



Smarter cities, smart public-private partnerships

In December 2016, Detroit became the first city in the United States with a new freeway lighting system backed by a public-private partnership (P3). The project was unusual not only for its scope, involving 15,000 energy-efficient, “smart” LED streetlights across Detroit’s bridges, tunnels and roadways, but also because it was the first P3 created specifically for smart city lighting.

Across the country, “smart cities” are investing in LED lighting like Detroit and using connected devices to manage traffic, boost air quality, improve safety and more. Considering widespread fiscal belt-tightening, many of these projects would be non-starters without private-sector partners.

P3s are becoming increasingly popular as states and municipalities discover this financing and delivery tool can appropriately transfer risk and incentivize performance for needed infrastructure.

What is a smart city?

The market for smart city technologies is estimated to reach \$400 billion by 2020, according to McKinsey Global Institute’s 2015 *The Internet of Things: Mapping the Value Beyond the Hype* report.

Smart cities will house 9.7 billion Internet of Things (IoT) devices by 2020, as vendors emerge with new platforms and applications, predicted Gartner in its 2015 *Smart Cities Will Include 10 Billion Things by 2020—Start Now to Plan, Engage and Position Offerings* research.

Key takeaways



Public-private partnerships are increasingly useful for financing and delivering new infrastructure projects.



P3 uses are limited in some states, while others have passed legislation to allow for broad use.



Smart cities are becoming smarter thanks to P3s, which can finance public infrastructure such as LED lighting, smart grids and wireless Internet access.

As defined by the Smart Cities Council, a smart city harnesses the transformative power of smart digital technologies to improve livability, economic competitiveness and sustainability. For example, Detroit's energy-efficient freeway light network is managed remotely, and the city saves millions in energy and operations costs.

Smart streetlights are also coming online in the District of Columbia, Phoenix, Boston and elsewhere. Some cities are adopting smart power grids and smart meters, using IoT technologies to create networks for load balancing, time-of-use pricing and use of renewable energy alongside conventional power. Such networks are controlled by a central management system that can automatically redirect signals if a network point fails, and trigger alerts to repair crews. Some cities are using new IoT applications to relieve congestion, sequence traffic lights and reduce accidents, while helping consumers more easily find—and pay—for parking or public transit.

Funding smart cities

Of course, all this exciting technology comes with an elephant in the room: how to pay for it. The American Society of Civil Engineers (ASCE) estimates that \$4.59 trillion of investment between now and 2025 will be required to overcome longstanding infrastructure neglect—and that estimate does not even include high-tech, smart city projects.



Federal dollars are unlikely to fill the gap. The most recent federal transportation funding measure became law in 2016, authorizing \$305 billion in federal transportation investment—a drop in the bucket compared to ASCE estimates. Recently, the Trump administration has encouraged states, tribes, and localities to stop waiting for Washington and raise their own infrastructure funding streams as a key principle of the federal Infrastructure Initiative. The message is resonating, as the November 2016 elections saw passage of 55 local, regional and state-level transportation funding measures totaling more than \$200 billion.

Clearly, states and municipalities are taking matters into their own hands—or, rather, the hands of the voters. In the past five years, for instance, 22 states have passed laws raising fuel taxes to fund infrastructure investments. Some, like Tennessee and California, had not raised fuel taxes in decades.

In some cases, smart city implementation can help fund itself—and generate additional revenue. For example, cities can add smart lighting or road signage that can track the behaviors of residents and visitors, and monetize the data collected by selling it to private companies. Alternatively, as was the case with the Detroit freeway lighting project, smart technologies may result in lower operational service costs than those of conventional municipal services. Cities can continue to pay a comparable, or perhaps lower, annual service cost, and use the operational savings to finance innovative IoT projects.

Federal funding for smart city investments appears to be very targeted and aimed toward spurring innovation. The only federal funding program for smart cities projects in recent years was a \$40 million federal grant given to Columbus to integrate innovative transportation technologies into the city's transportation network. Columbus won the U.S. Department of Transportation's highly competitive "Smart City Challenge" grant program, and \$10 million from Vulcan Inc., a Paul G. Allen Company.

Financing and delivering smart cities

Although President Trump has expressed great interest in infrastructure investment, his vision appears to focus on leveraging public funds to privately finance infrastructure. Smart city initiatives are especially promising for private investors and cities alike. Smart city projects can deliver energy efficiency and other benefits to taxpayers, while delivering relatively fast payback for investors.

P3 structures can be complex, which is why it is important to choose the right participants. Financial structures of P3s can include multiple components, such as private equity, bank debt, private activity bonds, private debt placements, interest rate swap-derivative products and/or other arrangements. A qualified banker and partners can bring together the right combination of debt and/or equity financing required.

Voting for a digital future

While P3s in the United States traditionally have been used for large-scale transportation projects, more than a dozen states have recently passed enabling legislation to allow for broader use of P3s for more modest, non-transportation projects.

Smart city P3s are quickly coming to the forefront.

Intel and the city of San Jose, California, for example, are implementing Intel's IoT Smart City Demonstration Platform to drive improvements in air quality, noise pollution, energy efficiency and other aspects of the city environment. In the Midwest, Kansas City is partnering with Cisco on several smart city projects.

In Charlotte, North Carolina, Verizon, Duke Energy and Envision Charlotte have partnered to connect 60 downtown high-rises to public kiosks that display energy usage and drive conservation efforts. In addition, Charlotte is partnering with Enevo and a slew of government entities to place sensors in public waste receptacles, using the data streams to analyze waste and recycling patterns.

Putting a P3 together

Simply put, a P3 is a contractual agreement in which public- and private-sector partners share resources, risks, responsibilities and rewards to develop and/or operate and maintain infrastructure and facilities on publicly owned land. The P3 provides the double benefits of accelerating project delivery through alternative financing for the public partner while tapping the efficiencies and innovations of the private sector. Assuming all goes well, the private operating partner is assured of a reasonable profit while generating returns for investors.

P3s may be appropriate both for projects that can generate revenue by user fees, service payments or other incoming revenue, and for projects that do not, which can be supported by public funds.

P3s structures and partners come in all shapes and sizes to fit the project at hand—they're not "one size fits all." Generally speaking, private capital helps finance the project and a private partner designs, builds and operates the asset for 15 to 50 years, creating long-term value that is greater than the incremental cost of private finance. The public partner retains ownership of the asset and may provide funding for capital costs or long-term performance-based payments, typically referred to as "available payments."



For example, the Michigan Department of Transportation (MDOT)'s \$123 million Detroit freeway lighting project involved a consortium of four entities. Star America provided an equity investment, raised debt financing, and is providing overall project management. Aldridge Electric Company is the design and construction contractor overseeing the design work of WSP (formerly Parsons Brinckerhoff). A fourth partner, Engie Services Group, will operate and maintain the lighting network during the operating term. MDOT will pay availability payments to the consortium for operating and maintaining the lighting over 15 years, as long as it meets certain milestones and performance criteria.

Key takeaways



P3s are more than just financial vehicles; the delivery model appropriately incentivizes on-time and under-budget delivery with appropriate risk transfer.



Financing related to P3s can include multiple financial components ranging from private equity to commercial bank debt, private placement debt, taxable and tax-exempt bonds, and derivatives.



P3s are appropriate both for projects that can generate revenue, such as user fees, service payments or other incoming revenue, and for projects that do not, which can be supported by public funds.

The team selected for the project, Freeway Lighting Partners, also will operate and maintain newly installed and existing lights on the freeways for 15 years. Freeway Lighting Partners is a consortium of Star America Fund, Aldridge Electric, Parsons Brinckerhoff and Engie Services. The pay-for-performance contract requires the developer to ensure that 90 percent of the new lights work after a year of installation to receive the maximum payments; 98 percent must be operating after two years.

The time is right for smart city investment



Today's push for smart cities is creating a historic opportunity in 2017 for public-private partnerships. Many communities are eager to find P3 partners, and investment opportunities abound. Smart city momentum is growing as communities recognize the economic and civic advantages of high-tech infrastructure. Now is the time to make sure those partnerships are as smart as the smart technologies they finance.

To learn more, contact:

Thomas Mulvihill, Managing Director
and Group Head of Infrastructure Finance

KeyBanc Capital Markets

212-284-0553

thomas_mulvihill@key.com

Visit: key.com/P3

This article is for general information purposes only and does not consider the specific investment objectives, financial situation, and particular needs of any individual person or entity.

KeyBanc Capital Markets Inc. is not acting as a municipal advisor or fiduciary and any opinions, views or information herein is not intended to be, and should not be construed as, advice within the meaning of Section 15B of the Securities Exchange Act of 1934.

KeyBanc Capital Markets is a trade name under which corporate and investment banking products and services of KeyCorp and its subsidiaries, KeyBanc Capital Markets Inc., Member NYSE/FINRA/SIPC, and KeyBank National Association ("KeyBank N.A."), are marketed. Securities products and services are offered by KeyBanc Capital Markets Inc. and its licensed securities representatives, who may also be employees of KeyBank N.A. Banking products and services are offered by KeyBank N.A.

©2017 KeyCorp. **KeyBank is Member FDIC.** E90068 06122017