Joanne Hovis, President
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Michael Lynch, President
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National Association of Telecommunications Officers and Advisors

September 17, 2018

Dear Jim, Joanne, Mike, and Nancy:

This is in response to your request for my view of the FCC's pending order, proposing to cap the fees that state and local governments may charge for small cell attachments. According to the FCC's draft order, these price-caps will save the industry $2B in costs to operate in metropolitan areas—which will translate into $2.5B in new wireless investment, primarily in rural areas. This letter summarizes my thoughts on aspects of the draft order. I have also attached three speeches I recently gave on this topic.

My judgment in this matter is based on several decades of advising institutional investors in telecommunications, my work as a municipal finance lawyer which involved structuring a number of public-private partnerships, and my experience in Washington DC as FCC Chief of Staff, and as Executive Director of the National Broadband Plan and Gig.U—roles that required me to be involved in evaluating detailed analysis of the economics of broadband deployment and the tools with which federal, state, and local government authorities can incent and stimulate investment.

Through these different roles, I've interacted with numerous investors, carriers, and localities, and that experience leads to my concerns with the FCC's argument:

First, focusing on state and local government fees and processes is a distraction from the real obstacles to accelerated and ubiquitous deployment of next generation mobile services, which are that broadband deployment economics are very challenging and have to be addressed at all levels of government and through creative collaboration with the private sector. Fees for access to public property represent only one of many, many costs of doing business a carrier will encounter. A focus on reducing or eliminating one (relatively marginal) cost of doing business does not solve the challenging economics of broadband deployment and serves only to obscure the true challenges. Indeed, even if one accepts the FCC claim about the $2.5 billion—which is highly questionable—that amount is about 1% of what the FCC and industry claim is the necessary new investment needed for next generation network deployments, and therefore is not likely to have a significant impact. As discussed in the attached speeches, while the FCC

focused on the relatively small amounts at issue with municipal fees, it did not even evaluate what other countries and cities have done to reduce deployment costs by amounts orders of magnitude greater than what the FCC proposes to do. In addition, the FCC action ignores other federal government action that will have a greater—and negative—impact on 5G deployment. As Intel recently told the United States Trade Representative, the recently announced tariffs on China "will slow down the pace of technology adoption across the U.S. economy, causing American firms and institutions to fall behind foreign competitors outside of China that aren't subject to the same tariffs." Thus, despite the FCC rhetoric, the item is unlikely to have any material impact on whether the United States leads the world in 5G deployment.

Second, local governments have a strong recent track record of endeavoring to enable and facilitate broadband deployment, as the Google Fiber experience conclusively demonstrated. Vilifying them based on fees for use of public property is not only a distraction, but also unfair. Indeed, rather than acknowledging that carriers have a proven ability to negotiate advantageous fees with localities, the FCC's draft order infantilizes carriers by preempting state and local government, presumably on the theory that carriers cannot protect themselves in negotiations with states and localities.

This is absurd. As the carriers themselves have acknowledged, they have sufficient leverage to walk away from any locality that creates too many obstacles to deployment and that leverage has led them to strike the same kinds of deals that numerous fixed broadband providers were able to strike in the wake of the Google Fiber efforts. In the attached speeches, I note the *piece de resistance* demonstrating the ability of carriers to work things out with localities without federal interference involves the carriers and the city of San Jose. They were antagonists in the FCC's recent BDAC process, but those parties were able to negotiate terms that all thought fair and that allows the companies to begin small cell deployments. Notably, the deals include having the companies contribute to a digital inclusion initiative and help the city pay for accelerated permitting, thus securing all parties' goals. Further, San Jose is not unique. Other cities and carriers have struck deals that provide benefits to both sides and will result in deployment without the need of a top-down, one-size-fits-all framework that the FCC is preparing to impose on thousands of diverse municipalities.

The FCC characterizes its draft order as "balanced," which is equally absurd, as all the new costs and obligations are borne by localities and all the benefits are enjoyed by the carriers. The more accurate description would be a "power grab" in which the FCC majority substitutes their judgment of what is best for local communities for the judgment of duly elected local officials. The FCC is deciding that the sole method localities can use for charging for access to public rights-of-ways is a cost-based methodology. I might note that in directing the writing of the National Broadband Plan (at Recommendation 6.6) and in my work at Gig.U, I have advocated to cities that they move in the direction of cost-based charges. There is a huge difference, however, in

believing that generally city officials should lower costs to access to public property when they believe their community will receive a benefit—and a federal agency, with no expertise in municipal finance and at no cost to itself, mandating that all localities have to lower the costs to all carriers, whether or not the carrier will be deploying new network facilities or whether or not the local community obtains any benefit.

Indeed, given the challenges of broadband deployment economics, partnerships of all sorts between companies and local governments are essential. Tying the hands of localities and states is self-defeating – it stops them from using creative partnering strategies (as they have successfully done in cities like San Jose, CA and Lincoln, NE) to find ways to improve broadband outcomes. Perversely, the draft order actually prevents local communities and states from working with their private partners by taking away a tool they have at their disposal (the attractiveness of their assets as mounting locations for small cells) to negotiate on behalf of the public.

In fact, I have been in discussions with a number of local governments and states that wish to provide an attractive investment climate for small cell and 5G networks but also seek to assure that under-adopting communities receive the benefit of the new services. They are exploring a range of techniques, such as pricing permits in less attractive areas significantly less than the more attractive areas or prioritizing permitting requests that are in areas of under-adoption. The FCC's draft order would make such efforts to address the digital divide ineffective if not illegal. I cannot predict with confidence how many localities and states would undertake such efforts. I can predict with confidence that any such locally-led efforts are more likely to narrow the digital divide than the FCC's order, which provides carriers with economic incentive to cherry pick locations. Thus, despite the FCC's rhetoric, the proposal will likely exacerbate, rather than alleviate, the digital divide.

Third, the FCC's draft order is based on a fallacy that no credible investor would adopt and no credible economist endorse: that reducing or eliminating costs for small cell mounting on public property in lucrative areas of the country (thus reducing carriers' operating costs), will lead to increased capital expenditures in less lucrative areas– thus supposedly making investment more attractive in rural areas.

That simply is not how investment decisions are made. Rather, as Commissioner Carr admitted in his recent speech, in lucrative areas, carriers will pay market fees for access to property just as they would any other cost of doing business. But they will not, as rational economic actors, necessarily apply new profits (created by FCC preemption) to deploy in otherwise-unattractive areas. My experience on Wall Street is that neither analysts nor investors regard this FCC action as likely to lead to increased deployment in non-economically attractive areas, which most on Wall Street would consider an irrational act. The smoking gun revealing that neither the

companies nor Wall Street believe the economic logic that the FCC uses is that, to my knowledge, no carrier has publicly specified and committed to Wall Street that the FCC action will cause it to materially increase its capital expenditures or has specifically committed to how its deployment map will be broadened in light of the FCC action.

In short, while the FCC may ignore reality, the carriers and Wall Street understand that increasing profitability in Market A will not make Market B more attractive for investment. Market B will still be an area that is unprofitable or otherwise unattractive for investment, and the new requirement that Market A subsidize carriers by reducing fees will not benefit Market B under these circumstances. Indeed, as I detail in my attached speeches, only in Washington do otherwise intelligent people believe that lower costs automatically lead to commensurate capital investment.

Carriers have the same incentives as other corporate entities. The reality that my Wall Street clients have taught me over the last two decades, and that has been proven through all kinds of evidence that the FCC simply ignored, is that under most circumstances stock-buy backs, debt reduction, or dividend support are higher priorities than new capital investments in networks. Nothing the FCC is doing changes those incentives.

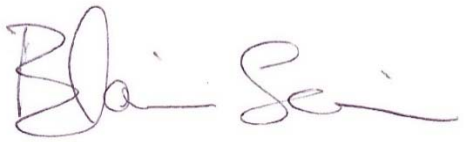
Finally, let me note something I discuss at length in the attached speeches: the draft order presents a framework in which industry gets all the benefits (reduced fees to access state and local property) with no obligations to reinvest the resulting profits in rural broadband—even though the purported rationale for the reduced fees is that they will lead to new investment. At the same time, states and localities will be forced by federal mandate to bear all the costs and receive no guaranteed benefits. These costs include not just the loss of revenue but having to bear the increased costs of addressing the permitting needs of a single industry (which, notably in the case of deals negotiated between carriers and cities, carriers agreed that they should assist in funding some of those costs.) The principal impact of the FCC's action is to facilitate a large transfer of wealth from the public to private enterprises—and leave American communities and states no better positioned to bridge digital gaps between urban and rural or between rich and poor. Further, those communities will lose revenues that they are using for such critical services as police, fire, and schools. The FCC is disingenuous in ignoring the cost of its action. In addition, the FCC action will likely lead to litigation over, among other things, jurisdiction and the meaning of such terms as "cost-based," that will delay, rather than accelerate, next generation broadband deployment.

In short, my response to your request is that I am deeply troubled by the FCC's draft order, the options it ignored, and the fallacious logic on which it rests. And I'm particularly concerned about the prospect of unelected federal officials in Washington DC mandating how, and at what price, state and local elected officials can manage their own property—all for the benefit of a select

group of companies that are under no obligations to reinvest these mandated public subsidies in new deployment.

I should note that I am providing this letter to you solely in my personal capacity and the views expressed herein are solely my own and should not be attributed to any organization with which I am currently affiliated.

Sincerely,



Blair Levin

The BDAC, 5G and Cities: The Power and Perils of Asymmetry

Blair Levin
Brookings Institution Metropolitan Policy Project

Coalition for Local Internet Choice (CLIC) Conference
Austin, Texas
April 30, 2018

The most significant meta-theme about governance in the United States today is that the federal government is dysfunctional and disrespected but that local governments are responsive, pro-active, effective and respected in building communities that improve the lives of their residents.

I see that not just in the press and academic writings, but also in my own experience in dealing with the federal and scores of local governments.

It also shows up in the polling data. More than two-thirds of members of both parties express trust in local governments while the number of Americans expressing trust in the federal government is below 20%. Arguably, as former Indianapolis Mayor and now Harvard Professor Stephen Goldsmith argues, such numbers understate the trust citizens should place in local governments. No one is saying the same for the federal government.

This causes me to believe, both as a philosophical and practical matter, that a key to moving this country forward is to give local governments more authority and freedom.

This puts me at odds with my twice-former employer, the FCC.

Today I am going to discuss the relationship between the FCC and cities and make several policy suggestions for accomplishing goals stated by both sides. I will also describe why cities might should just ignore the FCC—other than to sue it—but that cities should develop a more productive relationship with carriers in helping accelerate the deployment of next generation networks to their residents and enterprises.

But what I am really going to discuss is the power and perils of asymmetry.

Before I get to that, I would like to note two historic achievements of the current FCC.

First, this the first FCC that has defined joke writing as an integral part of the deliberative policy process.

You might think I am joking.

But this FCC has, not once but twice, denied Freedom of Information requests for information about joke videos involving Chairman Pai on the grounds that the providing the information would impair the FCC's, and I quote, "deliberative process."

I have a personal conflict here, having participated in writing jokes for five different Chairman.

I would hate for early drafts to ever go public. You can't really write good jokes without writing a bunch of bad ones. Believe me. My personal ratio of bad to good is at least 50:1.

Nonetheless, despite many hours in the writers' rooms' session, I don't recall any deliberative policy process.

Of course, my memory might have been impaired. As the gospel of the writers' rooms note, the jokes don't write themselves. Jim Beam does.

So while I am sympathetic to the FCC trying to keep those emails private, I wish the FCC lawyers had come clean and responded to the FOIA requests by admitting the videos were really not very funny. Therefore, it simply is not in the public interest that unbelievably even lamer, earlier drafts of bad jokes ever become public.

But this FCC either believes that joke writing is actually part of its deliberative process or, like the Queen in Alice in Wonderland, it believes that words mean whatever they want them to mean.

Which brings us to the second historic accomplishment of this FCC: it is the first FCC to interpret its statutory mandate to say it doesn't have much legal authority or policy rights to regulate broadcasters, telephone companies, cable companies, or wireless companies. Instead, its principal regulatory mandate to regulate another set of enterprises: local governments.

Well, if you have the talent to classify joke writing as part of the deliberative policy process, you certainly have the talent to argue that FCC stands for Federal Constraints on Cities.

And that, in turn, brings us to the FCC's Broadband Deployment Advisory Committee (BDAC) process.

Its stated, and worthy, goals are to accelerate and broaden deployment of next generation broadband networks, and reduce the digital divide.

Will the process help achieve those goals?

If one ignores the DC rhetoric and focuses on market incentives, the analysis suggests probably not. Instead, the primary result of the process will likely be to transfer wealth from the public to private enterprises.

If the FCC wanted to, as I will discuss at the end, it could take action to assure that the wealth transfer would not occur unless the deployment and digital divide goals were met. Instead, however, the BDAC and the FCC will likely adopt a framework in which industry gets all the benefits with no obligations and municipalities get all the costs and no guaranteed benefits.

Before discussing how the BDAC process detoured from its stated goals, it is important to understand three positive things about BDAC.

First, it is a good idea. It is valuable to have a multi-stakeholder group evaluate how to improve deployment incentives, with a focus on municipal policies, as those policies will have a significant economic impact on the cost of deployment of these networks, much more than traditional state or federal policy.

As our country builds out next-generation networks, including fifth generation (5G) mobile, the Internet of Things (and particularly the Civic Internet of Things that provides intelligence to various networks run by local governments, such as traffic, water, and sewer), and networks to serve big data needs for institutions whose mission involves analyzing and transmitting huge amounts of data, all communities will need fiber deployed deeper throughout a community policies and attaching devices, such as radios and sensors, to poles, buildings and other facilities. Municipal policies provide the principal governmental framework for these activities, including rules governing siting, construction, rights of way, pole access, and building codes and access.

Second, the economics of these networks are daunting. I have a lot of sympathy for the wireless industry. They have poured enormous capital into their networks and will have to do so again. Anyone who follows their ups and downs on Wall Street, as I do, understands that the companies face a series of challenges ahead that are not easy. Given the difficult economics, it is important that all stakeholders evaluate different approaches that balance—and I emphasize the word balance--the companies' desire to lower their capital and operating costs and the cities' desire to achieve certain policy outcomes, such as public safety, minimal construction-based disruptions, and ubiquitous deployment.

Third, a lot of well-meaning people did a lot of hard work in the BDAC. We should honor them for doing so. The process did lead to some recommendations likely to serve its goals, such as recommending governments adopt a one-touch make ready policy, that will speed and lower the cost for new fiber deployments. I am sure there is language in the model codes that has some value. I am not sure I understand why the FCC is so focused on developing rules for cities and states instead of figuring out what it should do but be that as it may, there may be some value that comes from it.

Unfortunately, the value of BDAC was undercut by three high-level errors.

First, no multi-stakeholder process can be successful if the views of critical stakeholders are discounted to near zero.

Unfortunately, that is what happened here. Instead of treating cities as the legitimate representatives of the constituencies that elected them, FCC officials argue as if they or their favored parties know better than elected representatives about what is best for the residents.

Responding to the complaint that BDAC was composed almost entirely of industry representatives, with only a couple municipal participants, a key FCC official admitted that the FCC didn't really care about what cities thought, saying "we didn't want to choose someone from, say, a municipality that needs a blueprint, because they're not going to be the ones to help design that blueprint." An FCC Commissioner justified preemption of cities on the grounds that cities were trying to "impose their will" on carriers, which is a little odd as a federal agency preempting elected local officials is pretty much the textbook definition of imposing one's will, but without an electoral mandate. Among the people BDAC relied on was Gary Jabara, CEO of Mobilitie LLC, one of the nation's largest operators of cell towers, who said local officials opposing the changes didn't give "a s--t about their constituents."

That is hardly the way to build support among a key stakeholder group. In my experience, people whose names have been on the ballot don't take kindly to unelected staff or company executives saying they know better about what's best for their constituents.

Many in industry understood this. Referring to lack of municipal representation, the cable representative to the BDAC wisely noted that "We have a lot of groups who are concerned that they're not at the table…And if they don't feel included, not only are they outside throwing [darts] at this process, but then in the end it's those groups that we want to adopt these model codes." The CEO of a tower company and former head of the Illinois Wireless Association offered a similar assessment, writing "The push to bypass local control will damage this industry's credibility and reverse a lot of the positive movement this industry has achieved."

BDAC, if it had included a fair representation of local officials and if it had began with an open mind about how best to proceed, would have been far more persuasive to cities than the 'my way or the highway' approach it appears to have taken. And it would have considered many issues that were largely ignored, such as the cities' concerns over the engineering, public safety, aesthetic, property-value, rate-design, and other significant consequences of small cell facility siting. It also would have considered more carefully the discrepancy between what the industry describes as a small wireless facility being no larger than a pizza box and many examples of state legislation that defines a small wireless facility as 6 cubic feet.

6 cubic feet is to pizza boxes what joke writing is to the deliberative policy process. You have to have a particular talent to see them as equivalent.

The FCC may have succeeded in reinforcing a political narrative about cities but it certainly did not succeed in building political capital among cities that would have, in practice, actually result in faster, better, cheaper broadband.

Second, BDAC started from the false assumption that industry did not have the leverage to negotiate the deals they needed to make the investments in new networks.

It is true that in decades past, such as when Verizon was building out its FIOS networks, cities had significant leverage over the carriers. Some argue that they used that leverage to stunt deployment with demands that made activity in some areas non-economic.

But to whatever extent it was true in the past, it significantly changed with Google Fiber, which began in 2011. Google tied its willingness to build a next-generation fiber broadband network to the willingness of cities to adjust their policies to lower the cost of construction and operations. When 1100 communities indicated their willingness to do so, it was evident the leverage had shifted. Google adroitly used the scarcity value of the limited build-out as a way of changing local government incentives. The deal that Google struck with Kansas City became a model for how other cities could address the needs of those wanting to build gigabit capable fiber networks. That model improved as it was incrementally revised when Google struck deals with additional cities.

Google was not the only beneficiary. AT&T and CenturyLink used a similar method for their fiber efforts, as did some smaller providers. The Gig.U project I worked on helped facilitate a number of deals between providers and college towns, each building on the lessons learned from the prior deals.

Verizon in now able to negotiate acceptable deals with communities like Boston for policies to lower deployment costs. As Verizon's CEO Lowell McAdam recently noted "Cities are embracing us to come in and provide this broadband service for the citizens…More and more people are moving into cities and they need to have smart city applications, including smart transportation, smart lighting, and smart parking services so they're embracing us coming into their communities."

5G does have differences from fiber deployments, such as Google Fiber, as by necessity, it needs to be built in more places. But initially, it has the same scarcity advantage and indeed, the 5G carriers appear to have the same kind of leverage Google and others building out fiber enjoyed. For example, while Verizon said it will consider every market for a 5G build, McAdam said it will walk away from cities that want too many concessions, adding, "there's no market that's not on the table."

If the carriers were going to build in a compressed timetable, there would be a good argument for a national, standardized approach. But that is not what is going on. The deployment will likely be slow and targeted. For example, Verizon went from having 11 test cities in 2017 to announcing a launch of three to five cities in 2018. AT&T will only be building out to a dozen cities in 2018.

Given the limited number of cities and the pace of the rollout, the companies will continue to have leverage for some time to come. As those trials, hopefully, prove successful, other cities

will be more anxious for having such networks and be willing to reach reasonable accommodations to make the economics more attractive. And the power of best practices, as Larry Downes and I discussed in a piece we did in the Washington Post, should help all sides come to a reasonable accommodation.

Thought experiment. What if the FCC in 2011 had mandated that every city should give Google Fiber the same deal Kansas City gave Google? I expect that there would have been a huge uproar with all saying that is crazy, unnecessary and a clear usurpation of local power to benefit a large private enterprise. That is, however, what the BDAC/FCC process appears to be moving to—a single federal mandate for how cities should manage local construction for the benefit of a select group of companies.

The FCC's biggest mistake, however, is how they approach asymmetry.

I am often a big fan of asymmetry. In ten years of practicing corporate law, as well as in being involved with dozens of deals between cities and next generation network providers during the heart of the Gig.U effort, I saw how every successful deal involves asymmetric value creation.

That is, the two sides don't want the same thing.

So the trick is to find the things that cost side A very little that create a lot of value for side B with side B doing the same for side A. Both, in this way, get more than they give.

That asymmetry of value creation is hugely powerful. The BDAC, however, ignored this kind of value creation.

But there is also a peril to asymmetry and you can see it how the BDAC creates a complete asymmetry of rights, obligations and risk allocation.

Under the FCC framework, cities will bear significant costs, having to lower their prices for rights of way and other permits while also having to bear the cost of higher administrative capacity for accelerated permitting. By contrast, the carriers will get the benefit of lower costs but will not have any obligation to deploy anything. And others who use similar public property will also likely obtain rate reductions without doing anything new in the public interest.

Some argue that the lower costs for carriers will lead to greater deployments.

Only in Washington do otherwise intelligent people believe that lower costs automatically lead to commensurate capital investment. The FCC is a bit like for National Economic Council head Gary Cohn who appeared surprised when a group of CEOs indicated they were not going to use their tax cuts primarily for new investment, which is exactly what happened. While a few billion of bonuses have received media attention, sober Wall Street analysis shows that the overwhelming use of the savings will go to stock buy backs (which this year are more than double that of last year) and other benefits for stockholders, not employees.

Carriers have the same incentives as other corporate entities. As one can see with Verizon's own statements, stock-buy backs, debt reduction, or dividend support are probably higher priorities than investments in 5G networks. Nothing the FCC is doing will change those incentives.

What are those incentives? Right now, the economic incentives are such that carriers are only likely to build 5G networks in higher density areas with access to low cost fiber. That is far from everywhere. Deloitte estimates it will take a new $130-$150 billion to provide the necessary fiber for universal 5G. Accenture pegs the number at $275 billion. As it is not clear the use case to repay those new expenditures, the networks are likely to be deployed as an initial matter, and maybe permanently, only in areas with existing fiber. Which is exactly the pattern a study by Next Century Cities already found with small cell deployments overwhelmingly going to larger cities with pre-existing fiber and far less in smaller cities without fiber.

DC is full of rhetoric about the unlimited possibilities of 5G. I wish I could agree. But when one looks at the broader spectrum of evidence, one sees a number of clouds. Wall Street is skeptical about the economic returns of 5G. So are the companies. Look how AT&T articulated the justification for spending nearly $100 billion to buy content in the antitrust trial. While mobile is important to them, the upgrade to 5G is not nearly as important as the direct content connection to the customer. Another data point was AT&T's CFO John Stephens comments to Wall Street the other day about the prospects for 5G: "We're not as excited about the business case—it's not as compelling yet, for us, as it may be for some." In their merger announcement yesterday, T-Mobile and Sprint basically laid out a case that the economic case for investing in 5G today is not viable but only would be if the government allows concentration that it did not deem wise in the 3G and 4G markets. Another data point: FCC has set the 5G spectrum reserve price at 5% of the 4G price for bands of what the engineers consider to be comparable from a functionality standpoint. None of these alone give us an accurate sense of what will be the future of 5G. Nor should any of this suggest that we should abandon efforts to facilitate 5G deployment. But these data points are at odds with the picture the FCC is painting to justify its takeover of local government management of rights of way and construction.

So while the FCC keeps talking about spectrum and cities as barrier to next generation deployments—and I acknowledge there is some truth to that—the FCC seems to ignore the two barriers I hear about most on Wall Street: the construction costs of deepening the fiber network and the lack of a significant new revenue stream that will not just cannibalize existing 4G revenues.

Further, the economics of 5G work best where there are multiple places to place transmitters. This is true of areas with tall rooftops and towers, such as downtown areas or those with lots of persons living in apartments. It is not true of single-family home suburbs, exurban and rural areas. In short, 5G deployments are not likely to be universal, including within cities.

Take, for example, where I live in Montgomery County, Maryland. Mobilitie LLC, the largest privately held wireless infrastructure provider in the United States, submitted to the county an unofficial plan for small-cell sites. Of Mobilitie's 215 proposed small cells in the plan, only 11 are in areas with fewer than 1,000 people per square mile. More than 94 percent are proposed for areas with higher population densities.

So when FCC officials say that its regulation of cities will lead to 5G being deployed everywhere, I think, hey you guys need to get out of your bubble.

Officials at the FCC and carrier representatives will say I am wrong. Actually, they may be right. After all, we are talking about the future. No one has a perfect crystal ball. And I would not mind being wrong; competitive 5G networks everywhere sounds awfully good to me.

Let's not, however, commit the sin of confusing aspiration for reality.

Here is how you will know if I am wrong; if industry executives, in meetings with Wall Street, say that as a result of the FCC rules our company is increasing our capital budgets by billions, if not tens of billions, and further, we commit to building out 5G to a large defined area by a date certain.

They haven't said that and I doubt they will. I would certainly advise against it. After all, why say something that would crash their stocks when the FCC has already signaled it will give them everything they have asked for and ask for nothing in return.

So while I may be wrong, I have found that I am more likely to understand future market behavior if I listen to what is said on Wall Street and basically ignore what folks in and around the FCC say.

Like most pundit commentary in and about DC, and in distinction to Wall Street commentary, there is no penalty for making predictions that prove wrong. By the time it becomes clear that the FCC decisions were simply directed at wealth transfers, the decision makers will have moved on and no one will have noticed.

In this way, the FCC is the archetypical bad actor of the problem discussed in Nassim Nicholas Taleb's new book, "Skin in the Game: Hidden Asymmetries in Daily Life." Taleb is the thought-provoking author of the Black Swan, which came out in 2007. All of Wall Street read it in 2008, which was a shame, because if we had read it in 2007, we would have understood the asymmetric risk that created the financial meltdown before it was evident to everyone and we too would have shorted the subprime market.

The fundamental message of the new book is that it's morally wrong to enjoy the benefits of something while leaving others to accept all the risks.

Which is exactly what the FCC is doing to cities.

Taleb makes many observations that I think are relevant here, such as "Do not pay attention to what people say, only what they do, and to how much of their necks they are putting on the line."

Of course, here, the FCC is putting nothing on the line; it is only requiring that the cities put their funds and property on the line.

Another relevant line is "the most egregious contributor to inequality is the condition of a high-ranking civil servant or tenured academic, not that of an entrepreneur."

I like civil servants. I used to be one. I worked with many and found them to be honest, hard working and talented. I am not sure I agree with Taleb on this point but it does make me think. And the analysis certainly applies when a high-ranking federal civil servant tells 10,000 duly elected local officials words to the effect that "I know better than you what is good for your community and even though I am risking nothing, you must risk what I command you to."

Sadly, the BDAC process fails to recognize the power and wisdom of asymmetric value creation and falls in the trap of asymmetric risk allocation.

So what will happen? BDAC will make its recommendations, the FCC will adopt them and we will enter a phase of litigation in which cities and carriers do what litigants do---figure out ways around the rules (like states are doing with the FCC's net neutrality framework) and ways to gain leverage over the other instead of focusing on collaborating on common goals. In some communities, carriers may deploy a bit more and a bit faster than they would have otherwise, but the primary use of the new dollars will be, as it is with the tax cuts, to service balance sheet, not deployment, objectives.

An additional potential downside is that the now frosty relations between the carriers and the cities may result in a slow-down on other fronts such as Verizon and AT&T's welcome efforts to enter the smart city market. There are some very exciting products and services that the wireless industry is in the best position to offer cities. My friends in the wireless industry argue that cities, when buying such services, should ignore the role the industry played in advocating an anti-city agenda in DC. All I can say is that hoping that the cities will adopt a 'let bygones be bygones' approach might work but it is contrary to every bit of my experience of how people in the real world act when they feel they are being stabbed in the back.

I obviously favor the FCC not preempting cities. Again, while there are some counter-examples, over all, cities have shown that they have been accommodating when there is a guarantee that the desired build out will occur. But here, there is no guarantee.

If, however, the FCC were to be analytically coherent about its stated goals on deployment and overcoming the digital divide, it would have included provisions to assure the wealth transfer it

is mandating at least guarantees the desired public benefit, instead of just guaranteeing benefits to private enterprises.

It could easily do so with two provisions. First, it could require that carriers seeking to take advantage of the any benefit of the preemption must commit to an enforceable obligation to build out everywhere in the jurisdiction within a reasonably short period of time.

In addition, or in the alternative, the FCC could have ruled the preemption shall not apply to communities have their own plan to address the digital divide where those plans are inconsistent with preemption.

As to the first, and much to the consternation of some of my progressive friends, I have loudly opposed build-out requirements, as they make it difficult for new entrants and service improvements. I admit, I am even opposed to my own idea here.

But I am even more opposed to one side giving the other side money based on a non-enforceable promise. If I had ever done that while practicing law, my client should have, and would have, fired me.

Here the FCC is supposed to represent the public yet it takes money from the public without any guarantee the public will benefit. So, if the FCC adopts a framework preempting cities, then I have to abandon my opposition to build out requirements, as the only way to assure an actual deployment under these market conditions is to have some kind of build out requirement.

As to the second idea, I have been in discussions with a number of cities that wish to provide an attractive investment climate for 5G networks but also seek to assure that under-adopting communities receive the benefit of the new services. They are exploring a number of techniques, such as pricing permits in less attractive areas significantly less than the more attractive areas, or prioritizing permitting requests that are in areas of under adoption.

The BDAC recommendations would make such efforts to address the digital divide ineffective if not illegal. I cannot predict with confidence how many cities would undertake such efforts. I can predict with confidence that any such local led efforts are more likely to narrow the digital divide than the current BDAC recommendation which provides an economic incentive to cherry pick the area.

An interesting market example is what happened in 2015, in Lincoln, Nebraska. There, officials were negotiating with Verizon Communications Inc. over how much the city would charge the company to attach small cells to municipal property. The city said it would charge the carrier an annual $95 fee — if the carriers would commit to deploying broadband in rural areas in Nebraska. Over the next two years, Lincoln offered the same deal to other carriers and builders.

The companies, understandably, said they couldn't commit to anything. So, Lincoln went ahead with an agreement that have the companies paying $1,995 a year to attach small cells to city poles, more than 20 times as much. But if the FCC had had its way, Lincoln would have gotten less money and the rural communities would have received no new deployments anyway.

While my proposals would actually provide incentives to achieve those stated goals of the FCC, I am under no illusion that this Commission will adopt them. Unfortunately, the BDAC process suggests instead that FCC's itself is under the illusion that it has perfect foresight as to how best to deploy networks, utilize municipal assets and manage construction, and further that there is one way that fits all situations.

It is a bit odd to hear from unelected officials who preach regulatory humility telling elected officials how to do their job. It is also unwise. We actually don't know the many ways, not to mention the best way, for these networks to be built.

What we do know is that competition between cities, such as with Google Fiber and similar efforts, has led to improvements in how cities interact with carriers. Encouraging such competition, studying the results, and shining a spotlight on what works best for all stakeholders will over time drive better results.

A top down, one-size fits all approach won't. As the conservative political analyst Yuval Levin wrote in his book Fractured Nation "The absence of easy answers is precisely a reason to empower a multiplicity of problem-solvers throughout our society, rather than hoping that one problem-solver in Washington gets it right."

Yuval Levin not only has a great last name; he also has it right.

Unfortunately, the FCC does not apparently understand that conservative wisdom.

In that light, my advice to the cities is two-fold.

As to the cities' relationship with the FCC, I would advise basically ignoring it other than to, as the ancient Romans would say, "*ad petendam nothi.*" The FCC majority has said they don't care about you and don't consider your interests legitimate. They are happy to spend your money and make your policies without any understanding of the consequences for your communities and constituents.

Just a guess here, but in light of such comments and actions, I don't think negotiating with them will work.

As to your relationship with the carriers, I do think you should establish your own working group to establish best practices, work collaboratively to find solutions to new problems, and generally lower the cost of deployment. The carriers are your policy opponents at the FCC but they are not your enemies, just as you are not theirs. They have the potential to bring

enormous benefits to your communities but the path is not easy for either of you. You should walk that path together.

It is unfortunate that the federal BDAC did not effectively do the job it should have done in driving a multi-stakeholder consensus. But a city-organized effort would likely be more legitimate, more practical and could actually be an important catalyst for asymmetric value creation in driving new deployment and addressing the digital divide. Indeed, you already have a lot to work with as cities from Sacramento to Lincoln to Boston have already developed models that have led to deployments. In contrast to the BDAC model, these are models that attempt to create benefits for both sides, not just one.

Let me close with one more thought experiment. Imagine if a city currently vying for Amazon HQ2 were to say to Amazon, we will give you everything you want—tax savings, grants, property rights, etc.—even if you don't come to our city.

I would imagine that the residents of the city would think that this was a very, very bad joke.

But then suppose the federal government steps in and mandates that all cities vying for the project have to turn over all the benefits, no matter where Amazon chooses to go.

I think we would regard that as an even worse joke.

But tell me—and seriously, I'd like the FCC majority to take a break from their current deliberative joke writing process to tell us—how is that really different than what the FCC is proposing to do with the property and funds of 10,000 American cities?

I look forward to the answer.

Thank you and enjoy the conference.

Cities, the FCC and Gigabit Networks

Blair Levin
Brookings Institute Metropolitan Policy Project

Gigabit Summit
Kansas City, Missouri
June 26, 2018

It is a pleasure to be with you today.

I open many speeches that way but here I really mean it.

The reason?

This summit symbolizes the enormous vision, and a great achievement, of cities.

When I first spoke here, at the first gigabit summit in 2013, it was shortly after over 1000 communities had expressed an interest in having gigabit broadband networks.

By contrast, only one carrier was interested in offering gigabit internet service—Google. All the other carriers dismissed gigabit networks as a PR stunt; something done for bragging rights but irrelevant to creating consumer value.

Now, five years later, hundreds of cities have gigabit offerings and all the carriers are upgrading their fixed and mobile networks to offer such speeds as fast as they can. Charter has even declared this season "Gigabit Summer."

Further, the federal government is saying that getting gigabit speeds on our mobile networks is a national imperative and failure to do so threatens our economy and national security.

This is a big and welcome change. The federal government is recognizing what cities, and those of us here in 2013 already knew: that we our policies should ensure that bandwidth never constrains economic growth or social progress.

Unfortunately, one thing hasn't changed; the federal government's view of its own role in helping achieve that goal. It is:

1. Make cities do all the hard work, pay all the government costs and accept all the blame for whatever happens; and
2. Let the federal government pay none of the costs, do none of the hard work, and take all the credit.

The first speech by an FCC Chair about Gigabit networks was in 2013. He was concerned that Google Fiber and a project I was doing, Gig.U, were proceeding without his involvement so gave a speech to get the FCC in the game of gigs.

His policy prescription?

He challenged the audience to build a gigabit network in every state.

Wow.

He provided no analysis of why they don't exist, no insight into barriers that can be removed, and no policy to improve their prospects. He simply offered the moral equivalent of the 'hearts and prayers' kind of leadership that does nothing but make the speaker feel better.

I called that speech the "most amateurish speech ever given by an FCC Chair" that "bordered on the absurd."

I can be very bi-partisan in my criticism.

But at least that speech did not set us backwards.

Unfortunately, the current FCC is on a path, to do exactly that.

As I detailed in a speech a few weeks ago in Austin—one I will summarize rather than repeat--the current Federal Communications Commission (FCC) has curiously interpreted its statutory mandate to dramatically reduce its regulatory powers over broadcasters, ISPs, telephone companies, cable companies, and wireless companies, while simultaneously asserting new authority to regulate prices and micromanage over one set of enterprises: local governments.

A major tactic in the FCC's effort to regulate cities is through its Broadband Deployment Advisory Committee (BDAC) process. The stated, and worthy, goals of the BDAC are to accelerate and broaden deployment of next-generation broadband networks and reduce the digital divide.

However the BDAC suffers from significant failures of design and execution. The failures are three fold.

First, the BDAC did not have a balanced membership that could have lead to a real consensus between stakeholders.

The BDAC should have been designed to generate ideas that optimize outcomes for all stakeholders and build a political consensus that makes it more likely that those ideas will be adopted and implemented successfully.

Unfortunately, the FCC overwhelmingly filled the BDAC with industry representatives and therefore undercut its potential to build political capital for a balanced and optimal set of solutions.

Rather, the FCC has spent its political capital reinforcing a false narrative about how cities are the cause of delays in 5G deployments, while ignoring the real, market driven causes of delay.

Second, the BDAC started from the false assumption that industry does not have the leverage to negotiate the deals it needs to make investments in new networks.

The carriers themselves recognize they have the necessary leverage.

Google Fiber changed the traditional negotiating leverage by saying that it would build, but only in places where city government adjusted their policies to make it economically feasible.

And that framework applied to all carriers.

Consider what AT&T said about the impact of the Google Fiber process. Noting that municipalities had made it "'easy' for Google Fiber, AT&T, in a pleading to the Broadband Opportunity Council, wrote that Google has "also essentially established a template for lowering existing regulatory barriers in other jurisdictions. That template, in turn, has allowed other providers to accelerate and broaden their plans for deploying the infrastructure necessary to provide high speed Internet service. That has certainly been true for AT&T."

Consider what Verizon's CEO Lowell McAdam recently noted, "Cities are embracing us to come in and provide this broadband service for the citizens… ." He further said Verizon would walk away from cities that want too many concessions, adding, "there's no market that's not on the table."

The *piece de resistance* demonstrating the ability of carriers to work things out with cities without federal interference involves the carriers and San Jose. They were antagonists in the BDAC process, with the carriers supportive and the Mayor of San Jose, one of two big city representatives, resigning and blasting the process. He observed, "At the 11th hour, we saw industry rewrites that pushed aside everything that had been negotiated for an industry-friendly, cookie-cutter set of rules."

But those parties were able to negotiate terms that all thought fair and allow the companies to begin 5G deployments. Notably, the deals include having the companies contributing to a digital inclusion initiative and helping the city pay for accelerated permitting.

Let's engage in a thought experiment: What if the FCC in 2011 had said that fiber deployment was critical to the future security of the United States and therefore mandated that every city should give Google Fiber the same deal that Kansas City gave Google?

I am certain that there would have been a huge uproar with all saying that such a mandate is crazy, unnecessary, and a clear usurpation of local power to benefit a large private enterprise.

That is, however, what the BDAC/FCC process appears to be moving to—a single federal mandate for how cities should price their rights of way and manage local construction for the benefit of a select group of companies.

Third, BDAC did not understand the value of asymmetric value creation.

I am often a big fan of asymmetry. In 10 years of practicing corporate law, as well as in being involved with dozens of deals between cities and next-generation network providers during the heart of the Gig.U effort, I saw how every successful deal involves asymmetric value creation.

That is, the two sides don't want the same thing. So, the trick is to find the things that cost side A little and create considerable value for side B, with side B doing the same for side A. Both, in this way, get more than they give. That value creation may be asymmetrical but the idea of both getting more than they give is hugely powerful.

The BDAC, however, ignored this kind of value creation. Instead, it focused exclusively on what cities could do to improve the profitability of the carriers. It did not ask—obviously it was not interested—in what it would cost the cities. It involved the kind of cost benefit analysis in which the costs to one side are ignored and only the benefits to the other side are considered.

Due to these three failures, I expect the BDAC and the FCC will adopt a framework in which industry gets all the benefits with no obligations, and municipalities will be forced to bear all the costs and receive no guaranteed benefits. This kind of process will result in a large transfer of wealth from public to private enterprises—and leave American cities and metropolitan areas no better positioned to tap into digital telecommunications to unlock innovation and shared economic prosperity.

So how should cities respond to a BDAC that ignored their voices, market realities and any principles of fairness and shared rights and obligations?

I think it would be wise for cities to establish their own working group to establish best practices, work collaboratively to find solutions to new problems, and generally lower the cost of deployment.

The carriers are the cities' policy opponents at the FCC, but they are not the cities' enemies, just as the cities are not theirs. The carriers have the potential to bring enormous benefits to local communities, but the path is not easy for either side. It would be better to start fresh and walk that path together.

What would that look like?

It would start with an honest acknowledgement of the hard truth that BDAC—only wanting to conform to its preconceived and dishonest political narrative—chose to ignore: that while the carriers need some level of standardization for the economics to work, cities all have unique geographic, demographic and political realities.

The hard work is to find a balance between those two competing needs.

It would also include an honest assessment from both sides that most cities are not well prepared to oversee a city-wide network upgrade as the last several decades have only required cities to oversee ad hoc fixes, but that technology that was not around when cable built out its network can significantly improve that oversight.

Again, understanding the process is hard work but it can be done.

If I were in a room with cities and carriers I would say, based on my experience with Gig.U and seeing how the market has evolved with examples like the San Jose 5G deals, I think it should look something like this.

The cities would agree that they should adopt a set of best practices. They would debate these but as a starting point I would suggest they include:

- **Neutral and Nondiscriminatory Treatment.** Benefits, terms and conditions provided to one carrier deploying next generation networks should be equivalent to those available to other providers, both current and in the future.

- **Preempt unnecessary intergovernmental conflict**. The economics of these networks require significant scale. Therefore, some builds only make sense in areas involving multiple communities. Cities should avoid jurisdictional disputes by forming new partnerships to standardize processes.

- **Efficient Coordination.** Cities should improve coordination between governments and within agencies by designating one person within the government to facilitate network deployment, help navigate government process, and expedite resolution of problems.

- **Facilitating the Infrastructure Build Out.** Adopt rules and processes that lower construction costs including:
    - Dig once, climb once rules;
    - Non-discriminatory access to municipal rights-of- way, infrastructure, poles, and other physical assets;
    - Expeditious review of permit requests;
    - Transparency on the status of applications and permitting throughout the process;
    - Expeditious inspection of construction sites;
    - Allow electronic transmittal and signatures for all documentation;

- Eliminate or limit requirements for duplicative or specialized review;
- Allow in appropriate circumstances blanket permits with municipalities to allow facilities entry and limited digs by network field personnel with 24 hours' notice; and
- Allow network operators to utilize accepted industry standards for traffic control plans.

- **Pro-investment pricing policies.** While local governments may be tempted to set high fees to meet short-term budget needs, doing so is counterproductive in the long term. As an Accenture study notes, "A city will benefit much more from the increased jobs and prosperity that 5G Smart City technology brings, than from the revenue the city generates from pole fees or permits."

- **Education and Targeting.** Local governments should participate with the carriers and anchor institutions in educational outreach to the public. They should also target applications that can energize local economies, such as applying Internet of Things technology to municipal services.

- **Access to Information.** Municipalities should maintain utility information in a municipal database, allowing online access with appropriate safeguards for proprietary and public safety concerns.

With the exception of the pricing policies, which I think may be the toughest item, these are largely the kinds of things cities typically do but may not be prepared to do in the context of a citywide project. Again, this is not surprising, as most cities have not had a citywide build since the cable build in the 70's or early 80's.

In addition to agreeing to these principles, cities should set up a data collaborative to monitor, study and improve how the deployments actually occur in the real world.

In addition, the cities should be clear about what they expect from the carriers. The cities should acknowledge the significance of the investment in the networks but also ask for, as San Jose did, support for the cities—financial or otherwise—for:

- Increased administrative costs resulting from the accelerating the permitting;

- Process improvements. In the case of San Jose and AT&T, for example, the deal included a $1,000,000 payment from AT&T to the City for process improvements including enhanced design standards, pole remediation, education and training, among other things; and

- Support for efforts to reduce the digital divide.

Once cities have done that, the carriers should say two things. First, they do not need the heavy hand of the some unelected federal bureaucrats to preempt cities. Second, they will prioritize cities that agree in writing to abide by those principles.

Those steps will improve the path to 5G for both cities and carriers.

Let me close with this thought.

The most significant meta-theme about governance in the United States today is that the federal government is dysfunctional and disrespected, but that local governments are responsive, proactive, effective, and respected in building communities that improve the lives of their residents.

One sees this on the bookshelves, where books on the federal government have titles like "It's Even Worse Than It Looks" or "It's Even Worse than You Think," while books on cities carry titles like "Triumph of the City: How Our Greatest Invention Makes Us Richer, Smarter, Greener, Healthier, and Happier" or "The New Localism: How Cities can Thrive in the Age of Populism."

It also shows up in the polling data. A new book reports "surveys typically find that only a quarter of Americans trust the national government to 'do the right thing,' but Gallup polls in 2014 and 2016 found that more than 70 percent trusted their local government to do so." The same federal–local splits apply to members of both political parties.

In this regard, the FCC's efforts are contrary to what most Americans experience and believe.

It is also contrary to conservative wisdom. As the conservative political analyst Yuval Levin wrote in his book *Fractured Republic*, "The absence of easy answers is precisely a reason to empower a multiplicity of problem-solvers throughout our society, rather than hoping that one problem-solver in Washington gets it right."

This summit is today, has it has been for the last five years, an important forum for empowering that multiplicity of problem solvers.

So let's ignore the FCC, other than, of course, to sue them.

But let us not ignore the problems or the opportunities next generation networks create.

Thank you.

The Secret to Smart Policies About Smart Cities

Blair Levin
Brookings Metropolitan Project

Next Century Cities Conference
Pittsburgh, PA
July 25, 2018

Thanks.

I want to talk about the secret to smart policies about smart cities.

I can summarize my idea in one word. Learning.

That's right.

I'm going to go out on a limb and advocate learning.

Pretty original, right?

Actually, in today's climate, it's more radical than you think.

Consider the following press release from FCC Chair Pai and House Commerce Chairman Walden on a recent trip they took to rural Oregon.

Here's their report on what they learned:

"Local officials told us how the lack of high-speed broadband access is hurting the economy and even makes some residents less optimistic about the future. Rural health care providers told us how important telemedicine was in rural towns, and demonstrated how they use broadband to connect patients with doctors online, without patients needing to drive long distances to an office or hospital…Local law enforcement, first responders, and 911 dispatchers told us that next-generation networks, not the legacy infrastructure of today's public safety system, will help them carry out vital emergency service operations, helping them save lives."

My question: did the FCC Chair and Chair of the House Communications Committee have to spend taxpayer money flying cross-country to learn that rural government officials, health care providers and first responders need better connectivity?

Really?

They didn't already know that?

We either have to believe that:

a. The Chairmen, after decades of being around these issues, were unbelievably blind and/or stupid; or
b. They only went to find out what they already believed.

Again, going out on a limb here—I say b.

I don't want to make fun of the Chairman Pai.

Actually, that's not true. Heck, I always make fun of Chairmen, including those I worked for. I regard it as a critical part of my job, whatever that is.

And one big thing Pai and I have in common is that we both think he's hilarious.

We just think it for different reasons.

I mean, I don't *just* want to make fun of the Chairman.

All the Commissioners and lots of others in DC take taxpayer-funded trips to learn what they already believe.

They return with the same narrative and the same bumper strip solutions they had before they took the trip.

I have read hundreds of press releases like the one I just quoted.

I have never read one that answered this question: what did you learn that changed your point of view?

So when I say that learning as a tool to accelerate our path to smart cities is revolutionary, believe me—that is not what is going on most of the time in DC.

We do spin and flip-flops and walk backs and some think we do treason but we don't do learning.

Serious point: all learning is about the destruction of existing habits of pattern recognition and the creation of new ones.

Confirmation bias is the enemy of learning. Because if you see the same thing when the facts change then you are not learning.

Sadly, this lack of learning characterizes the current relationship between the FCC and cities.

That relationship today largely centers on different visions of how our country should approach deploying 5G networks, which some at the FCC have said is key to smart cities.

This is the third speech in the last couple months I've given on the topic. The first two--which I will summarize rather than repeat—discuss how the current Federal Communications Commission (FCC) has curiously interpreted its statutory mandate to dramatically reduce its regulatory powers over broadcasters, ISPs, telephone companies, cable companies, and wireless companies, while simultaneously asserting new authority to regulate prices and micromanage one set of enterprises: local governments.

A major tactic in the FCC's effort to regulate cities is through its Broadband Deployment Advisory Committee (BDAC) process. The stated, and worthy, goals of the BDAC are to accelerate and broaden deployment of next-generation broadband networks and reduce the digital divide.

However the BDAC suffers from significant failures of design and execution. The failures are three fold.

First, the BDAC did not have a balanced membership that could have lead to a real consensus between stakeholders.

Second, the BDAC started from the false assumption that industry does not have the leverage to negotiate the deals it needs to make investments in new networks, an assumption the industry acknowledges is false.

Third, BDAC did not understand how to use a negotiating process to create value for both sides, by focusing on how each can give up on something small to get something big. Instead, it primarily focused on forcing cities to give carriers what the carriers wanted.

But underlying these three failures is a failure to learn anything.

Let's step back and look at the big picture.

The FCC says that 5G represents a critical junction; that our future economic growth and national security require that we lead the world in 5G.

I, being a Wall Street guy, wonder whether that is true.

After all, according the Bain, 53% of "executives at large mobile operators believe there are no compelling near term business cases for 5G."

Curiously, no one at the FCC defines the metric for leadership.

Do they mean leadership in operating systems, chips, or applications? If so, how is it that no one on Wall Street is pegging the value of Apple, Google, Intel, Qualcomm, Facebook or Amazon to United States 5G deployment?

Do they mean speed or price? Then they should notice that while the FCC leadership says we won in 4G, we don't come close to leading the world in those categories.

But let's for the sake of argument assume that it is true that millions of jobs, hundreds of billions of investment and our national security are dependent on accelerating a mobile network upgrade.

I am skeptical, but I could be wrong. The Bain study does a good job of making the case it is true.

That 's a big deal. You would assume that the FCC would be debate big ideas.

But they aren't.

The process began with a point of view that narrowed the range of acceptable answers. The BDAC charter describes its mission this way: "to make recommendations to the Commission on how to accelerate the deployment of broadband by reducing and/or removing regulatory barriers to infrastructure investment."

Consistent with that narrow thinking, a key FCC official admitted that the FCC didn't really care about what cities thought, saying,"[W]e didn't want to choose someone from, say, a municipality that needs a blueprint, because they're not going to be the ones to help design that blueprint."

So its not surprising that the primary solutions they studied were ones where the federal government forces cities to transfer wealth to large private enterprises and in which the private enterprises are not obligated to do anything

But if the problem is so big and important, why did they limit themselves to only considering municipal regulatory barriers?

Why, for example, didn't they have a public hearing with the National Security Council Generals who proposed a national 5G network?

My first reaction is that it's not a good idea but I sure as heck would like to know why the Generals did. I think we could learn something from them.

By the way, I know that the generals were concerned with the Chinese equipment companies establishing a monopoly by virtue of scale, forcing our carriers to buy their products and creating a national security risk.

Fair point, but that raises a question about what are we doing with ZTE?

Moreover, if the problem is scale in the global market, it raises a question about what is going on in the rest of the world, where, based on my travels to developing countries, the Chinese are everywhere. We have a lot of advantages, particularly with companies like Qualcomm and Intel, and our operating systems and applications providers.

But is there a national strategy on trade to make sure we keep that edge?

Nope. Quite the opposite.

Does the FCC have any wisdom to offer our national government?

Nope. Quite the opposite.

Back to 5G in the United States, While FCC officials express great concern about the threat of China deploying 5G faster than the U.S., they seem ignorant of China's network sharing policies. That blindness infected the BDAC framework.

If the FCC wants to reduce costs, why didn't it call up the McKinsey consultants who wrote a recent McKinsey report that demonstrated that network sharing could save 40% of the cost of deployment, a figure far larger than the potential savings involved with the BDAC recommendations. We could learn something.

Why didn't the FCC consider a program to have the federal government incent cities with financial incentives to build out dark fiber as Lincoln, Nebraska has done which has facilitated 5G deployment in that city through deals with providers like Verizon.

Why didn't the FCC have a public debate over Chairman Wheeler's proposal to reform business data service obligations to lower the cost of 5G backhaul? There are a lot of questions and issues with the proposal but it certainly would have accelerated 5G deployments as it addresses the real cost problem—the lack of ubiquitous high capacity wired networks.

By the way, T-Mobile and Sprint are attempting to justify their merger on the grounds that reducing the number of national competitors in mobile is necessary to build out a 5G network. I am not going to address whether that merger will or should be approved. I will only note that if Chairman Wheeler's proposal had been adopted, they could not have justified the merger on those grounds.

I am going to confess something that people in DC never do. I have no idea if any of these ideas should be adopted. I see problems with each of them that suggest they may not be the path to progress.

But I do know two things. First, they are solutions that have the merit of being as big as the problem the FCC officials describe.

And second, if the 5G challenge is what they said it is, the FCC's solution will not get this country where it needs to be.

The alleged size of the challenge and the size of the solution are not consistent.

If a doctor diagnoses you as having stage 4 cancer, he or she doesn't recommend aspirin.

But if the doctor stopped learning science at age 8, maybe he or she would.

The FCC's willful ignorance of a range of answers is not limited to what options it considered.

Did they notice that somehow over 400,000 small cells have already been deployed and that wireless companies have been striking deals to locate small cells without their help?

One proof point demonstrating the ability of carriers to work things out with cities without federal interference involves the carriers and San Jose. They were antagonists in the BDAC process, with the carriers supportive and the Mayor of San Jose, one of two big city representatives, resigning and blasting the process.

But those parties were able to negotiate terms that all thought fair and allow the companies to begin 5G deployments. Notably, the deals include having the companies contributing to a digital inclusion initiative and helping the city pay for accelerated permitting.

Commissioner Rosenworcel, to her credit, praised the deal as a potential model that other cities could follow.

This, of course, undercuts the fundamental premise of BDAC, that cities can't be trusted to look out after their own interests and therefore some unelected bureaucrats—who, by the way have spent their entire professional careers inside the Beltway—have to micromanage duly elected Mayors and Councils.

So the companies tried to salvage the situation by claiming that San Jose was a unique situation so it's not a model.

AT&T, for example, wrote "The final agreements, which are not yet complete, are intricate, interdependent on each other, and unique to San Jose's circumstances. The agreement with San Jose was nonetheless reached because it was necessary given the network usage in the area and the population density that is served there.

Think about that for a second.

The industry and the FCC want to create a one-size fits all approach that eliminates local choice for thousands of cities.

But when confronted by a successful negotiation in which both sides got more than they gave, they say, wait a minute, that is a unique situation that does not fit into a one size fits all box.

I think a lot of cities would, like San Jose, want to find a path that in their unique circumstances, both facilitates deployment and helps bridge the digital divide.

But if San Jose is unique, doesn't that suggest the premise of BDAC preemption—that construction and rights of way management should be standardized and federalized—is flawed?

It doesn't seem to me the companies salvaged BDAC.

As a logical matter, they savaged it.

In my first two speeches, I criticized the FCC and BDAC and have heard from neither, not that I expected to.

But it has led to some good conversations with folks in industry who disagree with my analysis.

I advocated a city-by-city approach, as occurred with Google Fiber. This led, by the way, to an increase in investment that has resulted in about 30% of homes in the United States now having a gigabit option. The FCC's primary (though not only) role, in my opinion, should be to gather facts and be an expert, data-driven, evangelist for best practices, demonstrating but not dictating to elected local officials those policies that will lead to eliminating bandwidth as a constraint to economic growth and social progress.

My industry friends objected that this would take too long.

It's a fair point, if industry was building everywhere at once. But they are not. Indeed, the deployment will likely be slow and targeted.

For example, Verizon went from having 11 test cities in 2017 to announcing a launch of three to five cities in 2018. AT&T initially announced it would only be building out to a dozen cities in 2018, though they apparently added three more last week. That pace is actually slower than the pace by which it upgraded in response to Google Fiber. By the way, the cities they added were cities where they built out fiber to respond to Google Fiber, showing another benefit of the Google Fiber initiative.

Moreover, that pace provides plenty of leverage for the companies and plenty of time to study what does and does not work.

A second criticism is that I ignored how the companies' capital budgets are constrained and, the industry argues, if permit fees come down everywhere, we will get broad based deployment.

This argument is reflected by a Commissioner who said that we have to lower the price of access in every community on the theory that if a company saves money in market A, they will immediately spend that money in market B. And therefore, that would give every community "a fair shot at 5G."

I'm sorry. I work on Wall Street. That is not how capital allocation works. Not even close.

If a company gets extra profits in market A, what makes the FCC believe they will spend it in market B?

The FCC has not offered a single bit of evidence to support its argument.

I, on the other hand, can provide clear proof of what telecom companies do when they get some extra cash. The tax bill gave them billions of dollars, far more than they will get from the FCC regulating permitting and rights of way prices.

So what did they do with it? In the general market, we didn't see a huge new inflow of capital expenditures but we did see record stock buy backs, dividends and mergers.

That is true for telecom companies as well. As one can see with Verizon's own statements, stock-buy backs, debt reduction, or dividend support are probably higher priorities than investments in 5G networks. AT&T, also a big winner, is, of course, focused on debt reduction reflecting the cost of the DirecTV and Time-Warner Entertainment. And it's interesting to note that when company executives discussed the company's future in the recent trial, all of the discussion was about investing in data platforms, not next generation network facilities.

To be clear, I am not opposed to those companies doing what is in their best interests. But let's be honest and admit that nothing the FCC is doing will change those priorities.

Indeed, nothing the FCC has said has reflected that they have learned anything from actual corporate behavior and incentives.

Let me add that I find it odd that FCC officials claim that they have to regulate local government fees to provide local governments a "fair shot."

As one rather angry local official said to me, "what the hell is fair about the federal government taking money that we want to spend on cops and forcing us to subsidize big carrier access to public rights of ways?"

So, because the FCC and BDAC decided it knew the answers from the start and didn't want to learn anything, they came up with an answer that will not accomplish the goal of accelerating deployment.

Rather, the primary outcome will be to transfer wealth from the public to private enterprises with a framework in which industry gets all the benefits with no obligations and municipalities get all the costs and no guaranteed benefits.

That is a harsh assessment and I hope I am wrong. But a sober analysis leads to no other conclusion.

I don't mean to argue that BDAC is 100% wrong.

I think it is good that the process recommended that the Commission adopt a one-touch make ready rule. For a variety of reasons, articulated in Chapter 6, and particularly in recommendations 6.2 and 6.3 of the United States National Broadband Plan, I think it valuable for the FCC to articulate a national policy that lowers the cost of pole access—not by reducing fees but by reducing the input costs to making poles ready for new attachments.

Speaking of the National Broadband Plan—and for the second time in this speech I'm revealing my fundamental stupidity---when I took the assignment of running the effort to develop a national broadband plan, I would have never thought that there would be a recommendation about one touch make ready. I didn't know what it was.

But the idea, like all the ideas, came out of the 30 public workshops and 40 public notices we held. They were designed to teach our team something new.

And they did.

Another example of my ignorance is a project I am working on to develop a plan to connect all refugees to the internet.

Without going into details, I will simply say I co-wrote a piece proposing that such a plan be written. Then some folks like the World Bank decided to fund some friends and I to write it. The final product will bear little resemblance to the article because it turns out that my original thesis—that the problem was just like the problems we addressed in the US National Broadband Plan—was only 50% right.

Which is another way of saying, I was 50% wrong.

Again, a big shocker here—if you actually study something it turns out to be different than you thought before you actually studied the problem.

And that brings us back to the promise of a smart city.

After all, what we mean by a smart city is one that learns.

It is not a city that suddenly, one day, does everything better.

It is a city that learns a little bit every day.

Overtime, that learning leads to the destruction of previous conclusions and the construction of new insights and improved practices.

The city is a commons that we share, a commons we hope can be wiser about traffic, trash pickup, energy use, land use, schools, parks, and many other activities.

Smart cities represent a huge economic opportunity. McKinsey estimates the market opportunity of the municipal use of the Internet of Things to be between $930 Billion to 1.7 Trillion by 2025.

Moreover, smart cities represent a huge social opportunity to improve the delivery of all kinds of public goods and services.

Smart cities would benefit from, though is not dependent on, upgraded communications networks.

We don't know yet the optimal way to make our cities smarter. But we see in cities an earnest effort to figure it out, without pre-judgment.

We see all around the world, mayors, council members, staffers, coming to conferences not to confirm what they already believe but to humbly and openly obtain information they need to improve their community.

As we want our cities to become smart, we also want them to become wise. As a 2014 and 2016 White House report discussed, big data carries with it all kinds of opportunities to improve our economy and society but also, "the potential of encoding discrimination in automated decisions"—that is, that discrimination may "be the inadvertent outcome of the way big data technologies are structured and used." That is, while the data can help improve the operations of our commons, data alone carries the danger of reinforcing existing patterns that reflect historic wrongs and unfairness.

We have a lot of work to do and a lot to learn to achieve the outcomes we desire.

But I trust cities can do that learning in ways the FCC has shown itself incapable of doing.

Let me close with how I started the first of the three speeches.

The most significant meta-theme about governance in the United States today is that the federal government is dysfunctional and disrespected, but that local governments are responsive, pro-active, effective and respected in building communities that improve the lives of their residents.

I see that not just in the press, such as David Brooks' New York Times column last week on The Localist Revolution, popular books, such as Ben Hecht's new book on "Reclaiming the American Dream" and academic writings, as well as in my own experience in dealing with the federal and scores of local governments.

It also shows up in the polling data. More than two-thirds of members of both parties express trust in local governments while the number of Americans expressing trust in the federal government is below 20%.

This causes me to believe, both as a philosophical and practical matter, that a key to moving this country forward is to give local governments more authority and freedom.

The idea was summed up best by conservative thinker Yuval Levin in his book, Fractured Republic. He wrote "The absence of easy answers is precisely a reason to empower a multiplicity of problem-solvers throughout our society, rather than hoping that one problem-solver in Washington gets it right.

Empowering that multiplicity of problem solvers is what this conference and Next Century Cities is all about.

Good luck and don't let the FCC get in your way.