THE EMERGING WORLD of BROADBAND PUBLIC-PRIVATE PARTNERSHIPS A BUSINESS STRATEGY and LEGAL GUIDE

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A Business Strategy and Legal Guide

This report was written by Joanne Hovis and Marc Schulhof, Jim Baller and Ashley Stelfox and published by the Benton Foundation.

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Dedication

The authors dedicate this guide in loving memory of our dear friend and mentor, Charles Benton, whose life's work served as a perfect demonstration of his belief that the public and private sectors can work together in the better interests of our nation.

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Disclosures

CTC Technology & Energy and Baller Stokes & Lide have worked together on most of the model projects discussed throughout this paper. This paper does not provide legal advice and should not be interpreted or used as legal advice. For legal advice, readers should consult qualified legal counsel.

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Executive Summary

Balancing Risk, Benefit, and Control in Broadband Public–Private Partnerships

It is an era of unprecedented interest in broadband as a platform of economic and community development. Advanced communications networks are increasingly recognized as a growing engine for economic activity, democratic participation, healthcare, and education.

Local governments, in particular, increasingly embrace opportunities to develop next-generation broadband in their communities—and to reap the many benefits that broadband will deliver to their residents and businesses. Emerging public–private partnership (P3) models present a promising alternative to the traditional "municipal broadband" or "middle mile" models for the many communities that lack the capital or expertise to deploy and operate fiber networks, or to act as Internet service providers (ISPs) on their own. These models include:

- **Public facilitation of private investment** – The model focuses not on a public sector investment, but on modest measures the public sector can take to enable or encourage greater private sector investment. Google Fiber has been the most prominent example, but there is significant interest among many smaller companies such as Ting Internet. Even as Google Fiber's growth has been halted, this model for public–private collaboration holds promise for localities that seek to differentiate themselves and attract private capital.

- **Public funding and private execution (Concessionaire Model)** – This model, which involves a substantial amount of public investment, offers private execution in return for public support and risk. The model enables an arrangement in which a private "concessionaire" undertakes turnkey financing, construction, and operations of a publicly-supported or publicly-guaranteed broadband project.

  This approach removes significant logistical barriers from large-scale public broadband projects, in much the same way that formal public–private partnerships in transportation and other infrastructure areas have enabled the public sector to leverage private capital and operations expertise. While the field is constantly changing and the approach is very new in the broadband field, a number of companies have emerged with fully-articulated P3 business propositions for localities.

- **Shared investment and risk** – In this model, localities and private partners find creative ways to share the costs and risks of building and operating a broadband network. The City of Westminster, Maryland, partnered with Ting Internet in the first example of this approach. The groundbreaking effort in Huntsville, Alabama, for which Google Fiber is the partner to the city's electric utility, also follows this model. In the rural context, fixed wireless projects are emerging in which localities take on some capital risk in return for the long-term commitments of private companies taking on the risk of ongoing operations.

As localities evaluate broadband public–private arrangements, they should consider both the opportunities and potential pitfalls, and pay particular attention to three interwoven issues:

1. Risk
2. Benefit
3. Control

These factors are the key considerations not only for state and local governments, but also for private sector network operators and service providers. A successful partnership must align each side's needs, and will inevitably involve trade-offs within this framework.

Our "Key Strategy Considerations for Building a Partnership" (Attachment A) summarizes the models and identifies some of the local government priorities that will drive many public sector decision makers.

Legal Issues in a Broadband Public–Private Partnership Project

The second portion of this paper addresses the major legal issues that may arise in a broadband public–private partnership project, from early planning through the negotiating stage. The legal portion of the paper is written with a public sector audience in mind, but the general legal principles are relevant for any party considering participating in a broadband public–private partnership project.

The legal portion of this paper is divided into three sections, which collectively address the three main stages in the public–private partnership development process: confirmation of authority, pre-negotiation project planning, and negotiation of the agreement.

The first section focuses on the public entity's legal authority to enter into a broadband public–private partnership and on the procedural requirements that the entity may have to meet to act on that authority. More than half of states have laws that specifically address public–private partnerships, and several states have constitutional or statutory provisions that may limit or specify how a public entity can participate in such a project. Local charters, ordinances, franchises, or agreements may also impose important substantive or procedural requirements. Parties considering a public–private partnership must not only read the text of these measures, but they must also analyze the relevant case law. Even after thorough analysis, not every state will have laws—statutory or otherwise—that implicate broadband public–private partnerships, and states have varying rules for dealing with localities that are acting in the absence of clear state law authority. Some states are permissive, while others are restrictive. Careful, early legal research is also important not only because it may avoid costly and protracted litigation, but also because public entities that identify legal barriers might be able to develop alternative ways to achieve their goals.

The second section addresses the key factors that parties typically consider in framing the general structure of the partnership. Public–private partnerships can take many forms, depending on multiple factors, and in this second stage, the parties work through the options and select the one that works best for them. The considerations include various alternative financing mechanisms; how the services in question will be regulated; potential access to grants, low-interest loans, and other incentives of various kinds; access to public rights-of-way and facilities; organizational/governance issues; tax issues; and much more.

The third section provides an overview of the negotiation stage. As discussed in the business portion of this paper, there are several models for broadband public–private partnerships, and the complexity and amount

of time needed to complete the negotiation process will depend on the model and the size of the project. In particular, the parties typically consider who is best suited to handle responsibilities like building, operating, and marketing the network. They must also consider what risks are involved in the project and who will bear which risks. For example, there may be dozens of different kinds of contingencies, ranging from squirrels nibbling fiber lines to previously undiscovered environmental factors to natural disasters. As a result, the negotiation stage will likely be the most time-consuming part of the partnership development process.

Finally, there is no single reason for building a network, and most parties anticipate receiving rewards of various kinds. These may not merely include revenues, but also less quantifiable benefits. For example, a municipality might be especially interested in promoting economic development, educational opportunity, enhanced public safety, and open access to broadband. A new provider may be willing to forgo some immediate revenues in order to develop a track record from which it may benefit in future projects. In short, each project is different, and there will be multiple ways in each one to reach "win-win" outcomes for all concerned.

1. Introduction

Local governments increasingly see before them exciting new opportunities to develop next-generation broadband in their communities—and to reap the many benefits that broadband will deliver to their residents and businesses. The goal of most of these communities is to get optical fiber connections to every home and business. Once the fiber is available, the sky is the limit in terms of offering gigabit-and-beyond speeds today and well into the future.

As localities evaluate broadband public-private partnerships, they should consider both the opportunities and potential pitfalls.

Fiber can support high-bandwidth services to the home and business, and also serves as the key platform for wireless broadband; it is fiber "backhaul" that enables wireless networks to offer high speeds. Fiber also offers symmetrical speeds—a key differentiator for next-generation service providers compared to incumbent telephone and cable companies whose upload speeds typically lag far behind download speeds.

Many localities are likely aware of new private sector investments in fiber and of municipal fiber success stories such as Chattanooga, Tennessee; Wilson, North Carolina; and Lafayette, Louisiana. In addition, emerging public–private partnership models are being developed and implemented by communities that lack the capital or expertise to deploy and operate fiber networks, or to act as Internet service providers (ISPs), on their own. These models include:

- Localities encourage new private investment through economic development incentives and other measures to reduce costs for private sector infrastructure deployment;
- Localities negotiate formal public–private partnerships that resemble transit and toll-road construction projects, with public funding and private execution; and
- Localities create hybrid models where a locality and private partner find a creative way to share the capital and operating risk related to a broadband network.

This primer is organized in two sections. In the first part, we provide a strategic overview of broadband public–private partnerships, examples of three models, and a framework for public sector entities to consider as they evaluate potential models, assess potential partners, and set goals for a partnership. In the second section, we address the key legal issues that arise in each of the three major stages of the development of a public–private partnership deal: confirmation of authority, pre-negotiation project planning, and negotiation of the agreement.

2. Understanding Business Strategy for Partnerships

Local governments have before them a range of potential broadband investment models—including traditional models and emerging public–private partnership approaches. We have divided the range of existing and emerging models into the following categories:

Traditional Models

1. **Municipal Broadband**. Localities build, own, and operate fiber-to-the-premises (FTTP) or other types of broadband networks themselves, in a structure generally known as "municipal broadband." This is a high-risk and high-reward proposition with a respectable track record in communities across the country.

2. **Middle Mile Broadband.** Localities address "middle mile" needs by building less extensive networks that ensure the availability of fiber optics to government users and key institutions in the community, but do not reach all the way to the home or business.

3. **Middle Mile Plus.** Localities route their middle mile networks to reach key economic or community development targets, such as business parks, historic downtowns, or revitalization areas.

Broadband Public–Private Partnership Models

1. **Public Facilitation of Private Investment.** Localities encourage new private investment through economic development incentives and other measures to reduce costs for private sector infrastructure deployment.

2. **Public Funding and Private Execution (Concessionaire Model).** Localities negotiate formal public–private partnerships that resemble transit and toll-road construction projects, with public funding and private execution.

3. **Shared Investment and Risk.** Localities create hybrid models where a locality and private partner find a creative way to share the risks, costs, and benefits of a broadband network.

Within the shared investment and risk model, there also exist targeted rural strategies. While rural communities have fewer options and less market power than do their metro-area counterparts, modest strategies are emerging for rural broadband projects in which the community shares some risk with a private partner.

As localities evaluate these models, they should consider both the opportunities and the potential pitfalls, and should pay particular attention to three interwoven issues:

1. Risk

2. Benefit

3. Control

These factors are the key considerations not only for state and local governments and other public sector decision makers, but also for private sector network operators and service providers. A successful partnership must align each side's needs, and will inevitably involve some trade-offs within this framework.

It is important to note that we have only a handful of data points on different models for broadband public–private partnerships. Google Fiber has, through its deployments to date, alerted other companies to the business opportunity in building and operating local broadband networks—and the number of potential investors and partners is increasing. As a result, there is a widening range of opportunities for the public sector. There is no clear-cut strategy. Any community that is breaking new ground is taking on some risk—but the potential benefits are considerable and the opportunity for public sector innovation and creativity has never been greater.

2.1 Traditional Models

2.1.1 Municipal Broadband: Public Investment and Risk

In this model, localities build, own, and operate broadband networks themselves. This is a high-risk and high-reward proposition, with a respectable track record in communities across the country. In our observation, however, this is a difficult model to replicate, particularly for communities that do not own their own municipal electric utilities (as we describe below). The risks and challenges involved in this model suggests that it will be adopted infrequently. Aggressive anti-municipal efforts by incumbent phone and cable companies make this model even more risky.

Despite the risks, about 100 local communities have built hybrid fiber-coaxial (HFC) networks (the architecture used by cable companies) or FTTP networks to comprehensively serve residential and business markets.

Some of these networks date back almost two decades; the great majority were deployed in the first decade of the 21st century. In almost every case, these networks have been deployed in towns located in largely rural areas. Some, but not all, of these towns already had cable modem service, but many of them were unserved or close to unserved by broadband service. The majority of the networks were deployed by municipal electric utilities.

This correlation is not surprising for a number of reasons. First, communities in which the private sector did not have a business case for electrification are where local governments chose to build public power. Not surprisingly, those same communities did not see adequate private sector investment in broadband, and thus chose, in both cases, to invest for the benefit of the broader community.

Second, the challenge of undertaking a public-facing communications project is reduced for a municipal electric utility relative to a local government that is not already a power provider. A range of elements of a communications network overlap those of a power network, including the poles on which the infrastructure is built, the facilities in which network hubs are located, the skills and equipment of field staff, and even, in some cases, the billing, operating, and customer service systems that support the service offerings. A minority of the municipal, public-facing networks were built by localities that were not power utilities.

The economics of FTTP are extremely challenging given the very high capital costs and the modest revenues possible, particularly in light of competition from lesser broadband technologies. Unlike other public utilities such as water and sewer, city communications networks do not operate in a monopoly environment, and a number of competitor technologies, however inferior, do exist. These include far-lower-bandwidth options such as DSL, cable modem service, and wireless service. (In contrast, some of the municipal FTTP networks were built a decade or more ago at a time when there may not have been much or any competition in those rural towns.) These alternative technologies do not offer the same future-proof scalability and speeds as fiber, but can certainly offer robust competition with respect to price and other factors.

Tremendous successes have been achieved by public FTTP networks in Lafayette, Louisiana; Chattanooga, Tennessee; and Wilson, North Carolina—all of which are municipal electric utilities that attained substantial efficiencies. (In 2012, the Benton Foundation and the Institute for Local Self-Reliance published a study about the utilities' FTTP networks in these cities.[1])

The most dramatic successes of these networks are in the benefits that do not necessarily show up on financial statements—such as enhanced productivity, innovation, education, healthcare, company

For more on evaluating investment, see the Benton Foundation's *Digital Inclusion Outcomes-Based Evaluation* report.

recruitment, and related benefits that are among the reasons for the communications investment in the first place. Thus, even those public entities that have found it challenging to make FTTP networks self-sustaining on a balance sheet basis can still claim significant success based on these other benefits. Some call these positive externalities or ancillary benefits, but they are more central to the purpose of the network than any other factor.

2.1.2 Middle Mile Broadband

In this model, localities address "middle mile" needs by building less-extensive networks that ensure the availability of fiber optics to government users and key local institutions, but do not reach all the way to the home or business. This is a proven best practice with two decades of solid empirical data that demonstrates its viability.

Hundreds of localities have used this strategy, with a range of variations. Austin, Boston, Chicago, Los Angeles, New York City, San Antonio, San Francisco, Seattle, Washington, and hundreds of suburban and rural towns and counties have employed this strategy.

Two decades of public sector experience demonstrate that municipal ownership of a fiber network enables localities to better meet growing demands for communications capacity and functionality, while reducing the risk of private sector price increases for managed communications services. By owning its fiber infrastructure, a locality can determine how much it will pay for the initial infrastructure and also manage ongoing operating expenses, keeping them relatively constant—even as the network's capabilities increase over time.

Without control over its own network, a locality's costs for carrier-provided communications services may increase significantly with time—because aggregate pricing will increase as the community's communications needs continue to grow in coming years to support cloud-based services and Smart Cities initiatives. Additionally, the locality may find itself constrained by limited bandwidth at its sites. The community may be limited to the offerings that service providers make available in a particular neighborhood, or limited to the offerings that can be purchased under a given year's appropriation.

Communities may wish to enable a wide range of emerging, high-bandwidth applications, including remote traffic signalization, traffic camera and surveillance camera backhaul, remote sensors, and other devices, as well as a full range of Smart City and Internet of Things deployments. A robust, publicly-owned fiber network makes applications that require backhaul of wireline connectivity far more cost-effective.

2.1.3 Middle Mile Plus: Incremental and Targeted Fiber Construction

In this model, a community that already meets its own internal needs for connectivity offers dark fiber connections, through a lease, to reach key economic or community development targets. (Dark fiber refers to passive fiber strands; the lessee of dark fiber is responsible for adding electronics to "light" and operate the fiber.)

Experience suggests that this is the business and technical model with the lowest risk for many localities. This strategy can facilitate a modest portion of the public goals related to new broadband deployment while still minimizing risk. It requires a smaller capital investment than does more extensive fiber deployment and could allow the community to realize a modest revenue stream while meeting its own communications needs and reducing the cost of leasing circuits.

This model for fiber construction and leasing has been successfully implemented over the past two decades by many localities across the United States—ranging in size from San Francisco and Seattle to Ocala, Florida, and Pleasant Prairie, Wisconsin.

Significantly, though this model can fill a market vacuum for select business customers and incrementally improve the availability of broadband services, it is less likely to dramatically improve services to residential and small business locations. The availability of cost-effective dark fiber does offer some incentives for a private provider to extend that fiber to the home and business, but is unlikely to be enough to attract all necessary private sector investment in FTTP because it only incrementally lowers the cost of market entry.

2.2 Broadband Public–Private Partnership Models

Public–private partnerships (P3) exist on a continuum of risk, benefit, and control. Figure 1 illustrates these trade-offs from a public sector perspective.

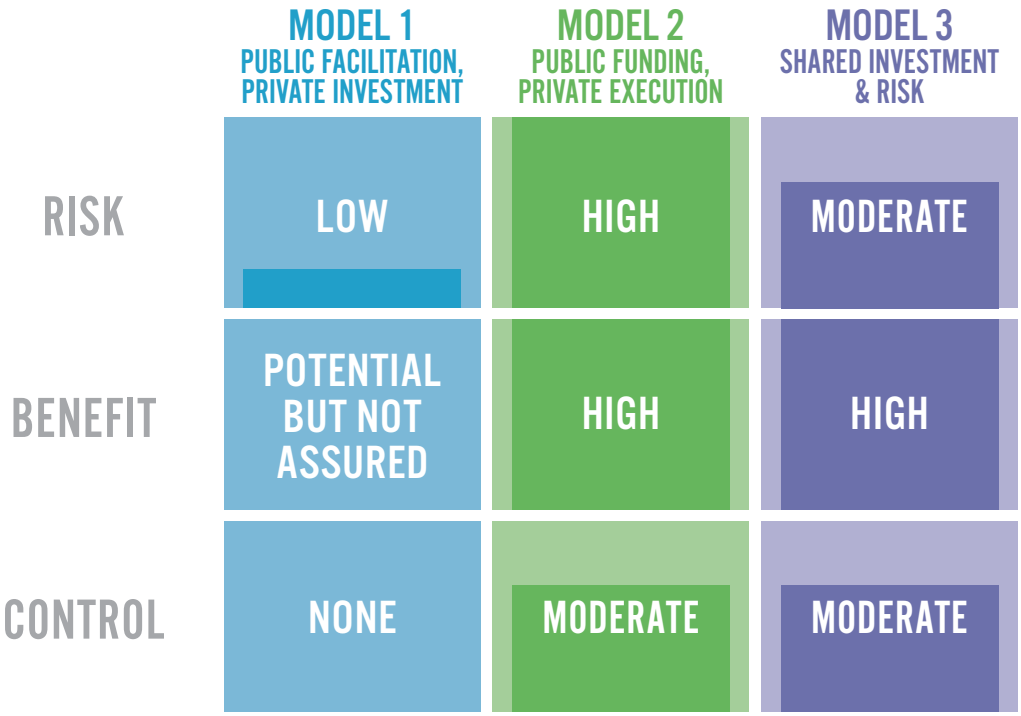

Figure 1: Trade-offs Among Risk, Benefit, and Control in Public–Private Partnership Models

On one end of the risk spectrum, there is private investment with public facilitation—the lowest-risk model for the public sector. In this scenario, there is no public control and the private sector alone makes decisions about where and when to build; private ISPs build networks with public sector facilitation and, perhaps, some modest public sector cost support in the form of dedicated public staff (to support the deployment process) or economic development credits.

This model entails relatively modest public cost (though it could entail considerable staff time and effort) and less public risk than other models, but it also gives the private sector partner complete control over the deployment of the infrastructure. As a result, the public sector may receive more modest benefits. But, for a risk-averse public sector entity, this approach has the potential to realize tangible benefits so long as the locality has a true, well-intentioned private partner.

On the far side of public risk, there exists the traditional P3 model of public funding with turnkey private execution—beginning with financing and going all the way through to operations, service provision, and customer service. This approach includes considerable public financial risk. While the locality may not be issuing bonds or taking on other debt directly, it is almost certainly either providing or guaranteeing a revenue stream to the private partner. And even if the arrangement includes a mechanism for sharing long-term revenues to potentially offset public cost, the risk frequently will be on the public sector side if those revenues do not materialize.

The more the private partner is willing to assume some of that risk, the more attractive this model becomes for the public sector. But that assumption of risk will frequently make the private partner's financing costlier—which, in turn, will increase the locality's payments or guarantee of end user fees.

With the exception of communities fortunate enough to attract investment from a private sector partner that will pay the capital cost of fiber deployment, most public–private partnerships will require some amount of public investment. But as public funding increases, so does the potential leverage the public sector entity has to exert control over the project itself, including the ability to focus on specific outcomes. This might lead to greater benefits for the community (see Figure 2).

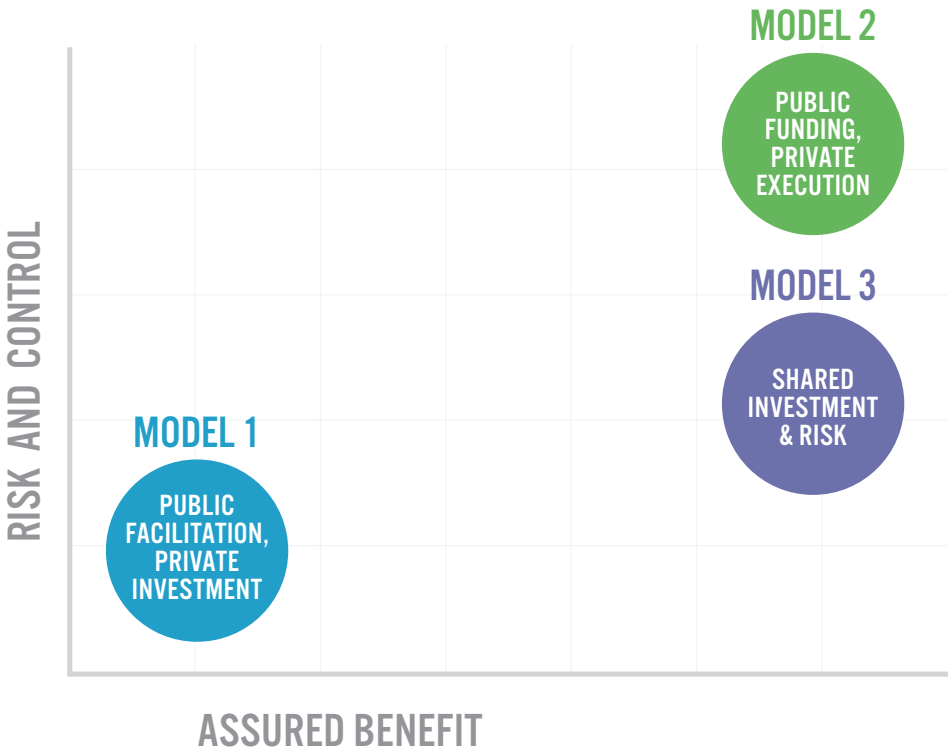

Figure 2: Balance of Risk/Control and Benefit in Public–Private Partnership Models

The middle ground between the public funding and private funding partnership frameworks is the shared-risk model in which a public sector entity develops some kind of creative partnership with a private sector entity. This model may be most attractive to a public sector entity that is either not able to attract a fully-private investment, or feels strongly that it wants to invest in the infrastructure as a means of securing some level of access and control.

This model depends on a negotiated agreement between the partners, so the outcome is highly dependent on each partner's priorities and the ability of the partners to develop and agree to win-win outcomes. The partners share costs, risks, and control—and the community is able to achieve its policy goals and desired benefits without bearing 100 percent of the risk as it does in the traditional public funding model.

In the sections below, we explore the trade-offs each model entails within this framework.

2.2.1 P3 Model 1: Public Facilitation of Private Investment

An attractive option for communities that want to minimize public cost.

The model focuses not on a public sector investment, but on modest measures the public sector can take to enable or encourage greater private sector investment. The most prominent example of this model is Google Fiber's deployments, including its networks in Austin, Kansas City, Nashville, and Atlanta. (As of this writing, Google Fiber has stopped growing its fiber footprint outside the metropolitan areas in which it is already operational.) Ting Internet is taking a similar approach in smaller markets, including Holly Springs, North Carolina; Centennial, Colorado; and Sandpoint, Idaho. A substantial handful of other fiber-based ISPs also use this model, with great success in collaborating with local governments.

This model is seen as an attractive option for many communities that wish to minimize public cost. The private sector partner's requirements have largely focused on making local government processes as smooth and efficient as possible. In return for these relatively low-cost public sector commitments, the communities benefit from the company's deployment of extensive fiber infrastructure (and, in many cases, competitive upgrades by the incumbent cable and telephone companies).

This model relies on the private companies to make the investment, while partner communities take certain steps to enable them to build in an expeditious, efficient, low-cost manner. Though Google Fiber was, until recently, the most prominent example, there is also significant interest among smaller companies—which have fewer resources than Google, but can deliver next-generation broadband to businesses and institutions on a targeted basis. In Indiana and Illinois, for example, MetroNet, an Indiana-based ISP, has built FTTP in several dozen small towns that have promised to facilitate MetroNet's expansion. In Nebraska, ALLO has deployed similarly in Lincoln and many smaller communities. In Mississippi, C-Spire has deployed FTTP in communities that promise to support its deployment.

While this model reduces the public sector's cost and risk compared to other models, there is a potential public-relations risk. Public expectations can get very high with the announcement of new fiber deployment. If a local government is strongly identified as a partner, it may be held accountable by the community if something goes wrong with the private sector partner's business plan or deployment.

A further challenge of this model is that private investors will deploy capital only in areas where they see a return on investment. The partnership model here does not confer upon the municipality much leverage to expand deployment patterns to neighborhoods that are of less interest to the private investor.

2.2.1.1 Strategies for Encouraging Private Investment

There are a number of strategies localities can take to encourage new private investment and reduce some of the costs and time for private sector entities to deploy advanced broadband services. These can, for example, take the form of specific economic development incentives such as tax benefits to encourage providers to build new infrastructure. MetroNet works with partner communities to benefit from Tax Increment Financing mechanisms—an economic development tool that effectively rebates some property taxes to the company, thus enhancing the business case for fiber investment in the community.

Communities typically offer these types of benefits to new entrants in a market that are willing to invest in next-generation infrastructure, but they can offer those benefits to incumbents if the incumbents will also invest in the same kind of infrastructure.

Communities can further facilitate the underground construction of conduit and fiber by implementing a "dig-once" policy.

Another key strategy is for the community to develop and strengthen the local infrastructure assets that enable the deployment of broadband.[2] These include public assets such as government-owned fiber, conduit, and real estate. For example, new network deployments can benefit enormously from access to existing government fiber, underground communications conduit in which fiber is placed, or real estate where equipment or exterior huts can be located.

Communities can further facilitate the underground construction of conduit and fiber networks by implementing a "dig-once" policy for all road and related transportation projects, and facilitating in-building access through construction specifications for new buildings.[3]

Building and expanding community infrastructure over time is a low-cost, low-risk strategy that will have real impact and expand options down the road. For example, the City of Mesa, Arizona, began a dig-once initiative in the early 2000s. The city intended to install its own rings of conduit during private sector construction projects, then sell access back to the private sector. Any time the city opened up a street, such as to install water or sewer utilities, it put in conduit.[4] In some cases, the city also added fiber to empty conduit for city purposes or to potentially lease to private providers. In total, the city installed as much as 200 miles of conduit.[5] Mesa targeted four economic development areas, in particular, with redundant conduit, fiber, and electric infrastructure.[6] Among those areas was the land around the Phoenix-Mesa Gateway Airport, where Apple announced in early 2015 it would build a $2 billion data center.[7]

A third important strategy relies on improving access to information—an asset that communities might not have considered.[8] Sharing information demonstrates a willingness to engage with the private sector to spur investment. Communities should seek to make data available wherever possible both for public and private uses.

Geographic information systems (GIS) or similar databases that hold information such as street centerlines, home and business locations, demographics, and details on existing utilities, public infrastructure, rights-of-way, and available easements can be extremely helpful to a locality's own broadband planning, to potential public–private partnerships, or to a network service provider that is evaluating the deployment of new infrastructure in a community.

Access to this information may attract and speed new construction by private partners, while enabling the community to meet its goals for new, better broadband networks—and potentially to realize revenues for use of those assets.

Finally, localities can take steps to enable broadband construction by making government processes more efficient and smooth.[9] These steps should take into consideration the needs of the community, balance public interest and public safety, and account for local resources and capacity. For example, localities can choose to be fully transparent about their permitting, rights-of-way access, and inspections processes—including timelines—to enable the communications industry to expeditiously plan and deploy networks. In some communities, permitting processes have been moved online, alleviating the need for wasteful and time-consuming paper-based processes. These actions can signal to private partners that there is an investment opportunity in the jurisdiction and that the locality will not be a bottleneck or create additional costs.

2.2.1.2 Potential Benefits and Pitfalls

Communities should be wary of private sector entities seeking benefits without offering concrete investment proposals.

The above strategies can make a difference in the economics of build-out for a private partner. However, they will not dramatically change the underlying economics of broadband network construction and operation. In a best-case scenario, the public sector can reduce the cost of outside plant construction for a broadband network by up to an estimated 8 percent.[10] Thus these measures can be substantial, but not transformative. Indeed, many incumbent providers overstate the extent to which local government and regulation are hurdles for developing next-generation broadband infrastructure.

Communities should be wary, then, of private sector entities seeking benefits without offering concrete investment proposals. From a business standpoint, for example, incumbents do not need additional support from the locality to keep maintaining (or even upgrading) their existing broadband networks and services.

2.2.1.3 Case Study: Holly Springs, North Carolina

Over the course of many years, the Town of Holly Springs, North Carolina, designed, engineered, and constructed a backbone fiber network to connect municipal buildings. To their great credit, Holly Springs' visionary elected officials chose to build a fiber network with dramatically higher capabilities than the need apparent at the time—knowing that a robust fiber backbone might attract interest from private ISPs that recognize the potential to leverage that backbone to more efficiently build their own FTTP infrastructure.

But a robust backbone network was not enough. The town's government also developed policies and strategies to attract private broadband investment. As a result, Ting Internet announced in mid-2015 that it will bring "crazy fast fiber Internet" to the homes and businesses of Holly Springs. Leasing town-owed fiber for its backbone, Ting is now building FTTP throughout much of Holly Springs and has started offering symmetrical gigabit Internet access to homes and businesses.

Key factors in Ting's decision to invest in Holly Springs were the town's willingness to lease excess fiber in its backbone and adopt best practices. Among other things, the town offered efficient government processes, access to information and facilities, and facilitation and support—all of which boosted Ting's confidence in the community as an investment opportunity.

2.2.2 P3 Model 2: Public Funding and Private Execution (Concessionaire Model)

In this model, localities negotiate formal public–private partnerships that resemble transit and toll-road construction projects, with public funding and private execution. This approach is also known as the concessionaire model, because the public sector entity grants a long-term concession to one partner.

This approach, which involves a substantial amount of public investment, represents a public risk model—but with private rather than public sector execution. A selected private partner takes responsibility for some combination of design, construction, financing, operations, and maintenance,[11] funded or guaranteed by the public partner over some period of time.

This model is a promising means to develop a network that can serve the entirety of the community, not just the parts selected by a private investor.

While this public–private partnership structure is new in broadband, it is used in Europe and increasingly in the U.S. for traditional infrastructure projects such as buildings, prisons, museums, water systems, toll roads, and bridges. The model seeks to leverage the strengths of the private sector to deliver turnkey services and solutions over an extended time.

Unlike transportation or utility infrastructure, however, broadband represents a somewhat competitive marketplace. Thus, applying the model to broadband in the U.S. creates political and financial risk for the public sector because public funding is used to fund an infrastructure that some residents may not want or choose to use. Indeed, if the broadband network is unsuccessful at generating revenue to cover all public sector costs, the public sector often remains on the hook for those payments. At its core, this model thus involves the public sector essentially becoming the guarantor in the event that the partnership does not secure sufficient revenue to cover all costs, including the profit margins required by the private partners.

Some communities explore this model as a means of financing a broadband project without having to issue bonds, but this supposition is only partially true. Under this approach, the public sector partner does not directly issue the debt, but the partnership financing will most likely be considered by auditors, state authorities, and the bond markets as counting against the public sector entity's borrowing capacity.

Localities as varied in size and location as Pikeville, Kentucky; Topeka and Shawnee County, Kansas; and San Francisco, California, are exploring the viability of this business model for deploying FTTP.

Despite these risks, the model can offer considerable benefits to localities that prefer not to undertake the significant logistical effort of a large-scale public broadband project and would prefer to rely on private expertise and execution. An additional, consequential benefit is that this model can offer a comprehensive solution for the entire community or can be targeted to particular geographic priority areas such as business districts or lower income, underserved neighborhoods.

As of the current writing, localities as varied in size and location as Pikeville, Kentucky; Topeka and Shawnee County, Kansas; and San Francisco, California, are exploring the viability of this business model for deploying FTTP.

One of the most fascinating aspects of the huge escalation in interest in this space over the past few years (catalyzed significantly by Google Fiber) is the emergence of a group of companies that are working with traditional public–private partnership models to develop strategies to enable local governments to build FTTP networks.

While the field is quickly developing and constantly changing, a range of companies have emerged so far with fully-articulated business models and business propositions for localities: InSite Capital, Macquarie Capital, SiFi Networks, Fujitsu, and Symmetrical Networks. All five companies are proposing interesting and innovative approaches—each with the same core concept: A locality's willingness to directly fund or guarantee revenues in the long term enables construction and operation of the network. That said, the different companies pursuing this model propose considerably-

different details and, of course, will reach different agreements based on the public sector partner's circumstances and negotiations.

We describe the primary elements of the concessionaire model below.

2.2.2.1 Key Elements of the Concessionaire Model

At its core, the concessionaire model represents a public grant of rights to a private partner that contracts to finance, build, and operate a broadband network, with the concession lasting a considerable period of time (likely 30 or more years). The private partner agrees to provide financing, construction, operations, and service delivery over the network.

To fund all this activity and investment, the locality agrees to an arrangement that guarantees a certain level of revenue to the concessionaire. This revenue mechanism could take any form legally available to the locality. Depending on state and local law, the locality could provide a direct revenue stream out of general funds, through a specific fee or tax, or otherwise. Alternatively, the partnership could be structured such that the private partner's revenue stream derives from end-user payments (service fees for data, voice, and video services, paid by network customers), with a minimum revenue guarantee by the locality such that any shortfall in projected revenues would be made up by the locality. Hybrid arrangements are also possible, in which the private partner's payments are funded partially through a public tax or fee and partially through end user fees for services. In any event, the private partner is unlikely to assume all or most of the demand and revenue risk in a P3 arrangement.

To offset public risk in this regard, P3 arrangements also frequently include provision for revenue sharing in the event that network revenues exceed the minimum amounts guaranteed to the private partner.

Some communities have sought partnerships of this sort that offer an "easy out" scenario in which the locality can cancel the partnership or choose not to appropriate necessary funds in any given year, and thus depart its financial obligations at any time. However, we note that, without the public sector entity's long-term guarantee of the debt, this approach may not be financeable. Potential investors presumably will not finance deals without guarantees that the public partner will stand behind its obligations, and where the investors will have an easy way to exit the agreement.

2.2.2.2 Benefits of the Concessionaire Model

This model is a promising means by which to develop a network that can—if funded by the public sector—meet community policy goals. Here is the bottom line: the public sector's willingness to take on financial risk comes with benefits—elements of the business model, including pricing, service area, and service offerings, can be negotiated with the private partner because the public partner's investment buys it influence.

Despite the financial risks, this approach is compelling to many communities from a policy perspective, because business parameters can be negotiated by the public partner depending on its priorities. In our experience, localities prioritize such factors as ubiquitous service (i.e., no cherry picking of neighborhoods), competition, and digital inclusion.

Thus, for example, a locality can negotiate a P3 in which FTTP is built throughout the community rather than (as in some private sector business models) to cherry-picked, high-revenue areas only. In other words, a publicly-guaranteed network can serve the entire community, not just the parts selected by a private investor.

With respect to competition, the partnership can be structured to enable "open access," an arrangement in which multiple ISPs can theoretically compete over the network, though, given the current economics of broadband, we are dubious that such competition will materialize in the short term. In this scenario, the public investment can be leveraged to create the possibility of more robust competition in the long-run.

And localities can address their digital inclusion goals through this kind of partnership by negotiating for specific pricing or other benefits for lower-income residents. As with all other elements of this model, the public sector will effectively pay for any benefit granted through the partnership, but its financial investments can leverage significant benefits in areas that represent its broadband policy priorities.

2.2.2.3 Areas for Further Evaluation

The application of the P3 model to broadband is still new and largely untested; we urge caution for that reason. Case-specific negotiations are essential to protecting the public interest, and to ensuring that the final agreement balances risk, reward, and control through a nuanced assignment of costs and payments. The following areas, and many others, merit careful consideration and evaluation:

- First, there exists both political and financial risk for the public sector because public funding is used to fund an infrastructure that some residents may not want or choose to use. Whether the network is funded through specific taxes or fees or out of general funds, there is the potential for taxpayer opposition, particularly by those who purchase broadband services from other providers or choose not to purchase data services at all.

- Second, while the model does not require the public sector partner to issue bonds, the partnership financing may be considered by auditors, state authorities, and the bond markets as counting against the public sector entity's borrowing capacity.

- Third, we have concerns about the open access model, which is very compelling from a policy perspective and is being heavily promoted as one of the benefits of the P3 structure. Unfortunately, the open access structure is largely untested in the U.S., and the novelty of the model presents risk. Our concerns about the novelty of the open access model would be alleviated if a concessionaire had deployed this model in other markets and if resulting data were available. However, to our knowledge, no potential private partner has yet executed this model in any U.S. locality. Over time, the model may prove itself, and it certainly has the potential benefit of enabling new competition to emerge as the broadband market changes over time.

- Fourth, the financial attractiveness of the P3 model is very dependent on the success of the private partner at generating revenues. We strongly recommend that localities do rigorous, independent analysis of financial models offered by potential partners and that they pay particular attention to projections of future revenues that appear to reduce the public's long-term costs and risks. These revenue projections are generally not guaranteed by the companies and if they prove to be too optimistic, the locality's long-term costs may be greater than they appear. For example, we are concerned about financial models that project unrealistic increases in service revenue based on an annual consumer price index (CPI) escalation factor. Industry experience suggests that consumer data service fees have declined rather than grown over time (unlike cable television fees).

2.2.2.4 Case Study: KentuckyWired

In terms of internet speeds and accessibility in the United States, the Commonwealth of Kentucky has usually been near the bottom of the list. And Kentucky's residents and economy have suffered during a

period when once-reliable coal jobs are on what is likely a permanent decline. With coal production is at its lowest point in 80 years, 13,000 jobs in eastern Kentucky have been lost since 2009. [12]

To become more competitive in the digital economy, the Commonwealth decided that it needed to build out its broadband network. However, Kentucky faced the same challenges found in rural communities across the country: bringing high-speed internet to low-density population areas is an expensive prospect.

To address this challenge, the Commonwealth developed KentuckyWired, the largest P3 of its type in the country (and Bond Buyer Magazine's Deal of the Year for 2015).[13]

Once complete, the network will connect 1,100 government entities over a 3,400-mile fiber optic backbone and excess capacity will be made available to private sector companies for lease, development, and innovation. Incumbent ISPs and, possibly, newer, less traditional ISPs are expected to take the opportunity to build out the network's "last mile," connecting residences and small businesses.

Kentucky will retain ownership of the network; the concessionaire will build, maintain and operate the network for 30 years. The project is currently scheduled to be completed in 2019.

The project is also notable for its bipartisan political support. High-speed internet access in the modern era is considered important enough that politicians on both sides of the aisle have worked on, or acknowledged, the importance of KentuckyWired for the future of the commonwealth. KentuckyWired was first announced by Rep. Hal Rogers, a Republican, and then-Gov. Steve Beshear, a Democrat, in 2014. Gov. Matt Bevin, a Republican, quickly announced his support for the project after his election in 2016. "Our administration is fully committed to the KentuckyWired project and we are excited at the possibilities before us as a result of its completion."[14]

2.2.3 P3 Model 3: Shared Investment and Risk

This model will provide an institutional or public sector network of the future–more extensive than any network that served city or county needs in the past.

In this model, localities create hybrid arrangements where a locality and private partner find a creative way to share the capital, operating, and maintenance costs of a broadband network.

Shared risk models are in their early days. We have only a few emerging projects and it is hard to conclude anything on that basis. But the shared risk models are more likely to emerge in metro areas where private capital is going to find greater return. In contrast, the public funding, private execution model (i.e., P3 Model 2) can obviously benefit more rural communities because the public is providing a revenue stream to the private partner and is essentially guaranteeing the debt in order to make the financing viable and low interest. That said, while these public funding, private execution models have potential import and applicability for rural areas and less dense areas, they come at a real cost, which is inevitable because rural broadband is simply a very costly proposition.

In a shared risk scenario, the locality and private entity agree to some allocation of capital and operating risk, ideally targeted to their respective strengths and weaknesses. Thus, for example, a rural locality could agree to contribute a percentage of the capital cost of building a network—and potentially undertake construction of that network itself using its public works expertise—while the private partner agrees to provide services in the designated service footprint and to take all operating risk over a period of time. In this scenario, the locality has leveraged its public works capacity and limited its risk to a portion of the capital cost of the

infrastructure, while ensuring the provision of services to residents and businesses by a private partner whose operations capacity is brought to bear.

In another scenario, a city can finance, build, and maintain extensive fiber optics, reaching all or most of its residents and businesses, and then partner with a company that is willing to pay for access to that fiber and to those potential customers. The city's risk is limited to the fiber—a long-term, future-proof asset—while the private company can enter the market quickly and without incurring the construction risk and capital expense of building the fiber network itself.

In these ways, an arrangement based on shared investment and risk plays to the strengths of both the public and private sector partners. Most localities consider FTTP deployment not as a moneymaker, but as a powerful tool for education and economic development. Thus, in a shared investment model, the risk is shared, but the community still receives 100 percent of the benefits it seeks—recognizing that the benefits do not all appear on the project's financial statements. For the private partner, a shared investment means less upfront capital (risk), with an opportunity for future revenues.

Among other enormous benefits to this model, localities can not only provide infrastructure to the private sector—for compensation and to get gigabit (and beyond) service to the public—but can also secure extensive fiber throughout their communities for internal government uses, including municipal and municipal utility operations, public safety, and emerging Smart City and Internet of Things (IoT) applications.

This model will provide an institutional or public sector network of the future—more extensive than any network that served city or county needs in the past, because the fiber will go everywhere in the community. It will have the potential to serve every conceivable application, from traffic signal control to air quality monitoring, from robust and secure public safety communications to high-end videoconferencing between universities and schools.

This benefit is ancillary to the core benefit of enabling a competitive gigabit (and beyond) product over fiber to every home and business in the community—but, in the long run, it has the potential to enable transformative public sector use and services. And indeed, local governments' track record of securing considerable savings and enormous operational capabilities over fiber is already demonstrated.[15]

We note, however, that while this model offers an extraordinary opportunity for innovation, it is in no way a sure thing for communities. We do not have the data points to develop the best practices necessary for success. At the moment, early actors are developing new and exciting partnerships to bring next-generation broadband to their communities. We describe some of those projects in the brief case studies below.

2.2.3.1 Case Study: Westminster, Maryland

The City of Westminster, Maryland, is a bedroom community of both Baltimore and Washington, D.C., where 60 percent of the working population leaves in the morning to work elsewhere.[16] The area has no major highways and thus, from an economic development perspective, has limited options for creating new jobs. Incumbents have traditionally underserved the area with broadband.

The city began an initiative 12 years ago to bring better fiber connectivity to local institutions through a middle mile fiber network. In 2010, the State of Maryland received a large award from the federal government to deploy a regional fiber network called the Inter-County Broadband Network (ICBN) that included infrastructure in Westminster.

Westminster saw an opportunity to expand the last mile of the network to serve residents. At the time, though,

it did not have any clear paths to accomplish this goal. City leaders looked around at other communities and quickly realized that they were going to have to do something unique. Unlike FTTP success stories such as Chattanooga, Tennessee, they did not have a municipal electric utility to tackle the challenge. City leaders also did not have the resources, expertise, or political will to develop from scratch a municipal fiber service provider to compete with the incumbents. As a result, they needed to find a hybrid model.

As the community evaluated its options, it became clear that the fiber infrastructure itself was the city's most significant asset. All local governments spend money on durable assets with long lifespans, such as roads, water and sewer lines, and other infrastructure that is used for the public good. The leaders asked, "Why not think of fiber in the same way?" The challenge then was to determine what part of the network implementation and operations the private sector partner would handle and what part could be the city's responsibility.

The hybrid model that made the most sense required the city to build, own, and maintain dark fiber, and to look to partners that would light the fiber, deliver service, and handle the relationships with residential and business customers. The model would keep the city out of network operations, where a considerable amount of the risk lies in managing the technological and customer service aspects of the network.

The city solicited responses from potential private partners through a request for proposals (RFP). Its goal was to determine which potential partners were both interested in the project and shared the city's vision.

The city eventually selected Ting Internet, then an upstart ISP with a strong track record of customer service as a mobile operator. Ting shared Westminster's vision of a true public–private partnership and of maintaining an open access network. Ting has committed that, within two years, it will open its operations up to competitors and make available wholesale services that other ISPs can then resell to consumers.

Under the terms of the partnership, the city is building and financing all of the fiber (including drops to customers' premises) through a bond offering. Ting is leasing fiber with a two-tiered lease payment. One monthly fee is based on the number of premises the fiber passes; the second fee is based on the number of subscribers Ting enrolls. Initially, this payment will be a flat fee—but in later years, when Ting's revenue hits certain thresholds, Ting will pay the city a small fraction of its revenue per user. That mechanism is designed to allow the city to share in some of the upside of the network's success. In other words, the city will receive a bit of entrepreneurial reward based on the entrepreneurial risk the city is taking.

Based on very preliminary information, given that this is a market in development, we believe this is a highly replicable model.

What is so innovative about the Westminster model is how the risk profile is shared between the city and Ting. The city will bond and take on the risk around the outside plant infrastructure, but the payment mechanism negotiated is such that Ting is truly invested in the network's success.

Because Ting will pay Westminster a small monthly fee for every home and business passed, Ting is financially obligated to the city from day one, even if it has no subscribers. This structure gives the city confidence that Ting will not be a passive partner because Ting is highly incentivized to sell services to cover its costs.

Perhaps most significantly, there is also a mechanism built into the contract that ensures that the two parties are truly sharing risk around the financing of the outside plant infrastructure. In any quarter in which Ting's financial obligations to the city are insufficient to meet the city's debt service, Ting will pay the city 50 percent of the shortfall. In subsequent quarters, if Ting's fees to the city exceed the debt service

requirements, Ting will be reimbursed an equivalent amount. This element of the financial relationship made the deal much more attractive to the city because it is a clear demonstration of the fact that its private partner is invested with it.

2.2.3.2 Case Study: Urbana/Champaign, Illinois

The University of Illinois and the cities of Urbana and Champaign, Illinois, have worked together over many years to expand their broadband infrastructure and connectivity. Those efforts included the development of the Urbana-Champaign Big Broadband (UC2B) network, which is now owned and operated by a not-for-profit corporation.[17] Through a range of different strategies and using local private capital, state funds, and federal funds, UC2B built fiber rings specifically engineered to enable FTTP deployment in the most cost-effective manner. It also built FTTP in neighborhoods with the lowest broadband adoption rates, on the theory that those would be the last places that the private sector would deploy.

UC2B's existing investment and willingness to share future risk in 2013 attracted a private partner, iTV-3, an Illinois company with FTTP experience. The two partners entered into an agreement that gave iTV-3 access to UC2B fiber on a lease basis at no cost in return for meeting the community's goals of deploying additional FTTP with the following requirements:[18]

1. Gigabit service speeds
2. Wholesale access on the network to competing companies
3. No cherry picking—all neighborhoods have equal opportunity to get services

Through the agreement, the cities of Champaign and Urbana also negotiated a right of first refusal to buy the network in the event that iTV-3 attempted to sell it, a right that the cities exercised in 2016 when iTV-3's parent company chose to sell off all its fiber holdings. As of this writing, the cities have identified and contracted with a new private partner that has made robust commitments to meet the cities' policy goals (gigabit speeds, competition, and ubiquitous build-out) in return for access to the infrastructure.

Under the agreements with both iTV-3 and the successor partner, the community effectively receives 100 percent of the economic development, competition, and digital inclusion benefits it seeks in return for the investment it has already made in the existing fiber. The model also means the community can focus on driving demand and adoption, while relying on an experienced private partner to handle customer service, marketing, and operations.

2.2.3.3 Case Study: Lincoln, Nebraska

In 2012, the mayor of Lincoln, Nebraska, announced a $700,000 plan to install fiber optic conduit throughout the city in the interest of building a citywide network that private companies could then lease.[19]

After its completion, the 216-mile conduit, known as the Lincoln Technology Improvement System, initially attracted service providers that were primarily focused on providing broadband to large business customers.

In 2015, however, the Nebraska-based telecommunications firm Allo Communications approached the city with a proposal to bring high-speed internet to residential customers. Allo's deal eventually took the final remaining space in the city-owned conduit network.

As part of a 25-year agreement with the city, Allo has agreed that it will provide high-speed Internet to any residential or business address in the city, as well as to government buildings and traffic lights.[20]

The city, for its part, will invest $500,000 each year for the next four years toward maintaining and updating the conduit network. After the fourth year, revenues generated from the agreement between the city and Allo are expected to reduce the cost of this annual investment. Allo currently pays the city $3 per month for each residential customer for communications services, an amount that is scheduled to incrementally increase over time.

Before Lincoln's deal with Allo, the average connection speed in Lincoln was between 4 and 12 Megabits per second. Allo's service offers speeds ranging from 100 Megabits per second to 1 Gigabit per second.

Low-income users in the city are also beneficiaries of this partnership. Thanks to a local government subsidy that Allo matches, Allo is able to make high-speed Internet access available for only $20 per month to households that would not otherwise be able to afford broadband access. Allo has also agreed to provide up to 75 nonprofit organizations with free broadband service.

2.2.3.4 Case Study: Google Fiber in Huntsville, Alabama

In February 2016, the city of Huntsville, Alabama, the state's northern technology hub, announced that its municipal electric utility will build a fiber network throughout its city limits (presumably, to pass all or most businesses and homes), and that Google Fiber will lease much of that fiber in order to provide gigabit services to residences and small businesses.

The arrangement between Huntsville and Google Fiber is a variation on the model pioneered in Westminster, though the payment terms are different and provide a key contrast. Google Fiber will lease fiber from Huntsville using a rate sheet that provides for various levels of pricing based on the amount of fiber leased. In contrast, Ting's obligations to Westminster are based in part on how much fiber it uses, in part on how many customers it secures, and in part on the revenues it generates. As a result, Westminster will have less predictability and certainty about its revenues from Ting, but has the potential to share in the upside in the event that Ting is very successful in that market.

As in Westminster, the Huntsville model puts the city in the business of building infrastructure, a business it knows well after a century of building roads, bridges, and utilities. The model leaves to the private sector (in this case, Google Fiber and any other provider that chooses to lease Huntsville fiber) all aspects of network operations, equipment provisioning, and service delivery.

Interestingly, the Huntsville model holds the potential for competition among providers, as Google Fiber will not be the exclusive user of the fiber and other entities can also choose to lease fiber based on Huntsville Utilities' established rates. We anticipate that there will be other ISP users of the city's fiber, particularly to serve larger businesses and institutions, though we question whether the economics exist for another provider to compete against Google Fiber in the residential market, as least in the short-term. Over the long term, however, market demand and structures may change and new opportunities for competition may arise. By building and owning its own fiber assets, the city of Huntsville has ensured it will be able to react to those changes and maximize its benefits.

2.2.3.5 Rural Case Study: Garrett County, Maryland

In rural areas throughout the United States, where the cable and phone industries have not built robust communications infrastructure, there exists a significant deployment challenge: the extremely high capital costs for deploying communications infrastructure and services, and the relatively-modest potential revenues.

Both the high costs and the likely low revenues are due to rural areas having low population density.

Frankly, absent large amounts of public funding, whether state, local, or federal, we see no clear path to deployment of next-generation FTTP infrastructure in any rural area of the United States not eligible for substantial subsidy through the Universal Service Fund.

Rather than the kind of comprehensive rural solutions for FTTP and next-generation gigabit services that are inconceivable absent massive public funding, we note that some targeted and lower-bandwidth strategies are emerging. These require less public funding, but could potentially enable development of new, competitive broadband services with the capability to address the needs of rural communities. Frankly, however, these solutions will be at lower bandwidth than the optimal gigabit networks that are more viable for densely-populated regions.

Among the potential solutions are creative shared-risk partnerships that can be seeded with modest public funding and developed at a local level to address unserved and underserved areas and gaps in coverage.

For example, rural Garrett County, in far western Maryland, is a relatively remote Appalachian community bordered by West Virginia and Pennsylvania. The county has struggled to get broadband in a number of its remote, mountainous areas. Where broadband is available, it is inadequate DSL service that does not meet the Federal Communications Commission's speed benchmark for broadband service, let alone the requirements for home-based businesses or homeschooling. The incumbent provider has not made any plans to expand or upgrade service offerings.

Though mobile broadband is available in some parts of the county, data caps mean that service is not viable for economic or educational activities. (Parents who homeschool their children can run through their monthly bandwidth allotment in one day of downloading educational videos.) Beyond these challenges for residents, the county has struggled to attract and retain businesses and teleworkers.

In response, the county has gradually and incrementally built out fiber in some areas, with a focus on connecting specific institutions. And, in September 2015, the County Council approved a contract with a private partner to leverage some of that fiber and additional public funding to support the deployment of a fixed-wireless broadband network, currently under construction, that will serve up to 3,000 currently-unserved homes in the most remote parts of the county. The private partner, Declaration Networks Group (DNG), has also put its own capital toward the construction of the network, and will apply its technical and operational capabilities to managing the network.

The partnership involves cost to the county, but also massive benefits for residents and businesses in the newly-served areas.

The county's outlay of funds is $750,000, matched by a grant from the Appalachian Regional Commission (ARC) and DNG's commitment of both capital and operating funds. That relatively modest county contribution (leveraged for the ARC economic development funding) made the economics of this opportunity very attractive to DNG, and secured a broadband build-out for an area that would otherwise not be attractive for private sector broadband investment.

From an economic development perspective, the county's investment represents enormous value for the dollar, enabling residents in 3,000 homes to buy cost-effective broadband service that facilitates telework, home-based businesses, and homeschooling. This investment will also close the homework gap for many students in the county schools who do not currently have broadband in their homes—an increasingly critical lack of service.

As the network is completed over the next year, the county will reduce to nearly zero the number of homes in the county that do not have access to some kind of broadband communications option. This option may be modest—not the robust speeds available in metro markets—but it is significantly better than nothing, and a huge economic development achievement from the county's standpoint.

2.2.3.6 Rural Case Study: Swift County, Minnesota, and Federated Telephone

According to Minnesota's Department of Employment and Economic Development, 25 percent of the state's rural residents lack access to high-speed broadband. In one innovative, shared-risk project, a state grant and a county bond issuance have enabled a private company to deploy next-generation broadband in Swift County. This rural area in west central Minnesota has a population of only 10 people per square mile—and all of the economic challenges of deploying broadband in low population density areas.

Set up to promote "border-to-border" broadband access, the state has a $35 million grant program designed to help new and existing ISPs as they try to reach new customers in hard-to-reach areas.[21] With the active support and encouragement of Swift County, Federated Telephone Cooperative, a phone co-op in the region, applied for and won the largest grant from the state in 2015: $4.95 million. That amount pays for only 40 percent of the project's projected cost, however, under the terms of the grant. The balance of the project's $12.5 million total cost is funded by a loan from the county.

To launch the project, Swift County sold $7.8 million in general obligation bonds.[22] Federated provided a $1 million cash security in the event of missed payments, and will repay the loan over 20 years.

The project is designed to expand broadband availability to 600 households, 425 businesses, and 75 community buildings.

2.3 Additional Strategic Considerations for Public–Private Partnerships

As public sector entities of all sizes and capabilities evaluate potential models for public–private partnerships, it is important to approach each proposal with a healthy dose of common sense. Next-generation fiber deployment, particularly on a large scale to reach all residences and businesses in a community, is a valuable and future-proof investment. But it will not be cheap or easy. If anyone tells you otherwise, or claims that they will deliver enormous benefits at little or no cost or risk, ask for examples of projects where they have accomplished what they are promising. If it were easy, we would already have seen enormous private investment in FTTP across the country. Communities should be skeptical of rosy projections.

By taking on the risk of fiber construction and finding a partner to light the network and provide service, a locality can increase the potential for a universal fiber build-out to every location.

Look for private sector partners that are interested in developing meaningful partnerships to deploy next-generation infrastructure. A significant risk around economic development incentives and other measures to facilitate investment is that private companies will request that localities take on additional costs as a condition of the private investment. For example, a private partner might ask the local government to hire additional, dedicated staff and provide free access to real estate—and provide in return only tacit commitments for new services or technological upgrades. The goal of these partnerships is not simply to shift private sector costs to the public sector. If a company is a true partner, it will be willing to make firm commitments to invest in the community in return for the actions the locality takes to lower the cost of deploying infrastructure.

In addition, partners and partnerships will differ in different parts of the country, and with the size of a community. A primary challenge for localities seeking build-out to every residence and business is that the larger the community, the more difficult it may be for a private partner to deploy its service universally. By taking on the risk of fiber construction and finding a partner to light the network and provide service, a community can increase the potential for a universal fiber build-out to every location.

Finally, do not underestimate the importance of the political element in tackling these challenges. Political concerns will play a huge role in finding solutions. Community and political leaders must jointly decide to pursue a project of this scope, to solve the problems that may arise along the way, and to bring fiber and its benefits to the community.

3. Legal Issues in a Broadband Public–Private Partnership Project

While all community broadband projects require careful attention to legal issues, this is especially true of broadband public–private partnership projects—particularly complex projects requiring extensive commitments by the public and private sectors over many years. In the following sections, we address the key legal issues that arise in each of the three major stages of the development of a public–private partnership deal: confirmation of authority, pre-negotiation project planning, and negotiation of the agreement.

The first two sections are largely geared toward public-sector readers, because the public sector will generally initiate a broadband public–private partnership and address various issues before soliciting private sector involvement. The final section will discuss the allocation of legal risks between the public and private sector parties.

3.1 Confirmation of Authority

As an initial step, a local government contemplating a broadband public–private partnership must determine whether it has authority to participate in such a venture and, if so, whether there are any limitations on its authority or procedural steps it must take to perfect its authority (e.g., hearings, referenda, etc.).

It is critically important to sort out authority issues at the outset, because mistakes can be costly—and are often avoidable. Also, incumbent carriers, threatened with loss of business, have often challenged public communications projects for alleged lack of authority or failure to comply with required procedures.[23]

Federal law encourages local governments to provide communications services of all kinds, but it does not affirmatively empower them to do so. For such authority, local governments must look to state and local law.[24] Moreover, such authority must exist for each activity involved in a broadband public–private partnership, including authority to provide communications services (if such services are being provided by the public body) and contract with the private sector.[25]

In the remainder of this section, we discuss how state and local laws can affect a local government's ability to enter into broadband public–private partnership projects.

3.1.1 State Constitutions

State constitutions typically establish political subdivisions—cities, counties, towns, villages, special districts, and so on—and prescribe the powers the subdivisions can exercise. The scope of authority a state constitution grants a local government varies from state to state, both in terms of overall authority conveyed and the specificity used to describe that authority.[26] Some local governments have broad grants of authority under their state constitutions that allow localities to undertake a wide range of responsibilities, while other constitutions are more limited. In the latter case, the localities rely on the state legislature to expand the scope of their authority. In addition, the constitutional language alone is not always definitive. Sometimes the language of a state constitution appears to give municipalities broad powers, but the courts interpret the relevant provision narrowly.[27] Sometimes the reverse is true. So, it is essential to review the case law surrounding the relevant constitutional provisions.[28]

For example, state constitutions often contain language restricting the financial interactions between local governments and the private sector. In fact, more than 40 state constitutions have some language that prevents cities, towns, or counties from investing in or lending or pledging their credit to private businesses or corporations.[29] Most of these provisions originated in the 19th century, as a response to a spate of railroad failures that jeopardized the financial stability of hundreds of local governments that had invested in them.[30] As originally interpreted, these provisions effectively prohibited the public sector from engaging financially with private companies.

Eventually, however, courts across America began to reinterpret these provisions to allow for public lending and partnerships with the private sector when doing so was in the public interest and served a public purpose.[31] Many state legislatures have also codified the "public purpose" exception to the constitutional limitations on public–private partnerships,[32] and the courts of many states have interpreted that term liberally. In fact, the majority of state supreme courts have upheld at least some economic development programs that involve direct assistance to the private sector in the form of cash grants, low-interest loans, and tax breaks.[33]

3.1.2 State Statutes

State laws may also affect a local government's authority to participate in a broadband public–private partnership. Such laws fall into two main categories: laws that address public–private partnerships directly, and laws that address a local government's authority to provide or facilitate the provision of particular kinds of communications services.

3.1.2.1 State Public–Private Partnership Statutes

In the past few years, around three out of four states have enacted legislation that expressly addresses public–private partnerships in one way or another, and that number is likely to continue to grow as public–private partnerships increase in popularity and recognition in the United States. Although not all local governments need this authority to proceed with a public–private partnership project, a broad public–private partnership statute is a useful demonstration of clear legislative authority. On the other hand, public–private partnership-enabling statutes vary greatly in scope and breadth. Many are geared toward certain specific types of public–private partnership projects or prescribe a particular process for procuring, financing, and/or operating the network.

Only Arkansas has public–private partnership-enabling legislation that specifically addresses broadband expansion,[34] but a few other states have broad public–private partnership-enabling statutes.[35] Maryland is among that select group as it recently enacted a public–private partnership-enabling statute that is already

being held out as model legislation for a state looking to foster responsible public–private partnerships. Maryland's statute authorizes public–private partnership projects "for any public infrastructure asset" and provides guidelines for engaging in a public–private partnership project."[36]

Most public–private partnership statutes are substantially more limited in scope. Several states have public–private partnership legislation that provides authority only for particular types of infrastructure projects—normally transportation-related projects.[37] Some states have enacted public–private partnership legislation that only provides authority for specific projects, such as a single bridge or toll road.[38] A few states only provide authority for a limited number of "pilot" or "demonstration" public–private partnerships.

Public–private partnership-enabling statutes may also dictate the public–private partnership procurement process. For example, a few states require that government agencies not engage in performance-based procurements but instead award contracts to the "lowest responsive price."[39] Other statutes allow government entities to prioritize other financial considerations, such as return on equity, rather than price.[40] A few public–private partnership-enabling statutes prohibit a public entity from accepting unsolicited bids.[41] Others prescribe specific guidelines for bidding procedures and the criteria with which to review bids.

3.1.2.2 State Statutes that Expressly Address Local Government Authority to Engage in Communications Service Activities

Several states have enacted laws that deal explicitly with the authority of local governments to provide or facilitate the provision of communications services. Some of these laws are permissive, others are restrictive. Some are permissive for some services (e.g., dark fiber or wholesale lit fiber) and restrictive for other services (e.g., retail consumer services).

For example, Illinois expressly authorizes cities and counties to "undertake local broadband projects and the provision of services in connection therewith … lease infrastructure that it owns or controls … serve as a retail provider of telecommunications services … [with] appropriate certification from the Illinois Commerce Commission."[42] California also empowers cities to establish public utilities, which are permitted to "acquire, construct, own, operate, control, or use" the facilities to supply their inhabitants with "light, water, power, heat, transportation, telephone service, or other means of communication…"[43]

Even if a local government has ample state-granted power to participate in a broadband public-private partnership, it may still be constrained by self-imposed limitations.

In contrast, at least 20 states have laws that hamper the ability of local governments to provide or partner for the provision of communications services.[44] Typically promoted by incumbent communications service providers, these laws vary from state to state. They range from outright bans on a public entity's provision of certain services to measures that are supposedly necessary to protect the private sector from unfair competition. As the Federal Communications Commission (FCC) has found, however, such laws can have the practical effect of making public projects unduly time-consuming, burdensome, and prohibitively costly.[45]

3.1.3 Home Rule v. Dillon's Rule

Even after conducting extensive due diligence, a local government may sometimes still not be certain that it has authority to enter into a broadband public–private partnership under state law. In those cases, the outcome will probably be governed by whether the state applies "Home Rule" or "Dillon's Rule" in interpreting statutory gaps or ambiguities.

In general, local governments possessing "Home Rule" authority may undertake any activity not prohibited by the state legislature, and statutory gaps or ambiguities are interpreted in favor of the existence of local government authority. In contrast, local governments subject to "Dillon's Rule" are deemed to have only those powers that the state has expressly provided them or that are necessarily and reasonably implied by other powers that the state has granted.[46] Dillon's Rule also requires that all statutory gaps or ambiguities be interpreted against the existence of the power in question.

Today, approximately 40 states apply some form of Dillon's Rule, while about 30 states have some form of Home Rule.[47] Given this overlap, it is obvious that some states apply Dillon's Rule in some circumstances and Home Rule in other circumstances. For example, some states apply Home Rule to local governments with populations exceeding certain specified amounts and apply Dillon's Rule to local governments in smaller communities.[48] Some states apply Home Rule to cities and counties but Dillon's Rule to publicly-owned utilities.[49] In short, it is necessary to carefully examine the specific form of Home Rule, Dillon's Rule, or both, that a particular state may apply.

3.1.4 Local Restrictions

Even if a local government has ample state-granted power to participate in a broadband public–private partnership, it may still be constrained by self-imposed limitations. Such restrictions may appear in the local government's charter or ordinances, or they may appear as non-compete clauses in franchises, municipal pole attachment agreements, contracts, or other local undertakings. The limitations may be direct or indirect (e.g., constraints on financing). A full due diligence review of local authority must therefore also include potential restrictions at the local level. When such limitations are identified early on, there may be time to remove them by local action or state legislation, depending on the applicable process in the state in question.

3.2 Pre-Negotiation Project Planning

Once a local government has confirmed its authority and established the zone within which it believes it can operate lawfully, it can turn to exploring the options that it may realistically have within that zone. In this section, we discuss several important legal issues that may affect these options.

3.2.1 Financing

Many communities consider public–private partnership projects desirable primarily because of the financial resources that a private partner can bring into the partnership. To attract a private partner, however, a local government may have to contribute substantial financial resources itself. In this section, focusing on the key legal issues involved, we discuss various funding and financing resources that are available to local governments, to private partners, or to both when working together.

3.2.1.1 Financial Resources Available to Local Governments

Numerous financing options are available to local governments. For example, a local government can finance a project itself, raise capital using various financial instruments, or utilize any number of tools to make itself more attractive to investors. The following section explores some of these concepts, but is not exhaustive in discussing either the possible financing options or potential legal issues.

3.2.1.1.1 Public Sector Project Financing

If state law permits public subsidies of communications networks, local governments can invest surplus revenues from other sources (e.g., municipal utility revenues) in communications networks. Historically, local governments rarely chose this approach due to insufficient funds or political sensitivities, but several communities have utilized this approach more recently. For example, the City of Westminster, Maryland, discussed in Section 2.2.3.1, and the Town of Leverett, Massachusetts, are using property tax revenues to invest in their broadband projects. A number of cities in Utah (the UTOPIA cities) used sales tax revenues (not to finance their projects directly, but as collateral for their bonds).[50] Similarly, Texas and various other states authorize local governments to impose taxes to help fund economic development initiatives.[51]

Depending on state law, local governments have many tools they can use to finance a project and/or stimulate private investment.

Both federal law and the laws of a number of states also encourage communities to use tax incentives to attract private sector investments. For example, federal tax law encourages local governments to use Tax Incremental Financing (TIF) to stimulate private investment in geographic areas that require revitalization. In essence, TIF works by committing the anticipated increases in real estate taxes over 20 to 25 years from the "TIF District"—the revitalized area and a substantially larger area surrounding it—to pay for the costs of the revitalization. TIF is based on the expectation that the increased property taxes will more than offset the tax benefits offered as incentives to investments in those areas.[52]

The New Markets Tax Credit Program is another important tax-driven financing tool used in initiatives such as the OneCommunity project in Northeastern Ohio. The Program provides tax credits of 39 percent of amounts invested in certified Community Development Entities, which, in turn, invest in industrial, community facility, and commercial development in qualifying Low Income Census tracts.[53] The program also supports direct loans and equity investments for operating businesses. The program was due to expire, but the Consolidated Appropriations Act of 2016 and the Protecting Americans From Tax Hikes Act of 2015 recently extended it through 2019 at $3.5 billion annually.

A local government that does not have sufficient funds from other sources to pay for a network itself—and for legal, political, or other reasons is unwilling to tax the public—can use debt financing to help pay for the project. This is usually done through general obligation bonds or revenue bonds.

A general obligation bond is debt for which repayment is guaranteed by the full faith and credit of the local government.[54] Such bonds are the least risky to investors and therefore bear relatively low interest rates, but they must typically be approved through a public vote. There may also be debt limits on general obligation bonds imposed by state law.[55]

Revenue bonds are paid for from a specific source of revenue. Pledged revenues may come from the operation of the financed project, grants, mortgages on property, or excise or other specified taxes.[56] Because the risks to investors are greater, interest rates are higher. Taxpayers are not at risk in the event of project failure, so voter approval is generally not required for issuance of a revenue bond, and any debt limits are generally imposed through contract.

Local governments also sometimes finance communications networks by issuing Certificates of Participation. Such instruments essentially enable investors to purchase a share of the revenues from leasing the facilities developed with project funds.[57] In order for the Certificate of Participation interest to be tax exempt, the city must be the lessee.[58] Like revenue bonds, Certificates of Participation are payable only out

of project revenues and assets, do not expose taxpayers to risk of project failure, and generally do not require voter approval.

A community may also choose to crowdfund a network by borrowing small amounts from local investors.[59] Crowdfunding tends to be a slow and labor-intensive process—the monetary values of individual promissory notes are often small, and it can be difficult to reach out to potential participants.[60] But crowdfunding may have some advantages. First, the promissory notes are not subject to many securities regulations because they are unsecured and privately placed.[61] Second, the community may be able to obtain favorable terms for paying back the notes.[62]

Depending on state law, local governments have many other tools that they can use to finance a project and/or stimulate private investment, including contributing, selling, or leasing real property as part of encouraging a fiber build.[63] Local governments may also be able to stimulate investment through more complicated means, for example by creating revolving loan funds that lend money to qualifying businesses at lower interest rates, longer terms, and under more flexible conditions (such as allowing less restrictive equity requirements, deferred principal payments, and subordinate collateral positions to other lenders).[64]

In some states, local governments may be able to form councils of governments to undertake economic development initiatives on their collective behalf. One common joint economic development initiative involves gaining designation of the region as an "economic development district" under federal law. Such councils enable participants to pool their resources to plan and develop programs aimed at economic improvement. Councils of governments may also form Small Business Administration Section 53 Certified Development Corporations. These corporations are authorized to make long-term financing available through the Small Business Administration's 504 loan program.[65]

Finally, there are state and federal funds that support and encourage broadband deployment. At least seventeen states have launched grant programs supporting broadband build-outs.[66] There are also several significant sources of federal funds available to support broadband services and facilities. For example, the FCC distributes funds to rural broadband service providers through its Connect America Fund (CAF),[67] to providers of broadband services for healthcare networks through the Healthcare Connect Fund,[68] and to providers of broadband services or facilities to schools and libraries through the E-Rate program.[69] These programs have annual spending caps ranging from several hundred thousand dollars to several billion dollars.

3.2.1.1.2 Private Sector Project Financing

As a general rule, the more a local government contributes to the financing of a project, the greater its influence will be in the management of the project. To some communities, however, public financing options are not attractive, either because they require more public involvement than the local government wishes to provide or because they believe that the private sector is better suited to acquiring and managing project financing.

A full discussion of private sector project financing is well beyond the scope of this Guide. For present purposes, suffice it to say that private partners have a wide range of options to acquire financing for the project directly or indirectly, including through equity, debt, contributions of equipment and facilities, in-kind services, third-party co-builds, and fiber-for-pole attachment deals.

By depending primarily on private sector capital to finance a project, local governments can avoid adding to their direct long-term debt obligations. This does not mean, however, that the users of the system may not

bear higher costs, or that the public sector will avoid additional budgetary restrictions. One way or another, the local government will bear a share of the costs of the project. Private financing does, however, shift much of the initial burden of financing, building, and maintenance costs to the private sector.

3.2.2 Access to the Public Rights-of-Way

Every broadband public–private partnership must have access to the public rights-of-way (PROW) in order to install fiber along poles or in underground conduit. Federal and state laws recognize local governments' police power and regulatory authority to manage the use and placement of facilities within the PROW and to obtain fair and reasonable compensation from users. Federal and most state laws also require that local governments provide access to their PROW on a non-discriminatory and competitively neutral basis.[70]

Federal and state laws recognize local governments' police power and regulatory authority to manage the use and placement of facilities within the public rights-of-way.

A frequent complaint among private sector providers is that obtaining access to the PROW is a long, unnecessarily-cumbersome process in many cities. Given the critical importance of rapid build-out to the developer of a fiber broadband project, efficient PROW access can be a central issue for a broadband project. For example, in deciding where to deploy its fiber networks, Google Fiber has treated timing of access to the PROW as a significant factor in distinguishing among potential host cities. Google's guidance to cities on these matters is summarized in its Google Fiber City Checklist.[71]

In general, local governments may consider various steps to streamline the PROW access process. They can, among other things, develop accelerated timetables for permitting, pre-approve specific techniques (e.g., micro-trenching), and make dedicated inspectors available. Local governments can also consider reducing fees associated with PROW access.[72]

In considering whether to adopt streamlined processes or lower fees for a particular broadband network developer, a local government should be mindful of the potential precedential implications for other current and future occupants of the PROW. While some degree of discrimination is appropriate when dealing with entities that are not similarly situated, drawing distinctions may often be difficult and controversial. So, local governments must be deliberate in framing the PROW benefits that it can offer as part of a public–private partnership deal.

3.2.3 Access to Infrastructure

Local governments possess the proprietary power to control access to the physical infrastructure or facilities they own.

Existing infrastructure and facilities are among the most important assets that local governments may be able to bring to a broadband public–private partnership.[73] Facilities may include fiber, poles, ducts, conduits, sewers, streetlights, towers, rooftops, and collocation space. Local government-owned land can also be an important and valuable asset to make available. Not all local governments will have the same assets to bring to the table, but there will usually be at least some assets available for inclusion in the broadband public–private partnership. Taking stock of a city's inventory early on will identify the possible assets and will help when a local government is considering how to leverage those assets.

Local governments possess the proprietary power to control access to the physical infrastructure or facilities they own. This power is distinct from the controlling access to the PROW in that it is based on the local government's ownership of

property, not its police or regulatory powers. Access to infrastructure is also subject to different rules than those governing access to the PROW. Whereas federal and state laws require local governments to provide access to the PROW on nondiscriminatory and competitively neutral terms and conditions, such laws generally do not apply to local government-owned infrastructure or facilities.[74,75]

For example, an entity that seeks pole attachments must obtain both (1) permission to occupy the PROW, which it must obtain from the local or state government, depending on the state at issue; and (2) permission to attach its cables and other facilities to the poles in question, which it must obtain from the pole owner. If the pole owner is an investor-owned utility, the rights of the entity seeking pole attachments, if any,[76] will be governed by federal or state law.[77] Local government pole owners are generally exempt from federal and most state pole attachment rules and are free to establish their own rules and standards, consistent with applicable state laws on nondiscriminatory treatment. The proprietary nature of operating a utility and managing attachment rights may permit local governments significant flexibility in attachment negotiations.

3.2.4 Other Access Issues

Aside from PROW and infrastructure access issues, there are many other kinds of access and related issues that can arise in the context of a public–private broadband partnership. These include access to towers, sides and rooftops of buildings, private easements, distributed antenna system (DAS)/small cell sites, wetlands, historical or other protected properties, environmental issues, and much more. Each is governed by its own history, rules, administrative precedent, case law, and politics. It is therefore important for the public and private partners to have access to expertise in all of these areas. A detailed discussion of these issues is beyond the scope of this Guide.

3.2.5 Regulatory Burdens and Benefits

When considering the types of services that the public–private partnership will offer and who will be responsible for ensuring compliance with applicable legal requirements, it is important to consider how those activities will be regulated at the federal and state levels. This includes not only the regulatory requirements with which a service provider must comply, but also the benefits for which the provider may qualify.

The way that federal and state requirements will apply to a broadband public–private partnership will depend on multiple factors, including the nature of the services provided, the manner in which they are offered, and current developments in the law.[78] For example, in 2015, the FCC reclassified mass-market residential broadband Internet access service (BIAS) as a "telecommunications service" that is subject to some of the FCC's telecommunications common carrier requirements but not others.[79] Now, the FCC is in the process of reversing that reclassification in some fashion.[80] As a result, the level of federal regulation of BIAS will depend on exactly how the FCC does this. Furthermore, if a broadband public–private partnership bundles BIAS with cable, telephone, and other services (some of which are more extensively regulated than broadband service, even with the FCC's recent reclassification of mass-market broadband service as a telecommunications service), the partnership will be subject to regulation of some kind. That regulation may include reporting requirements, FCC user fees, required testing, public information, and more.[81]

3.2.6 Organizational Issues

In addition to considering how the broadband public–private partnership itself will be structured, it is important for a local government to consider how it will organize and run its side of the partnership—including whether to use an existing branch of government to oversee the project; whether to create a

new division, commission, authority, non-profit, or cooperative; and how to involve the key stakeholders, including the school system and the municipal utility (if the local government has one).

How a public entity chooses to organize itself may be based on political, legal, and practical considerations. For example, a local government may simply not have the authority to create a new agency, and will thus have to operate within its existing structure. A public entity may also choose its organizational structure based on governance issues, particularly if the project will involve multiple public entities. All parties benefit when there is a clear chain of command and decision-making process in place, regardless of the organization structure.

3.2.7 Other Considerations

There will, of course, be many other issues that merit careful consideration, especially because no two public–private partnership projects are the same. Given the nature of public–private partnership projects and the possibility of using tax-advantaged municipal or state bonds to help finance the project, it is particularly important to understand the potential tax implications of the public–private partnership models under consideration. For example, under the so-called "private business use" exception, the federal tax advantages of municipal bonds can be lost if the private entity benefits in ways that exceed certain limits set forth in the tax code.[82] Considerations such as these may also be appropriate during the contracting stage.

3.3 Negotiating the Agreement

Once a local government knows the extent of its ability to participate in a public–private partnership and has a sense of the type of public–private partnership that best suits its needs and purposes, it can solicit a private partner. This is typically done through a Request for Information (RFI), a Request for Qualifications (RFQ), or a Request for Proposals (RFP), collectively "Request Process." Although some localities may be restricted by procurement laws, this Request Process is critical for local governments as it allows them to structure their request to vet the private-sector applicant's credentials and business plans, and, if enough interest exists, to let the applicants compete with each other for the best response. Even after comparing the responses, the local government may want to negotiate with several parties simultaneously. This allows local governments to have maximum leverage during the negotiating stage. The following sections apply whether the locality is negotiating with one or several potential private partners.

Public-private broadband partnership projects are complicated, as they necessarily involve at least two parties that come from different worlds and have different missions, goals, skill sets, and legal and political obligations.

From a legal standpoint, all public broadband initiatives are complicated, as they must deal with numerous significant legal issues of the kind discussed above. Public–private broadband partnership projects are far more complicated, as they necessarily involve at least two parties that come from different worlds and have different missions, goals, skill sets, and legal and political obligations.

Parties to even relatively straightforward public–private broadband partnerships must find mutually acceptable ways to reach compromises on scores of significant issues. Major projects such as the Kentucky statewide fiber project are particularly complex, as they involve huge sums of money, multiple public and private entities, hundreds of issues, and commitments that will bind the parties for decades.

No matter how large or small a broadband public–private partnership may be, the parties will have to

negotiate and allocate risks, responsibilities, and rewards. In the remainder of this Guide, we will focus on the key legal issues in each of these areas.

3.3.1 Allocation of Risk

As major, long-term, capital projects, public–private broadband partnerships will inevitably encounter delays, disruptions, or other challenges at some point during the life of the project. Such problems can result from many causes, including construction delays, natural disasters, hidden environmental hazards, cyberattacks, terrorism, vandalism, strikes, bankruptcies, insufficient demand, changes of law, and many others. Allocating the risks of these potential problems is probably the most difficult part of negotiating a public–private broadband partnership agreement. By way of illustration, we will analyze how risks were allocated in the three public–private partnership models presented in the first part of this Guide.

3.3.1.1 Model 1: Public Facilitation of Private Investment

Under this model, described in Section 2.2.1, the local government removes barriers to deployment to encourage a private sector provider. Cities can seek to become fiber-ready, building on materials published by Google Fiber, the authors here, and others. This model generally involves the least amount of negotiating.

Google Fiber mitigated its risks, in part, by making clear that its build-out would be "based upon demand by [c]ity residents and availability of necessary infrastructure"—which Google ultimately determined through its "Fiberhood" qualifying process. Google also reserved the right to terminate the project for its own convenience at any time within two years of commencement of construction.[83]

3.3.1.2 Model 2: Public Funding and Private Execution (Concessionaire Model)

Although the "concession model" is only beginning to be applied to broadband public–private partnerships, many bridges, roads, and other infrastructure projects have been constructed under this model, as it is the most frequently-used model for major infrastructure projects in the U.S.[84] No two concession-model public–private partnership projects are the same, but there are a number of key features that will be present in some form in most of these projects.

Ideally, risks should be allocated primarily to the party best able to avoid or mitigate the supervening event, and if neither party can do so effectively, the risks should be shared in some fashion.

Under the concession model, a public entity grants a private company (the "Concessionaire") the right to finance, design, construct, manage, and operate a facility for a certain period of time in exchange for monthly payments ("availability payments") for making services available at specified sites. The project may be a new-build project ("greenfield"), may involve upgrading existing areas ("brownfield"), or may include some of both. The public entity acquires ownership of the project assets on acceptance of delivery and retains ownership of the assets throughout the project period.

In negotiating a concession public–private partnership deal, the private partner proposes a starting availability payment based on a set of "working assumptions." For example, working assumptions may include the percentage of underground versus aerial fiber to be deployed, projected pole attachment fees, financing costs, construction costs, and operating and maintenance costs. If it later turns out that any of the working assumptions were incorrect—upward or downward—the parties will deal with them in the manner set forth in the concession agreement and related documents.

A critical feature of the negotiations under the concession model is development of an extensive list of "supervening events"—events that change the assumed conditions—and a set of rules as to how the risks of these events will be allocated among the parties. Supervening events can include just about anything that might go wrong during the multi-decade life of the project —including squirrels chewing through fiber optic cables, ice storms, and much more. Some of these events may have a low probability of occurring but a high impact if they do occur; others may have the reverse probability/impact profile or a different one.

For example, the parties may decide that if a particular kind of supervening event occurs, the deadlines will be suspended until the problem can be remedied. Alternatively, the parties may agree that the private party will remedy the problem, but the public entity will continue to make availability payments while the remedy is being implemented. This is all a matter of negotiation. In one particularly notable example involving a public–private partnership for a major highway, the contracting parties did not create a mechanism for handling permitting delays (a supervening event) and the public sector entity continued to make its required monthly payment despite the fact that no construction was occurring due to permitting delays; this oversight cost the public sector entity millions of dollars.[85]

During the negotiations, the parties will negotiate vigorously over the classification and treatment of various kinds of supervening events.[86] Where a particular kind of event ends up in this scheme will determine how the parties deal with the event, should it ever occur. For some events, one of the parties may be primarily responsible for the costs addressing the condition. In some cases, the other party may bear the primary responsibility. In yet other cases, the parties may share or cap the costs in some fashion. Furthermore, depending on how long a disruption lasts, it may shift from one category of supervening event to another.

Ideally, risks should be allocated primarily to the party best able to avoid or mitigate the supervening event, and if neither party can do so effectively, the risks would be shared in some fashion. In practice, everything is subject to negotiation and trade-offs.

3.3.1.3 Model 3: Shared Investment and Risk

In this model, as illustrated in Section 2.2.3, two parties negotiate the allocation of risks primarily on the basis of who is best able to manage and mitigate the risk. There is no single formula to create a public–private partnership that shares the investment and risk. Rather, this is a matter of economic realities and political goals that the parties negotiate and reflect in their contracts. Section 2.2.3.2 describes the arrangement between UC2B and iTV-3. Under the UC2B agreement, iTV-3 (as network operator) acquired access to substantial existing assets and assumed most of the risks associated with future developments. In the Westminster agreement with Ting Fiber, discussed in Section 2.2.3.1, the city assumed all risks associated with the design, construction, and maintenance of the fiber system, and Ting assumed responsibility for the risks associated with its provision of services. Under their revenue-sharing arrangement, the parties effectively shared the risks of unexpectedly-low demand. A force majeure clause protected both parties from catastrophic risks.

3.3.2 Allocation of Responsibilities

Allocating responsibilities in a broadband public–private partnership project is generally much more simple and straightforward than allocating risks, because both parties largely know what responsibilities they are taking on from the outset of the deal. When a public entity puts out an RFP, it is often for a specific set of responsibilities—so both parties are generally aware of their responsibilities. The Brookings Institution[87] chart on page 40 depicts four models of responsibility sharing.

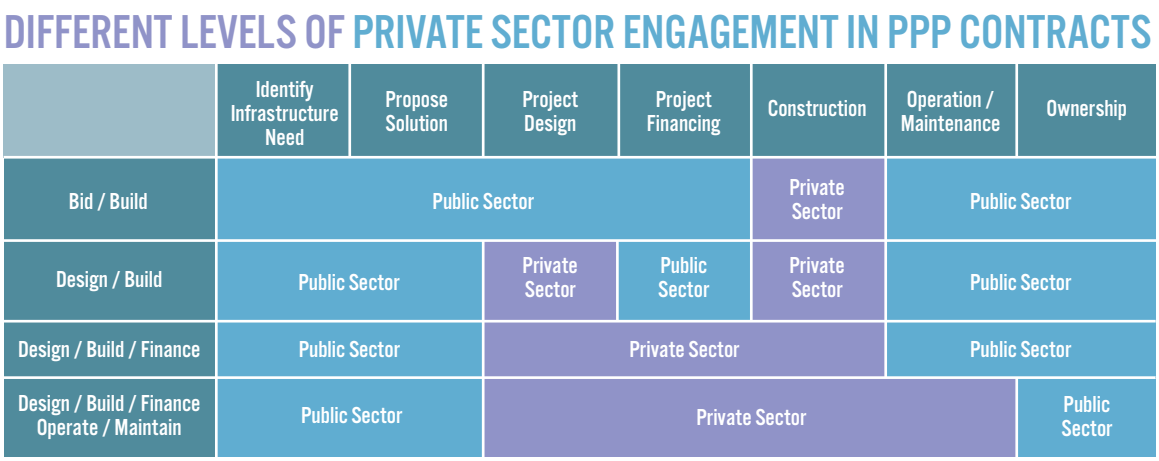

Figure 3: Brookings Institution Model of Responsibility Sharing

One of the main advantages of a public–private partnership is the expertise that the private partner brings to the table. The private partner may have experience designing and constructing a network and/or delivering service—experience that the public entity either lacks or prefers not to use for the project at issue. Therefore, the public entity may decide that the private sector party is in the better position to handle multiple responsibilities under the deal.

Another incentive for bundling responsibilities is that it provides the private entity an incentive to capture cost savings across the various phases of the contract.[88] For example, a private entity might choose to use more expensive, higher-quality fiber, knowing it is harder for animals to chew through that fiber jacket and, thus, that the maintenance costs will be minimized down the road.

3.3.3 Allocation of Rewards

A successful broadband public–private partnership project will produce benefits for both the public and private parties. The benefits may be what we consider traditional benefits. For example, a benefit can be in the form of revenue the network produces from user fees. If the network is producing traditional monetary benefits, the parties may agree to a mechanism for sharing the rewards/revenue.

Benefits may also take the form of cost savings. If the public entity is also a system user, it may benefit by obtaining higher-capacity broadband at lower costs from the public–private partnership than it had previously been able to obtain from the prior service provider.

Finally, benefits may be non-traditional. For a public entity, the primary goal of the network may not be to produce significant revenue or induce material cost savings. A growing number of local governments are coming to see advanced broadband networks as essential infrastructure for the 21st century, infrastructure that is capable of driving and supporting simultaneous progress in just about every area of significance to their communities. This includes economic development, education, healthcare, environmental protection, energy, transportation, government services, digital equity, and much more. While such benefits may be difficult to measure in monetary terms—as are the monetary benefits of roads, sidewalks, electricity, sewers, and water—they are real nonetheless. For many communities, these benefits are likely to be the primary reasons for entering into a public–private partnership.

Attachment A: Key Strategy Considerations for Building a Partnership

1. **Determine your priorities**
    a. Competition?
    b. Enhanced service?
    c. Equity and service to all?
    d. Public control over infrastructure?
    e. Risk avoidance?
2. **Consider Model 1: Public Facilitation of Private Investment**
    a. Make available public assets like fiber and conduit
    b. Share geographic information systems (GIS) data
    c. Streamline permitting and inspection processes
    d. Offer economic development incentives to attract private broadband investment
3. **Consider Model 2: Public Funding and Private Execution (Concessionaire Model)**
    a. Identify revenue streams that can be directed to a private partner
    b. Issue RFP for private turnkey execution
4. **Consider Model 3: Shared Investment and Risk**
    a. Evaluate using assets to attract private investment
    b. Evaluate funding new assets to attract private investment
    c. Evaluate building new fiber assets to businesses and/or homes for leasing to private ISPs

Attachment B: Key Legal Considerations for Localities Looking to Build a Broadband Partnership

1. **Review authority issues**

    a. Are localities authorized by state law to enter into public–private partnerships?

    b. Are there any state restrictions on the ability of localities to provide or partner for the provision of communications services of any kind?

    c. Are there procedural requirements (e.g., hearings, referenda, etc.) with which the locality must comply?

    d. In the absence of clear state laws, how much discretion do localities have to determine their own authority?

    e. Do local charters, ordinances, franchises, or other agreements limit the activities a locality can undertake?

2. **Understand the legal tools and instruments that could shape the partnership**

    a. Financing – What types of financing are available and what are the tax, political, and other consequences of using them?

    b. Access issues – Projects will usually benefit from streamlined access to the public rights-of-way and facilities, but non-discrimination requirements may introduce complications. What will be the overall net impact of the locality's choices concerning access to infrastructure?

    c. Regulatory considerations – Different business models may be regulated in significantly different ways. To what extent will regulatory considerations affect the locality's choice of a business model?

    d. Organizational issues – In order to achieve its business, governance, tax, and other goals to the maximum extent possible, what kind of legal structure should the locality select for its entity that will participate in the public–private partnership?

3. **Negotiate the agreement**

    a. What is your tolerance for risk and which responsibilities are you willing to undertake?

    b. Rank the risks, rewards, and responsibilities. Which are negotiable vs. non-negotiable?

    c. How do you negotiate for the best possible outcome?

Endnotes

1 Mitchell, Christopher. "Broadband at the Speed of Light: How Three Communities Built Next-Generation Networks," Institute for Local Self-Reliance and Benton Foundation. (April 2012) https://goo.gl/VQFPtE. See also: Kendrick, Julie. "The Broadband Challenge." The Line. (July 18, 2012) https://goo.gl/M3vwHM

2 "Gigabit Communities: Technical Strategies for Facilitating Public or Private Broadband Construction in Your Community." CTC Technology & Energy. (January 2014) p. 6–12. https://goo.gl/gljdkU (Gigabit Communities)

3 For more discussion of "dig once" policies and related collaborative strategies, see "Gigabit Communities."

4 "Transcript: Community Broadband Bits Episode 139." Institute for Local Self-Reliance. (February 26. 2015) http://goo.gl/pFzN6k

5 Id.

6 Id.

7 "Governor Doug Ducey Announces Major Apple Expansion in Arizona." Office of the Arizona Governor. (February 2, 2015) http://goo.gl/gxtgoC

8 "Gigabit Communities," p. 13–16.

9 Id., p. 14.

10 "Gigabit Communities."

11 "Financial Structuring of Public–Private Partnerships (P3s)." U.S. Department of Transportation. (2013) http://goo.gl/gCJIZK

12 Smedley, Megan, "KentuckyWired initiative under way," The Morehead News. (November 7, 2016) https://goo.gl/O1gKi7

13 "Kentucky Wins 'Deal of the Year' for KentuckyWired Fiber Optic Project," News, CTC Technology & Energy. (December 8, 2015) https://goo.gl/lL0ETu

14 "KentuckyWired Statewide Broadband Network Initiative Moving Forward in Eastern Kentucky and Beyond," News Release, KentuckyWired. (September 16, 2016) https://goo.gl/QxzjYx

15 See, for example: "Community Broadband Creates Public Savings." Institute for Local Self-Reliance. (November 29, 2012) https://goo.gl/kCEZeC

16 Case study is based in part on a presentation by Dr. Robert Wack, President, Westminster (Maryland) City Council, during a webinar hosted by the Fiber to the Home Council and facilitated by CTC Technology & Energy. See: http://goo.gl/x82Ro7 (password required). See also: Robert Wack, "The Westminster P3 Model." Broadband Communities Magazine. (November/December 2015). http://goo.gl/op1XpH

17 "About." Urbana-Champaign Big Broadband Not-for-Profit. https://goo.gl/vg7OwI

18 "Urbana-Champaign Big Broadband Not-for-Profit (UC2B NFP) to Hold Expansion News Conferences," News Release, UC2B NFP. (May 29, 2014) https://goo.gl/V2WMOx

19 "Mayor Beutler Says Downtown Fiber Project Will Promote Economic Development," Media Release, City of Lincoln Mayor's Office. (February 9, 2012) https://goo.gl/LGxofI

20 "Lincoln Fiber to Home Project Overview," City of Lincoln, Nebraska. https://goo.gl/vfK0OF

21 "Broadband Grant Program," Minnesota Office of Broadband Development. https://goo.gl/KaPCkQ

22 Lange, Carolyn, "Swift County approves bond for broadband internet," West Central Tribune. (May 3, 2016) https://goo.gl/vuAcrX

23 See, e.g., City of Bristol, VA, v. Earley, 145 F.Supp.2d 741 (W.D. Va. 2001); BellSouth Telecommunications, Inc. v. City of Lafayette, 919 So.2d 844 (3d Cir. 2006); Cequel III Communications I, LLC v. Local Agency Formation Com. of Nevada County, 57

Cal.Rptr 3d 32, 149 Cal.App.4th 310 (Cal.App., Third Dist. 2007).

24 Nixon v. Missouri Municipal League, 541 U.S. 125, 133-34 (2004).

25 For example, in City of Bristol, VA v. Earley, 145 F.Supp.2d 741, 745 (W.D. Va. 2001), the court held that the City has authority to provide telecommunications services, and in Marcus Cable Associates, L.L.C. v. City of Bristol, 237 F.Supp.2d 675, 678-79 (W.D.VA 2002), the same court held that the city does not have authority to provide cable television service. According to the court, the critical difference was that Virginia's statute authorizing localities to establish "public utilities" applied to telecommunications services but not to cable television.

26 For example, the Ohio constitution grants local governments broad general authority "to exercise all powers of local self-government," but it also goes on to grant local governments specific authority to purchase, operate, maintain, and sell utilities and to issue bonds to finance them. See Ohio Constitution Art. XVIII §§ 3, 6 (1912).

The California constitution gives charter cities primacy in addressing "municipal affairs" or "municipal functions," even in the face of restrictive state measures on the precise matter in issue. In matters "of state concern," however, charter cities cannot act in a manner that is inconsistent with any state requirement. Furthermore, the California Constitution empowers both charter cities and non-charter cities to establish public utilities, including those that provide for "means of communication." See California Constitution Art. XI §9.

In contrast, Arizona's constitution reserves very little authority for municipalities explicitly. The constitution authorizes cities with more than 3,500 citizens to create a charter. Otherwise, most provisions related to cities/municipalities are restrictive. The Arizona Constitution limits the amount of debt a municipality can assume to six percent of the municipality's "taxable property" and requires that all franchises be approved by electors. See Arizona Constitution Art. XIII §§ 2, 4.

27 For example, Washington State's constitution sets forth the authority of cities to "make and enforce within [their] limits all such local police, sanitary and other regulations as are not in conflict with general laws." (Washington Constitution Art. XI § 11). The Constitution also gives certain classes of cities the power to create a city charter, ostensibly giving those cities Home Rule authority. (Id. at Art. XI § 10). But the Washington courts have blurred the Home Rule distinctions for cities finding "the general rule is that [municipal corporations' powers] are limited to those powers expressly granted by statute, those powers necessarily or fairly implied in or incident to powers expressly granted, and those powers essential to the declared purposes and objects of the corporation … If there is a doubt as to whether the power is granted, it must be denied." (Port of Seattle v. Wash. Utils. & Transp. Comm'n, 92 Wn.2d 789, 794-95, 597 P.2d 383 (1979)). Recent court decisions have extended this decision to cities in various circumstances regardless of whether they have a charter calling into question cities' Home Rule authority.

28 See also the discussion of Home Rule v. Dillon's Rule in Section 3.1.3.

29 See, e.g., Idaho Constitution Article VIII § 4 ("No county, city, town, township, board of education, or school district, or other subdivision, shall lend, or pledge, the credit of faith thereof directly or indirectly, in any manner, to or in aid of any individual, association, or corporation, for any amount or for any purpose whatever or become responsible for any debt, contract, or liability of any individual, association or corporation in or out of this state.").

30 See, e.g., Frank v. City of Cody, 572 P.2d 1106, 1112 (Wyoming 1977) (quoting the Wyoming Constitution where it stated that neither state or political subdivisions "shall loan or give its credit or make donations to or in aid of any individual, association, or corporation, except for the necessary support of the poor…").

31 For example, the Washington State Supreme Court determined that there are two situations in which a public entity could lend to or partner with the private sector: first, if the public expenditure carries out a fundamental governmental purpose; or second, if the local government receives valuable consideration in exchange for the expenditure. (CLEAN v. State, 928 P.2d 1054 (1996)). In either situation, the partnership is permitted even if the private party will incidentally benefit as a result. (King County v. Taxpayers of King County, 949 P.2d 1260 (1997)).

32 See, e.g., Revised Code of Washington. § 35.21.730 (1998) (allowing cities to create public corporations that can work with the private sector for a public purpose).

33 See Briffault, Richard. "Foreword: The Disfavored Constitution: State Fiscal Limits and State Constitutional Law." 34 Rutgers L.J. 907, 913 (2003). See also Maready v. City of Winston-Salem, 467 S.E.2d 615, 627 n.1 (N.C. 1996) (noting that "courts in forty-six states in addition to North Carolina have upheld the constitutionality of governmental expenditures and related assistance for economic development incentives").

34 Arkansas Statute § 25-4-102 (authorizing the state's Department of Information Systems to enter in public–private partnerships for information technology services including broadband).

35 States with broad mandates include:

Florida: Florida Statutes Annotated §287.05712 authorizes public–private partnerships for projects not limited to those listed in the statute;

Maryland: Code of Maryland Regulations. §10A-103 to 402 authorizes public–private partnerships for any public infrastructure asset;

Texas: Texas Government Code Ann. § 271.181 to 271.199 authorizes design-build public–private partnerships for a broad set of civil works projects;

Indiana: Indiana Code Ann. §§ 5-23-1-1 authorizes public–private partnerships for public facility projects but defines a public facility as a "facility located on, or to be located on, real property owned or leased by a governmental body and upon which a public service is or may be provided";

North Dakota: North Dakota Century Code §§ 48-02.1-01 et seq. authorizes public–private partnerships for a fee-based facility;

California: California Government Code §§ 5956 to 5956.10 authorizes public–private partnerships for fee-producing infrastructure projects and specifically lists the type of projects allowed.

36 Code of Maryland Regulations§10A-103-402.

37 Fishman, Edward. "Major Legal Issues for Highway Public–Private Partnerships." Legal Research Digest at 26. (January 2009) http://goo.gl/UTL5CJ.

38 See Alaska Statutes §§ 1905 (authorizing the Knik Arm Bridge and Toll Authority to use a public–private partnership to finance, design, construct, operate, and maintain a bridge in Anchorage). See, e.g., Cal. Stat. & Hwy. Code § 143(A), Cal. Gov't Code § 5956; Ind. Code § 8-15.5; Mo. Rev. Stat. §§ 238:300-238:367; N.C. Gen. Stat. §§ 136-89.180-136.89.197.

39 See, e.g., Florida Statutes Annotated § 287.057(1)(a)1.a.4 (requiring that contracts "be awarded to the responsible and responsive vendor who submits the lowest responsive bid.").

40 See, e.g., Colorado Revised Statutes§§ 43-1-1201-1209, 43-4-801-812; Oregon Revised Statutes §§ 383.001-383.019; Utah Code Annotated §§ 63-560502.5, 72-6-118, 72-6-201-206.

41 See, e.g., Georgia Code Annotated §§32-2-78, 80 (requiring the Department of Transportation to solicit proposals); Indiana Code Annotated §§5-23-1-1 to 5-23-7-2.

42 20 Illinois Compiled Statutes 661/35.

43 California Public Utility Code §16461

44 "State Restrictions on Community Broadband Services or Other Public Communications Initiatives." Baller Stokes & Lide. (November 1, 2016) https://goo.gl/HyP0nl

45 In 2014, the cities of Wilson, North Carolina, and Chattanooga, Tennessee, petitioned the Federal Communications Commission (FCC) to remove the portions of their respective state laws that prevented them from expanding their highly successful broadband networks to their unserved and underserved neighbors. Based on the extensive record that the FCC compiled during the comment period, the FCC found that these state laws were barriers to broadband investment and competition and made it substantially harder for municipal networks to operate and expand. North Carolina and Tennessee both challenged the FCC's authority to preempt state laws. The U.S. Court of Appeals for the Sixth Circuit ultimately ruled that the FCC lacked the legal authority to strike down state laws in this case, but the Court did not contest the FCC's factual findings. In fact, the Court stated that it did not "question the public benefits that the FCC identifies in permitting municipalities to expand Gigabit Internet coverage." State of Tennessee v. Federal Communications Commission, 832 F.3d 597, 613 (6th Cir. 2016).

Disclosure: Baller Stokes & Lide served as lead counsel for Wilson and Chattanooga before the FCC and was lead counsel for Wilson and of counsel for Chattanooga before the Sixth Circuit.

46 See Merriam v. Moody's Ex'rs, 25 Iowa 163, 170 (1868). In his treatise, Dillon, Commentaries on the Law of Municipal Corporations, (5th ed. 1911), Judge Dillon described the rule as follows: "[A] municipal corporation possesses and can exercise the following powers and no others: First, those granted in express words; second, those necessarily or fairly implied in or incident to the powers expressly granted; third, those essential to the accomplishment of the declared objects and purposes of the corporation, —not simply convenient, but indispensable." Id. at § 237.

47 Coester, Adam. "Dillon's Rule or Not?" National Association of Counties. (January 2004) 2(1) (providing a survey of Dillon's Rule and Home Rule states).

48 See, e.g., Illinois Constitution Article VII §6(a)("…any municipality which has a population of more than 25,000 are home rule units").

49 Washington State Office of the Attorney General, "Authority of Cities, Towns, and Counties to Provide Telecommunications Services," AGO 2003 No. 11 (Dec. 2003), http://goo.gl/Bwbzae ("With respect to all municipal corporations, the general rule is that they are limited to those powers expressly granted by statute, those powers necessarily or fairly implied in or incident to powers expressly granted, and those powers essential to the declared purposes and objects of the corporation. Port of Seattle v. Wash. Utils. & Transp. Comm'n, 92 Wn.2d 789, 794-95, 597 P.2d 383 (1979) … [T]his general rule does not apply to cities and counties that have adopted charters pursuant to the Washington Constitution (Const. art. XI, §§ 4, 10) or to cities operating under the optional municipal code ('code cities') …These municipalities, often described as having 'home rule' powers, do not need express or implied statutory

authority to enact local legislation.").

50 "Fiber Coming to 11 Utah Cities" Government Technology. (February 2014) http://goo.gl/VcdX1b

51 Texas Municipal League, "Texas Municipal League Economic Development Handbook," at 2-7. (January 2015) http://goo.gl/WmA3Qv

52 "Economic Development Authority Handbook," Minnesota Economic Development Foundation, et. al., p. 20-22. (October 2011); "Tax Increment Financing Program," City of Chicago, http://goo.gl/UYx2nR

53 Smith, Tony Q.. "TIF and New Markets Tax Credits: Economic Development Finance Tools with Applicability for Broadband." S.B. Friedman & Co. (November 2013) http://goo.gl/f6MsFW

54 "General Obligation or GO Bond." Municipal Securities Rulemaking Board. http://goo.gl/UcK2HP

55 See, e.g., Missouri Constitution Article VI §26(b) ("Any county, city, incorporated town or village or other political corporation or subdivision of the state, by vote of the qualified electors thereof voting thereon, may become indebted in an amount not to exceed five percent of the value of taxable tangible property therein…").

56 "Revenue Bond," Municipal Securities Rulemaking Board. http://goo.gl/TY6mdD

57 "Introduction to Tax-Exempt Bonds." Internal Revenue Service. (p. 12) http://goo.gl/bkzDy6

58 Id.

59 This is a developing area of law so local governments should consider applicable federal and state securities laws.

60 "Financing Fiber Networks." Broadband Communities Magazine. (p. 51) (May/June 2015) http://goo.gl/h2eNQu

61 Id.

62 Id.

63 "Economic Development Authority Handbook." Minnesota Economic Development Foundation, et. al. (p. 23). (October 2011) http://goo.gl/b15baH

64 Id. at 24.

65 Id. at 170.

66 "Financing Fiber Networks." Broadband Communities Magazine. (p. 52) (May/June 2015).

67 In addition to its $100 million set-aside for a Rural Broadband Experiments program, the Federal Communications Commission distributes up to $2 billion in annual CAF funding. See "Connect America Fund Offers Carriers Nearly $1.7 Billion to Expand Broadband to Over 8.5 Million Rural Americans." FCC. https://goo.gl/9VR9ZD

68 The Healthcare Connect Fund has an annual funding cap of $400 million. Individual healthcare providers or members of a consortium can receive up to a 65 percent discount for eligible expenses related to broadband connectivity, including equipment. See "Rural Health Care: Funding Information." Universal Service Administrative Company. http://goo.gl/eb7oxU

69 The Federal Communications Commission (FCC) recently raised the E-Rate spending cap from $2.4 billion to $3.9 billion annually and added $1 billion of support for wireless services during the 2015 and 2016 funding years. The E-Rate Program is a subsidy program that covers 20 percent to 90 percent of the cost of telecommunications service, Internet access, and internal connections for schools and libraries. See "Summary of E-Rate Modernization Order." FCC. https://goo.gl/HGWbSF. The FCC now says "[t]he FCC's E-rate program connects the nation's schools and libraries to broadband" and is "transitioning support away from legacy technologies to 21st Century broadband connectivity." See https://goo.gl/137adP

70 47 U.S.C. § 253.

71 Google Fiber City Checklist (updated February 2014). https://goo.gl/Hgxv47; see also "Gigabit Communities."

72 See also Burnett Gold, Heather. More Fiber, Less Waiting. Medium (November 2015), https://goo.gl/vkBm99 (describing the "One-Touch" pole attachment process; see also Next Century Cities, "One Touch" Make-Ready Policies: The "Dig Once" of Pole Attachments. (January 6, 2016), http://goo.gl/EGe8q3

73 For example, the City of Westminster, Maryland, (discussed in Section 2.2.3.1) was able to attract a private partner, Ting, by offering to build, own, and maintain its fiber—enabling Ting, in turn, to light the fiber, operate the network, and offer services to the public.

74 In October 2014, the Federal Communications Commission (FCC) clarified portions of the Middle Class Tax Relief and Job Creation Act of 2012 (Pub. L. No. 112-96 § 6409(a), 126 Stat. 156 (2012)) that were intended to address problems relating to state and local government processing of applications for wireless broadband. The FCC directed local governments to approve applications for modification of "an existing wireless tower or base station" (including addition, removal and replacement of equipment) if the modification will not "substantially change." (Wireless Siting Order, ¶ 182 et seq.). Notably, however, the FCC made it clear that Section 6409(a) does not apply to a state or local government acting in a proprietary capacity, as opposed to a land use regulator. In other words, like Section 332(c)(7), Section 6409(a) does not apply to modifications of wireless facilities on municipal light poles and other structural property owned by the local government.

75 There may, however, be other state laws addressing how a local government may sell or lease property, or grant a concession, that can limit the ability of a local government to grant preferential treatment in respect of access to infrastructure or facilities.

76 Section 224 of the Communications Act as well as the laws of most states give pole attachment rights only to telecommunications service providers and cable television systems and not to entities, such as dark fiber providers, that do not provide telecommunications services or cable services.

77 Twenty-one states have "reverse-preempted" the federal pole attachment rules. In these states, state pole attachment rules govern rather than the federal rules.

78 Baller Stokes & Lide each year publishes a compliance memorandum and check list that discusses the federal regulatory requirements that apply to the various categories of communications services that providers may offer. http://goo.gl/doQQmj

79 Protecting and Promoting the Open Internet, Report and Order on Remand, Declaratory Ruling, and Order. (GN Docket No. 14-28). Federal Communications Commission (adopted February 26, 2015, released March 12, 2015). http://goo.gl/vB8u8M

80 Restoring Internet Freedom, Notice of Proposed Rulemaking (WC Docket No. 17-108) Federal Communications Commission (published April 27, 2017) (voting of the NPRM will take place at the FCC's Open Meeting on May 18, 2017) https://goo.gl/Oo6lKX

81 One of the most important regulatory programs is the Federal Communications Commission's Universal Service Fund ("USF"). Services defined by the FCC as "interstate telecommunications," "telecommunications services," and "interconnected Voice over Internet Protocol" are subject to the FCC's complex USF reporting and payment requirements. Unless a provider of any of these services qualifies for one of several potential exemptions, it may have to "contribute" 16 to 18+ percent of its end-user revenues to USF. Although the FCC has now classified residential broadband Internet access service as an "interstate telecommunications service," it has, at least for the time being, declined to impose USF contribution obligations on providers of that service. This could change in the future, and it is so significant a cost and competitive factor that parties considering a broadband public–private partnership should take it into account.

82 "Private business use of tax-exempt bond financed facilities," Notice 2014–67 (November 10, 2014). http://goo.gl/H5Lliz

83 Google-Kansas City Missouri Development Agreement § 12(d). http://goo.gl/gLZxTc

84 See "Concessions, Build-Operate-Transfer (BOT) and Design-Build-Operate (DBO) Projects." World Bank Infrastructure Resource Center. http://goo.gl/IwqoyM. (Note that these projects are also known as Build Operate Transfer (BOT) Projects in civil law countries.)

85 Virginia officials sought a private sector partner to design and build a 55-mile road (U.S. 460) from Petersburg, just south of Richmond, to Suffolk, Virginia. Payments to the private partner began in early 2013 despite permitting issues that prevented construction from beginning. By February 2014, the state had paid the private partner more than $83 million for construction "mobilization," even though the U.S. Army Corps of Engineers had still not granted the needed permits and construction could not move forward. See Laris, Michael. "How Virginia Paid More Than $250 Million for a Road that Never Got Built." Washington Post (May 30, 2015). http://goo.gl/aEnieY

86 Project agreements for major public–private partnership may have dozens of pages of definitions and rules governing the treatment of "Compensating Events," "Excusing Events," "Relief Events," "Change of Law Events," "Force Majeure Events," etc.

87 Sabol, Patrick and Robert Puentes. "Private Capital, Public Good: Drivers of Successful Infrastructure Public–Private Partnerships." Brookings Institution. (December 2014). http://goo.gl/MGF4T1

88 "Expanding the Market for Infrastructure Public–Private Partnerships." U.S. Department of Treasury. (p. 7). https://goo.gl/LFT0r5