC

Dimensions

A CPA's Report for the Construction Industry

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Future Trends

What the Rise of Smart Cities Means for Contractors

Cities today face numerous infrastructure challenges as their populations continue to swell. About 55 percent of the world's population now lives in urban areas, according to McKinsey Global Institute, and it projects it to increase to 68 percent by 2050, or an increase of 2.5 billion people. By 2030, there will be 43 megacities worldwide with populations of more than 10 million people.

To cope with these challenges, many cities are embracing "smart city" concepts. Smart cities—also called digital or connected cities—use information and digital communication technologies to deliver city services more efficiently, solve public problems, and enhance the quality of life for residents and businesses.

What is a Smart City?

Smart cities rely on wireless device connectivity (e.g., cameras, sensors, and smartphones), data generation, and government application. The components of a smart city include smart energy grids, energy harvesting, and storage; smart buildings that incorporate building automation, advanced HVAC, and smart lighting; smart traffic, public transportation, and parking lot management; and an IT infrastructure that features thousands of connected devices and platforms sharing data with each other.

Technological advancements in recent years have enabled municipalities to move closer to achieving true smart city status. These include the



growth of cloud computing; the widespread use of mobile devices and apps; and the rise of the Internet of Things (IoT), which allows inexpensive sensors to track and share information.

Smart grid networks and smart lighting technology are key components of any smart city. These take advantage of sensors to maximize energy efficiency and support the delivery of essential public services such as gas, water, and electricity. Smart streetlights are a logical place for sensors because their elevation allows for optimal radio frequency (RF) coverage.

There are three layers to a true smart city:

1. The technology base, or a critical mass of interconnected sensors and smart devices.
2. Specific applications that translate data into actionable insights and alerts.
3. Adoption and usage by cities, businesses, and citizens. Applications only succeed if they're widely adopted and change individuals' behavior, such as encouraging transit use during off hours or water usage at various times of the day.

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Take a Human-Centered Approach to Worker Safety

When it comes to worker safety, the construction industry has traditionally focused on identifying and trying to prevent hazards that could lead to accidents like slips, falls, and struck-by incidents. However, new data indicates that this narrow approach to construction safety may not be enough.

According to an analysis performed by Construction Dive, the worker death rate on construction sites hasn't changed over the past decade. It held steady at 10 deaths per 100,000 construction workers between 2011 and 2020, with 1,008 construction worker deaths in 2020. This is nearly three times the fatality rate of all workers on the job, which stands at 3.5 deaths per 100,000 workers.

Fatal Four Accounts for Most Worker Deaths

The "Fatal Four" still accounts for the majority (about 65 percent) of construction worker deaths: 1. slips, trips, and falls; 2. exposure to electricity; 3. struck-by incidents; and 4. caught in-between incidents. This percentage remained constant while the construction workforce grew by 31 percent between 2011 and 2020.

Construction Dive attributes the lack of improvement in the construction industry death rate to weak OSHA enforcement, meager site inspections and fines, and the opioid epidemic. To bring the death rate down, OSHA would need to increase inspections exponentially, enforce fines more strictly, and expand preventative consultations.

All of this, of course, would require more money and staff. While the value of completed construction projects in the U.S. nearly doubled from around \$800 billion to \$1.5 trillion between 2011 and 2020, the number of inspections plummeted from more than 41,000 to around 12,000.

In addition, fines would need to rise above the cost of doing business and finding their targets, especially among



small contractors that often fly under the radar. The average OSHA penalty for a serious breach is just \$4,460, a cost that some contractors dodge or just factor into their business model.

OSHA would also need a broader mandate and voluntary programs would need to expand in order to bring the construction industry fatality rate down significantly, notes the Construction Dive study. In addition, worker's compensation laws in some states might need to change to address the link between fatalities and the wait time for wage replacement.

Not surprisingly, OSHA focuses on high-risk hazards with its limited resources. Unfortunately, health and safety regulations weren't designed to protect against the growing number of construction workers who die on the job from drug overdoses and suicide, which is now 10 percent. (Construction workers have the second highest suicide rate among all industries, according to the CDC.) These causes fall outside OSHA's standards for a safe workplace.

The good news is that OSHA is now on a hiring spree after more than a decade of staff reductions. In 2022, Congress funded salaries for 85 new federal OSHA inspectors.

Broaden Your View of Workplace Safety

One possible solution to improve safety and lower the worker death rate is to take a broader view of construction site safety. Commonly referred to as human-centered safety, this approach views employees as people first and workers second.

Instead of focusing on physical safety, human-centered safety prioritizes the prevention of injury and illness to advance well-being in every aspect of employees' lives: physically, mentally, and spiritually.

Traditional construction industry safety measures have tended to focus on physical wellness for workers on job sites. In contrast, human-centered safety prioritizes wellness and professional development for all employees, including those who work in offices. This includes skills development to improve workplace relationships, behaviors, and interactions.

The National Institute for Occupational Safety and Health (NIOSH) has introduced a program called Total Worker Health®, which takes a more holistic approach to worker safety. NIOSH defines Total Worker Health as "policies, programs, and practices that integrate protection from work-related safety and health hazards with promotion of injury- and illness-prevention efforts to advance worker well-being."

Total Worker Health builds on the traditional approach to worker safety by recognizing that work is a social determinant of health. "Job-related factors such as wages, work hours, workload, interactions with coworkers and supervisors, and access to paid leave impact the well-being of workers, their families, and their communities," states NIOSH.

Visit <https://www.cdc.gov/niosh/twh/> to learn more about Total Worker Health and how you can implement human-centered safety principles at your firm.



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Improving the Quality of Life

According to McKinsey, smart city concepts can improve the quality of life in cities in a number of ways, including the following:

- **Public safety** – Smart city applications could reduce homicide and traffic fatalities by up to 10 percent, which could save up to 300 lives per year in a city with five million residents. Assault, robbery, burglary, and auto theft could be reduced by up to 40 percent, giving residents greater freedom of movement and more peace of mind.

For example, crime mapping applications use statistical analysis to highlight crime patterns in real time, and predictive policing anticipates crime to potentially stop incidents before they happen. Smart systems can optimize call center operations and traffic signals, helping first responders get to emergencies faster by clearing their driving path. Smart applications like these could reduce emergency response times by up to 35 percent.

- **Daily commuting** – Shortening workers' commutes is a critical part of improving their quality of life. Cities that implement smart-mobility applications could shorten average commutes by up to 20 percent.

Digital signage and mobile apps can deliver information in real time about delays that enables commuters to adjust their routes as they're driving, while IoT sensors installed on existing infrastructure can help crews make repairs before they result in delays. Intelligent traffic light syncing, real-time navigation alerts, and smart parking apps are other tools that can help improve commutes for residents of smart cities.

- **Environmental sustainability** – Environmental pressures mount as cities grow larger and denser. Building automation systems, dynamic electricity pricing, and water consumption tracking can help smart cities boost sustainability.

Advanced water metering can reduce water consumption by up to 15 percent. Meanwhile, air quality sensors can identify and track pollution sources and share information about air quality with residents via smartphone apps, reducing negative health effects by up to 15 percent.

- **Social connectedness** – Digital channels and platforms that make it easier for citizens to communicate and interact with each other and government officials could nearly double or triple the share of citizens who feel connected to their community and their local government. These channels allow citizens to report concerns, collect information, and share their opinion about planning issues that will affect their everyday lives.

- **Employment and job creation** – Smart technologies such as e-career centers can help make hiring more efficient and draw more citizens into the workforce. Also, digitizing government administrative processes like business licensing and permitting can reduce red tape and make a city's business climate more entrepreneurial.

Smart Buildings and Smart Cities

Smart buildings are key components of smart cities. Modern smart buildings connect and integrate heterogeneous sensors and systems to reduce energy consumption and improve safety, security, and comfort for inhabitants. These buildings can generate and share data to enhance the efficiency and effectiveness of the entire smart city.

Constructing intelligent buildings will be vital to the continued growth and development of smart cities. This will require developing a holistic ecosystem in which everything is connected digitally. All elements of the smart building should be connected into a centralized system that controls every aspect of building operations—from automated door entry and exit to programmable lighting and HVAC systems designed to conserve electricity and lower energy costs.

The rise of smart cities will present opportunities for contractors who plan ahead and are prepared. Now is the time to think about how your firm can take advantage of this trend.



We use our expertise to help our clients grow and prosper.



Dermody, Burke & Brown, CPAs, LLC

Our mission is to empower our clients and our people to “live well” by providing valued advice and innovative solutions in an atmosphere that is professional, enjoyable and community minded.

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Beware of the Dirty Dozen Tax Scams

Each year the IRS publishes what it calls the “Dirty Dozen” list of tax scams. These are the most common and dangerous tactics that fraudsters use to try to steal money and sensitive information from businesses and individuals.

At the top of the 2023 Dirty Dozen is a scam related to the Employee Retention Credit (ERC). The qualification criteria for the ERC are complex and have been changed several times, so fraudsters are taking advantage of confusion about the credit among some businesses.

For example, some scammers are running advertisements claiming that they can help businesses claim the ERC in exchange for an upfront

fee. Others are hosting websites they say businesses can use to check their eligibility for the ERC. However, these sites really collect sensitive information scammers use for identity theft or to sell on the dark web.

Be wary of unsolicited ads or emails claiming that a promoter can determine your ERC eligibility within minutes or that require a large upfront fee to claim the credit. If you claim the ERC improperly, you’ll have to repay the money along with penalties and interest.

Fraudsters are also trying to trick businesses into filing erroneous claims for the federal fuel tax credit. This credit is only eligible for off-highway businesses and farming use

and is not available to most businesses. The IRS states that it has seen an increase in the promotion of filing for this credit using Form 4136.

Fake charities are a perennial tax scam that arises especially during times of crises or natural disasters. These scammers set up bogus charities to take advantage of individuals’ and businesses’ generosity, seeking to steal money and sensitive information they can use to perform identity theft.

Give us a call if you have questions about these or other tax scams.



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