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University of Pennsylvania Law School  
3501 Sansom Street  
Philadelphia, PA 19104-6204

## **Municipal Fiber in the United States: Response to Critics and Extension of the Analysis**

Christopher S. Yoo and Timothy Pfenninger

### **Introduction**

We would like to thank everyone that has commented on our study, “Municipal Fiber in the United States: An Empirical Assessment of Financial Performance.” We are gratified that so many people have found our work helpful and engaging. The goal was to study all U.S. municipal fiber deployments based on the audited financial statements and bond documents issued by the cities to the extent the data was available. As we acknowledged in the study, high-level analysis based on official data will no doubt overlook some of the details and subtleties of particular projects. We welcome those who engaged constructively with us to improve the study. For example, we thank Christopher Mitchell for pointing out that Fayetteville, Tennessee, employs a hybrid fiber coaxial architecture instead of fiber. He also called our attention to an error we made in the capital repayment schedule of Chattanooga, Lafayette, and Wilson, which we have corrected.

That said, some of the comments and criticisms made about the study are simply incorrect. The statements below will explain them further. We also offer some extensions of the analysis in ways we hope will prove helpful.

### **The Core Analysis**

The study was based on a systematic analysis of all eighty-eight municipal fiber projects that existed in 2014, when we began the study. As we noted, of these projects, only 19 reported the results of their fiber operations separately, and we analyzed each and every one of them. Our initial report noted 20 projects instead of 19 because we mischaracterized one project (Fayetteville) as employing fiber when it was employing a hybrid fiber-coaxial (HFC) architecture. It would have been far better if all of these cities had reported the financial results of their fiber operations separately. Doing so would promote transparency, accountability, and good government. In the meantime, we simply analyzed a five-year snapshot of all of the projects for which data is available.

We based our analysis on the best available data, specifically the audited financial statements issued annually by cities as well as the Official Statements they submitted to the Securities and Exchange Commission in support of their bonds. We then employed standard techniques of financial analysis to calculate annual cash flow. We chose the five-year period for which we had complete data at the time we began our research in 2015, which at the time was for 2010, 2011, 2012, 2013, and 2014.

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Our metric is straightforward and is summarized in Table IV of the initial study. The first three lines represent the same number reported on every financial statement as “Net cash provided by operating activities.” To this we add two additional numbers: “Cash flows from capital and related financing activities” and the change in working capital, which also grows and must be funded as a project expands. All of these components are standard elements of every financial statement, and together they represent a project’s total cash needs for a given year.

These assessments of a project’s cash needs are calculated directly from the audited financial statements and bond documents issued by the cities, which represent the best quality data for analysis. We expect our research to be ongoing. We will refine our analysis and extended it as projects release more data in the coming months and years. While reasonable people can disagree on what these data mean for the future and how particular projects will use funds as they become available, questioning how these projects performed from 2010 to 2014 (inclusive) as a historical matter requires questioning the official data, which remains the highest quality data available, or by questioning a very straightforward and generally accepted methodology.

As noted in our initial report, 11 of the projects were cash-flow negative. Interestingly, the overall trend in the cash flow for all 11 of these cash-flow negative projects is positive, which raises some prospect on improved performance. Conversely, the trend in the cash-flow patterns for the 7 of the 8 projects that were cash-flow positive exhibit an overall negative trend, with only Pulaski, Tennessee, following a positive trend. Although this may simply represent reversion to the mean, the details of these trends merit further analysis. On the one hand, a cash-flow negative project may be performing so poorly or the positive trend may be so small that the positive trend may not be sufficient to make the project likely to become solvent. On the other hand, a cash-flow positive project may be performing so well or the negative trend may be so small that the negative trend may not be sufficient to harm the project’s likely viability.

### **Erroneous Criticism #1: Our Study Focuses Only on the Initial Five Years of a Municipal Fiber Project ([link](#)) ([link](#))**

This statement is simply incorrect. Our study is based on the five-year period beginning in 2010 and ending in 2014 (inclusive), during which time projects were of various ages. This period represented years 0-4 for the youngest project and years 8-12 for the oldest study. The ages of the projects included in the study are listed below:

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<b>Project</b>	<b>Age from 2010 to 2014 (inclusive)</b>
<b>Salisbury, NC</b>	Years 0 to 4
<b>Wilson, NC</b>	Years 1 to 5
<b>Chattanooga, TN</b>	Years 2 to 6
<b>Powell, WY</b>	Years 2 to 6
<b>Monticello, MN</b>	Years 2 to 6
<b>Bristol, TN</b>	Years 3 to 7
<b>Tullahoma, TN</b>	Years 3 to 7
<b>Brookings, SD</b>	Years 3 to 7
<b>Clarksville, TN</b>	Years 3 to 7
<b>Morristown, TN</b>	Years 4 to 8
<b>Vernon, CA</b>	Years 5 to 9
<b>Pulaski, TN</b>	Years 5 to 9
<b>Loma Linda, CA</b>	Years 5 to 9
<b>Lafayette, LA</b>	Years 5 to 9
<b>Windom, MN</b>	Years 6 to 10
<b>Churchill County, NV</b>	Years 7 to 11
<b>Burlington, VT</b>	Years 7 to 11
<b>UTOPIA, UT</b>	Years 8 to 12
<b>Kutztown, PA</b>	Years 8 to 12

Thus, it is simply incorrect that the study focused on each project's first five years. On the contrary, it includes projects of a broad range of ages, which provide concrete data points showing how older projects have performed. Some critics suggest, moreover, that focusing on younger projects would make the results look worse. This is incorrect. Superimposing a trend line on the overall data over time reveals a trend line that is negative. This suggests that older projects did worse than younger projects when the entire dataset is considered as a whole. We are now working to extend the analysis to cover the entire life of every project and to make sure that our references to start dates is completely consistent.

The study represents a snapshot of the most recent five years of data available at the time we began the research. As we noted in the initial study, whether any project's performance during this period is representative of future performance depends on detailed analysis of any potential changes in the economic and technological environment surrounding fiber broadband as well as the specific characteristics of particular projects.

### **Erroneous Criticism #2: Focusing on 2010 to 2014 Represent Bad Economic Years Following the Recession of 2008 ([link](#))**

This claim is contradicted by the GDP numbers from this period. The official estimates of GDP growth calculated by the U.S. Department of Commerce's Bureau of Economic Analysis over the past 10 years are reported below:

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Year	Real GDP Growth
2007	1.8%
2008	-0.3%
2009	-2.8%
2010	2.5%
2011	1.6%
2012	2.2%
2013	1.7%
2014	2.4%
2015	2.6%
2016	1.6%

Four cities have fiscal years that end on December 31, so the relevant data for them begins in 2010, so that the relevant period includes all of 2010 to 2014 (inclusive). Fourteen of the 19 cities in the study have fiscal years that end on June 30, and one of the cities (Lafayette) has a fiscal year that ends on October 31, so that the relevant period includes the latter part of 2009 through the latter part of 2014.

The relevant real GDP growth rates for 2010 to 2014 range from 1.6% to 2.5%, which is more or less representative of the overall period. Real GDP growth rates were negative in 2009, but on closer inspection GDP contracted only during the first half of the year and turned positive during the second half. Cities whose fiscal years end on June 30 or September 30 have financial results included one or two quarters of the final quarters 2009, during which time, the economy was growing.

GDP growth is of course not the only measure of the overall economic environment, and GDP growth rates vary across different parts of the country. Other measures, such as consumer confidence, are relevant as well. Turnarounds in GDP growth can take time to manifest themselves in consumer spending. That said, the real GDP growth numbers noted above suggest that it is too simplistic to claim that the economic results that these projects achieved during this period were entirely the result of the recession that officially started in December 2007 and ended in June 2009.

### **Erroneous Criticism #3: The Study Mistakenly Includes Depreciation ([link](#))**

This is simply incorrect. As the methodology discussed on pages 9-10 and demonstrated in Table IV on page 11 shows, our methodology correctly addresses depreciation by adding it back to operating income. In short, our analysis does not include any charges for depreciation. On the contrary, it carefully excludes them.

### **Erroneous Criticism #4: The Study Focuses on Return on Investment Instead of Financial Solvency ([link](#))**

This is simply incorrect. As we noted in the study, the basic approach is to “appl[y] the conventional tools of financial analysis to determine the likelihood that municipal fiber projects

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will remain solvent.” If it were focused on analyzing these projects as commercial ventures, it would have applied a cost of capital/rate of return hurdle of 15% to 20%. Instead, the study applied the actual cost of capital paid by the city, which ran from 3.90% to 7.25% (except for UTOPIA, which opted for a variable interest rate). These costs of capital represent what the cities are actually paying bondholders to finance their projects, which is thus a measure of the solvency of the projects, not their commercial value. And as this critique recognizes, any measure of financial success includes “[g]enerating revenue sufficient to cover on-going operating costs and retiring debt incurred to build the original network.” Thus, it concedes that our analysis, which assesses whether a municipal fiber project was on track to cover its operating costs and pay back the bonds used to finance these projects and the accompanying interest, is asking the right question.

### **Erroneous Criticism #5: Municipal Fiber Projects Should Be Evaluated from When They Begin Generating Revenue, Not from When They Are Financed ([link](#))**

This is simply incorrect. Every conventional approach to evaluating solvency takes the date a project is financed as the proper starting point for analysis. The reason is simple. Municipal fiber projects begin paying interest on their bonds from the day they are issued regardless of how long it may take to generate revenue. These are real costs that must be recouped from later operations if a project is to remain solvent.

### **Erroneous Criticism #6: The Study Does Not Include Benefits to the Electric Power Operations ([link](#)) ([link](#))**

Our analysis was based on the official financial statements. If such benefits exist, they should ideally be reflected as a payment from the electric operations to the fiber operations, which would be included in the financial statements and our analysis based on those statements. If they are not so reported, they are problematic from the standpoint of transparency, accountability, and good government. Any other result would require one set of customers to cross subsidize the services of other customers in an opaque manner instead of having each set of customers pay for the services they receive or disclose when such a transfer is being made. Ideally, any benefits in reduced-cost services for cities should also be reflected on the financial statements.

In any event, as we have consistently said, our study examines only operating cash flows and how long it would take to payback the initial cost to build out the network. Benefits claimed by proponents, such as lower electric rates, job creation, and economic growth, fall outside the scope of the study because they have no direct impact on cash flows. Those are considerations that municipal officials and citizens should consider along with the financial snapshot that we have provided in deciding whether or not to proceed with a municipal fiber project.

### **Erroneous Criticism #7: Chattanooga, Lafayette, Wilson Were Performing Misleadingly Poorly in 2010 to 2014 and Have Performed Better Since ([link](#)) ([link](#)) ([link](#))**

Our methodology is designed to reflect the cash flow impact of each project’s as closely as possible. Far from consistently being the worst case scenario, our calculations often lead to more favorable treatment. Consider Chattanooga, for example. The “Net change in cash and cash

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equivalents” reported on EPB’s audited financial statements indicate that its operations were cash-flow negative by -\$2.2 million. Our approach has them cash-flow positive by approximately +\$2.2 million (see below, with numbers updated from our original study).

Project	2010	2011	2012	2013	2014	Total
<b>Our Analysis</b>	1,712,976	4,735,809	(2,798,978)	(1,675,734)	202,053	2,176,127
<b>Unadjusted Financial Report</b>	(1,387,000)	(436,000)	866,000	(781,000)	(522,000)	(2,260,000)

To explore the claim that operations for these three projects improved substantially in 2015 and 2016, we ran the methodology on these three projects to include data from 2015 and 2016. The results are below:

Project	2010	2011	2012	2013	2014	2015	2016
<b>Wilson, NC</b>	(36,970)	(1,803,186)	(2,439,893)	1,078,492	301,356	(77,526)	178,159
<b>Chattanooga, TN</b>	1,712,976	4,735,809	(2,798,978)	(1,675,734)	202,053	(3,267,081)	(5,818,548)
<b>Lafayette, LA</b>	(16,953,523)	(11,752,555)	1,225,959	(4,748,835)	(3,857,379)	(489,616)	(1,020,001)

Wilson’s 2015 and 2016 results are mixed. Chattanooga’s results are mixed as well, being weighed down by a significant increase in working capital, particularly the \$6.5 million increase in its cash reserves in 2016, which will likely prove temporary. Lafayette is improving, but remains cash-flow negative. Each project’s long-term performance will depend on a comparison of its returns from operations, which can be expected to improve, and the size of the payment that each project must pay to cover its debt will also increase, which is scheduled to increase.

### Erroneous Criticism #8: The Study Was Supported by Special Interests

No company or other entity provided direct financial support for this study, nor did any entity have any input into its direction or its findings.

### Future Work

The historical performance of the projects included during the five-year period from 2010 to 2014 (inclusive) is a matter of the factual record. We regard providing clear information about the annual performance of municipal fiber to be our study’s primary contribution.

Over the next few weeks, we plan to expand our analysis beyond the 2010 to 2014 (inclusive) time period to include all years of every municipal fiber project since their inception. The larger and richer dataset should allow us to redo our regression analysis as well. We have already identified ways to improve our analysis, which we will incorporate into our next update.

As noted earlier, although the historical cash flows are a matter of fact, projecting what will happen in the future is a matter of judgment about which there are many possible answers that are all reasonable. We offer our analysis in the hopes that better information about how municipal fiber projects have performed in the past will help municipal policymakers evaluate the available options.

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### **Final Reflections**

The goal of this study is to provide a general sense of the overall financial performance of the entire universe of municipal fiber projects. The approach is to take all of the cases in the aggregate to provide insight for those considering initiating a municipal fiber project.

We have already identified ways to improve our analysis, and we plan to extend it to cover the entire life of every project back to each one's inception to the current day. At the same time, we incorporate by reference the caveats contained in our initial study, including (but not limited to) the fact that past performance does not dictate future results, that all conclusions must be mindful of the fact that over 60 of the projects do not account for their broadband operations separately and that key decisionmakers must make their own assessments of each particular case based on their assessments of all their goals.

Lastly, the results of our study do not take away from the fact that a great deal more needs to be done to help connect more Americans to the Internet—by both making networks more available and by increasing Internet subscriptions by addressing all of the relevant issues, including affordability, relevance, digital literacy, and access to devices. As former Governor Rendell said at the event launching this study, regardless of the outcome of the debate over municipal fiber, residents in rural areas and small cities need new solutions if we are to extend the benefit of Internet connectivity to everyone. CTIC is conducting empirical research evaluating innovative ways to connect more people to the Internet ([link](#)). We hope that new ideas will emerge that will help address these problems as well.