

Alleged Unallowable Costs Under NTIA Broadband Technology Opportunities Program Grant

INVESTIGATIVE REPORT NO. I4-0480

JUNE 2017



U.S. Department of Commerce
Office of Inspector General
Office of Investigations



Report Summary

JUNE 2017

Background

On May 7, 2014, a private party filed a sealed *qui tam* complaint in federal court, alleging that Frontier, West Virginia, Inc. (Frontier), a subrecipient of an NTIA Broadband Technology Opportunities Program (BTOP) grant to the State of West Virginia, had violated the False Claims Act. In essence, the complaint alleged that Frontier misused BTOP grant funds by failing to build an open access network as required and falsely claiming unallowable indirect and inflated costs.

The U.S. Department of Commerce Office of Inspector General (OIG) and the U.S. Department of Justice jointly investigated the complaint on behalf of the United States.

Following the decision by the United States not to intervene, pursuant to the OIG's oversight responsibilities, we continued to investigate several allegations regarding Frontier's performance as a subrecipient under the West Virginia BTOP grant.

NATIONAL TELECOMMUNICATIONS AND INFORMATION
ADMINISTRATION (NTIA)

**Alleged Unallowable Costs Under NTIA Broadband Technology
Opportunities Program Grant**

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WHAT THE OIG FOUND

The evidence developed over the course of our investigation established that the Executive Office of West Virginia (EOWV) reimbursed Frontier from BTOP grant funds for approximately \$4.7 million in costs that were unallowable under the applicable rules and regulations. The evidence further established that Frontier placed a significantly greater amount of "maintenance coil" on the BTOP project than the company had previously represented to the public, the EOWV, and to the OIG.

With respect to unallowable costs, the OIG found that (1) the EOWV reimbursed Frontier \$465,000 for invoice processing fees that were unreasonable, unallocable, and not supported by adequate documentation and (2) the EOWV paid Frontier at least \$4.24 million in unallowable indirect "loadings" charges (*e.g.*, overhead and administrative expenses).

In making the findings about both the invoice processing fees and the loadings charges, the OIG noted that there appears to have been a substantive miscommunication between the EOWV and a key NTIA official, in which the EOWV believed in good faith that NTIA had approved these types of charges. Nevertheless, we concluded that this apparent miscommunication would not convert unallowable charges into allowable ones.

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Cover: Herbert C. Hoover Building main entrance at 14th Street Northwest in Washington, DC. Completed in 1932, the building is named after the former Secretary of Commerce and 31st President of the United States.

Section 1: Introduction

In 2014, a private party filed a lawsuit alleging that a Broadband Technology Opportunities Program (BTOP) grant subrecipient had defrauded the federal government. Though the United States declined to intervene in the civil action, a U.S. Department of Commerce (Department) Office of Inspector General (OIG) investigation identified approximately \$4.7 million in unallowable costs that were paid with BTOP grant funds. This report contains the findings of our investigation.

I. Basis for Investigation

On May 7, 2014, a private party filed a sealed *qui tam* complaint in federal court, alleging that Frontier, West Virginia, Inc. (Frontier), a subrecipient of a National Telecommunications and Information Administration (NTIA) BTOP grant to the State of West Virginia, had violated the False Claims Act.¹ In essence, the complaint alleged that Frontier misused BTOP grant funds by failing to build an open access network as required by the grant and falsely claiming unallowable indirect and inflated costs.²

The OIG and the U.S. Department of Justice (DOJ) jointly investigated the complaint on behalf of the United States, and the United States ultimately decided not to intervene in the action.³ Following the decision not to intervene, pursuant to the OIG's oversight responsibilities, we continued to investigate several allegations regarding Frontier's performance as a subrecipient under the West Virginia BTOP grant.

II. Executive Summary

The evidence developed over the course of our investigation established that the Executive Office of West Virginia (EOWV) reimbursed Frontier from BTOP grant funds for approximately \$4.7 million in costs that were unallowable under the applicable rules and regulations.

1. The EOWV Reimbursed Frontier \$465,000 for Invoice Processing Fees that are Unallowable Costs

- Frontier billed and received payment for approximately \$465,000 in fees to process Facilities Built-Out (FBO)-related invoices for work performed by its contractors.
- The FBO invoice processing fee originated as an across-the-board 35.2% “markup” on contractor invoice amounts. When the State of West Virginia questioned those fees, however, Frontier replaced the percentage-based markup with a flat fee based on

¹ 31 U.S.C. §§ 3729 *et seq.*

² 2:14-cv-15947 Docket entry No. 1 (Compl.).

³ On June 17, 2016, the United States notified the Court of its decision not to intervene in the action. The Court unsealed the complaint on June 28, 2016. Docket entry Nos. 27 and 28. As of the date of the issuance of this report, the *qui tam* litigation is still pending.

an 11-step process that was purportedly necessary to process every invoice. Frontier told the State that the 11-step process took four hours at a cost of \$1,808 per invoice.

- The evidence established that these FBO invoice processing fees were unreasonable, unallocable, and not supported by adequate documentation, and therefore were unallowable costs under the relevant grant rules and regulations.

2. *The EOWV Paid Frontier At Least \$4.24 Million in Unallowable “Loadings” Charges*

- Frontier billed and received payment for at least \$4.24 million in indirect “loadings” charges, which Frontier described as its “allocated indirect costs.”
- According to NTIA’s interpretation of the prevailing grant rules and regulations, Frontier was not permitted to seek recovery for its indirect costs with BTOP funds.

In making the findings about both the invoice processing fees and the “loadings” charges, we noted that there appears to have been a substantive miscommunication between the EOWV and a key NTIA official, in which the EOWV believed in good faith that NTIA had approved these types of charges. Nevertheless, we concluded that this apparent miscommunication would not convert unallowable charges into allowable ones.

3. *Frontier’s Statements Related to Its Use of Maintenance Coil*

The evidence further established that Frontier placed a significantly greater amount of “maintenance coil” on the BTOP project than the company had previously represented to the public, the EOWV, and the OIG.

- Frontier represented on several occasions to the public, the EOWV, and the OIG that it had included approximately 12 miles of maintenance coil in the BTOP project “per industry standards.”
- Responding to questions from the OIG, however, Frontier’s counsel ultimately estimated that there are approximately 49 miles of maintenance coil on the BTOP project, an increase of roughly 400% from their previous statements.

The OIG is referring this issue for NTIA’s consideration and any action deemed appropriate.

III. Background on West Virginia BTOP Grant

The American Recovery and Reinvestment Act of 2009⁴ appropriated \$4.7 billion to NTIA to establish BTOP, a program principally aimed at accelerating broadband deployment in unserved and underserved areas across the United States. In 2009 and

⁴ Pub. L. No. 111-5, Div. A, Tit. II, 123 Stat. 128 (Feb. 17, 2009).

2010, NTIA awarded more than 230 BTOP grants totaling approximately \$4 billion, which funded projects in all 50 states and several territories.⁵

On February 12, 2010, NTIA awarded the EOWV approximately \$126 million to bring high-speed internet access to underserved regions of that state.⁶ Under the award, the West Virginia Statewide Broadband Infrastructure Project was to create a fiber and radio broadband network that would connect Community Anchor Institutions (CAIs) such as public safety agencies, public libraries, schools, government offices, and other critical community facilities.⁷ Among other goals, “[t]he project [was intended] to spur affordable broadband service . . . by allowing local [i]nternet service providers to connect to the project’s open network.”⁸

West Virginia’s BTOP project had three components. The component relevant to this report involved the construction of a fiber network that would provide broadband service to CAIs across the state. In its application, the EOWV represented to NTIA that it would cost \$42,482,657 to construct the fiber network required by this component of the project. In October 2010, the EOWV entered into a Memorandum of Understanding (MOU) with Frontier, in which Frontier, a communications services provider, became a subrecipient of the BTOP grant. Under the MOU, Frontier agreed to provide “network facilities and other services” to implement this portion of the grant. Specifically, Frontier was tasked with building the BTOP fiber network that would connect each CAI.⁹

IV. Investigative Methodology

The OIG conducted interviews of current and former employees and contractors of NTIA, the State of West Virginia, Frontier, and other relevant entities. The OIG also reviewed emails, grant documents, invoices, engineering maps, and other documentation provided by NTIA, the State of West Virginia, and Frontier. In addition, the OIG reviewed information provided by Frontier through its counsel in response to questions posed by the OIG.

At the conclusion of the investigation, the OIG orally presented its draft findings to representatives from the State of West Virginia and Frontier and provided both entities an opportunity to submit comments in writing. The State of West Virginia informed the OIG that it did not have any comments. Frontier’s counsel provided a written response. The OIG reviewed Frontier’s response and has incorporated certain comments into the

⁵ BTOP, *Quarterly Program Status Report 1* (June 2013), available at https://www.ntia.doc.gov/files/ntia/publications/ntia_btop_17th_quarterly_report.pdf (last visited Mar. 8, 2017).

⁶ See U.S. Dep’t of Commerce Financial Assistance Award Number NT10BIX5570031.

⁷ BTOP, *BroadbandUSA Connecting America’s Communities*, available at https://www.ntia.doc.gov/legacy/broadbandgrants/factsheets/WV_ExecOfcWestVA_FINAL.pdf (last visited Mar. 8, 2017).

⁸ EOWV, *West Va. Statewide Broadband Infrastructure Project*, available at <http://www2.ntia.doc.gov/grantees/WestVA> (last visited Mar. 7, 2017).

⁹ At the time of the grant subrecipient MOU agreement, Frontier had a previously existing Multi-Protocol Layer Switching contract (MPLS Contract) with the State of West Virginia, under the jurisdiction of the West Virginia Office of Technology.

relevant sections of this report. Appendix A to this report contains Frontier's response in its entirety. The OIG also consulted with NTIA regarding its proposed findings.

Section 2: EOWV's Payment of Unallowable Costs

Evidence gathered by the OIG shows that the EOWV reimbursed Frontier for approximately \$4.7 million in unallowable costs with BTOP grant funds. As described below, the evidence establishes that Frontier billed and received payment for roughly \$465,000 in fees purportedly incurred in processing certain invoices. However, the OIG found that the payment of these invoice processing fees was inappropriate because they were neither reasonable, allocable, nor supported by adequate documentation, as required by the applicable rules and regulations. In addition to the impermissible invoice processing payments, the evidence shows that Frontier was reimbursed at least \$4.24 million for indirect "loadings" charges, which, according to NTIA's interpretation of the grant rules, should not have been allowed.

I. Applicable Legal Framework

Under the MOU, Frontier agreed to comply with all conditions and rules governing NTIA's grant award to the EOWV. These rules included those found in the Department of Commerce Pre-Award Notification Requirements for Grants and Cooperative Agreements (Pre-Award Notification Requirements), the Notice of Funds Availability and solicitation of applications (First NOFA), and the Uniform Administrative Requirements for Grants and Agreements to States and Local Governments (the Uniform Administrative Requirements). Further, Office of Management and Budget (OMB) Circular A-87 provides federal cost principles for determining allowable costs incurred by state governments under grants with the federal government.¹⁰ Within the Code of Federal Regulations (C.F.R.), the Federal Acquisition Regulation (FAR) contains principles on contracts with commercial organizations.¹¹

Pursuant to both OMB Circular A-87 and the FAR, for costs to be allowable under Federal awards, they must be, among other criteria, (i) "necessary and reasonable for proper and efficient performance and administration of Federal awards . . .," (ii) "allocable to Federal awards . . .," and (iii) adequately documented.¹² OMB Circular

¹⁰ On December 26, 2013, OMB published interim final guidance titled "Uniform Administrative Requirements, Cost Principles, and Audit Requirements" (OMB Uniform Guidance), which streamlined the language from eight existing OMB circulars, including A-87, into one consolidated set of guidance applicable to federal assistance awards. The Department of Commerce adopted the OMB Uniform Guidance, codified at 2 C.F.R. Part 200, effective December 26, 2014. Because the OMB Uniform Guidance applies to awards (or additional funding to existing awards) made after the effectiveness date, this report cites to OMB Circular A-87 (2 C.F.R. 225) when applicable. See U.S. Dep't of Commerce Grants Policy, available at http://www.osc.doc.gov/oam/grants_management/policy/ (last visited June 9, 2017).

¹¹ See OMB Circular A-87 (May 10, 2004), available at https://obamawhitehouse.archives.gov/omb/circulars_a087_2004/ (last visited May 19, 2017); 48 C.F.R. Pt. 31.2 (*Contracts With Commercial Organizations*).

¹² OMB Circular A-87 Attach. A § C.1.a, b, and j; 2 C.F.R. 225 *et seq.* (2013); see 48 C.F.R. Pt. 31.2 (*Contracts With Commercial Organizations*).

A-87 provides that a cost is reasonable “if, in its nature and amount, it does not exceed that which would be incurred by a prudent person under the circumstances prevailing at the time the decision was made to incur the cost.”¹³ With regard to what is “allocable,” OMB Circular A-87 states that “[a] cost is allocable to a particular cost objective if the goods or services involved are chargeable or assignable to such cost objective in accordance with relative benefits received.”¹⁴

The NTIA and Department rules and conditions governing the EOWV award limited the circumstances under which the EOWV could use NTIA grant funds to recover the “indirect costs” associated with implementing the grant. NTIA, based on the OMB definition of indirect costs, defined indirect costs as “those recipient costs that are not directly associated with the recipient’s execution of its BTOP project, but that are necessary to the operation of the organization and the performance of its programs.”¹⁵ In general, “indirect costs” include costs frequently referred to as overhead expenses (e.g., rent and utilities) and general and administrative expenses (e.g., accounting department costs and personnel department costs).¹⁶

Under the Department’s Pre-Award Notification Requirements, a BTOP recipient’s indirect costs would “not be allowable . . . unless [they were] specifically included as a line item in the approved budget incorporated into the award.”¹⁷ The relevant EOWV submissions identified Frontier as a grant subrecipient, but did not include a line item for any indirect costs in the approved budget incorporated into its BTOP award.¹⁸ The EOWV did not submit any requests to waive the Pre-Award Notification Requirements relating to reimbursement for indirect costs, either for its own expenses or on behalf of Frontier. As a result, according to NTIA and the Department rules, the EOWV could not have used BTOP funds to pay for the indirect costs associated with the implementation of the grant, whether its own indirect costs or Frontier’s.¹⁹

¹³ OMB Circular A-87 Attach. A § C.2.

¹⁴ OMB Circular A-87 Attach. A § C.3.a.

¹⁵ BTOP, *BroadbandUSA Connecting America’s Communities, Fact Sheet BTOP Program Indirect Costs* (Nov. 2010), available at https://www2.ntia.doc.gov/files/indirect_costs_fact_sheet_110110_final.pdf (last visited Mar. 8, 2017); see OMB Circular A-87 Attach. A § F.1. (“Indirect costs are those . . . incurred for a common or joint purpose benefitting more than one cost objective, and . . . not readily assignable to the cost objectives specifically benefitted, without effort disproportionate to the results achieved.”).

¹⁶ See, e.g., U.S. Dep’t of Commerce, *General Indirect Cost Rate Program Guidelines for Grantee Organizations* (June 2011), available at <http://www.osec.doc.gov/oam/archive/docs/DOC%20Indirect%20Cost%20Rate%20Program%20Guidelines%20for%20Grantee%20Organizations.doc> (last visited Mar. 7, 2017).

¹⁷ See U.S. Dep’t of Commerce, *Pre-Award Notification Requirements for Grants and Cooperative Agreements* (Pre-Award Notification Requirements), 73 Fed. Reg. 7699 (Feb. 11, 2008).

¹⁸ See EOWV BTOP Application (submitted Aug. 20, 2009), EOWV BTOP Budget Narrative, EOWV BTOP Adjusted SF-424C, available at <http://www2.ntia.doc.gov/grantees/WestVA> (last visited Mar. 24, 2017); see also EOWV BTOP General Budget Overview.

¹⁹ Pre-Award Notification Requirements.

II. Factual Background

A. EOWV BTOP Billing and Payments

All EOWV BTOP payments were made through electronic funds transfers using the U.S. Department of Treasury's Automated Standard Application for Payments (ASAP) system.²⁰ Because EOWV was never on "reimbursement only" status, agency review was not required for any withdrawals. In other words, the EOWV was permitted to unilaterally withdraw grant funds from the ASAP system. The EOWV was required, however, to file quarterly reports,²¹ as well as participate in biweekly conference calls with NTIA and the relevant Department grants office at which various matters pertaining to the grant were discussed. Frontier participated in the biweekly calls.

As a grant subrecipient, Frontier did not bill or receive payment directly from the federal government. Rather, it sent its BTOP invoices to the West Virginia Office of Technology. Following an internal review and approval process, the EOWV paid Frontier using grant funds that had been drawn down from its ASAP account.

Frontier invoices were neither reviewed nor approved by NTIA. Under BTOP grant rules, the grant recipient (*i.e.*, EOWV) was responsible for monitoring the grant subrecipient's compliance with the grant terms.²²

B. Frontier's Invoice Processing Fees for Facilities Build-Out Work

One component of Frontier's responsibilities under the BTOP grant was "Facilities Build-Out" (FBO) work, in which Frontier oversaw additional construction (build-out) within the premises of certain CAIs in order to allow for the installation of fiber optic cable. Frontier did not perform build-out work itself, but rather subcontracted vendors to perform the work and then processed the payment for that work through the grant. Frontier managed four vendors across the state of West Virginia for this work and requested reimbursement for these vendor payments through the BTOP grant. In its response to the OIG's draft findings, Frontier said that West Virginia had initially asked Frontier to perform the FBO work itself, and that Frontier at first declined on grounds that it did not ordinarily undertake such work. Frontier stated that West Virginia then proposed that Frontier could subcontract the work to vendors capable of performing it. Frontier also stated that, as part of its oversight of FBO work, it "assume[d] the legal liability for FBO construction at all [the relevant] sites, as well as the risk of carrying amounts it paid vendors until it was reimbursed by West Virginia."

²⁰ NTIA, *Fact Sheet BTOP Program Automated Standard Application for Payment (ASAP) Registration Process* (Aug. 10, 2010), available at www.ntia.doc.gov/files/fact_sheet_asap_08102010v2.pdf (last visited Mar. 8, 2017) (ASAP Fact Sheet).

²¹ BTOP, *BTOP Recipient Handbook* 30 (Feb. 2012), available at http://www2.ntia.doc.gov/files/Recipient_Handbook_v1.1_122110.pdf (last visited Mar. 13, 2017).

²² *Id.* at pp. 9, 125-129.

From the outset of its billing under the BTOP grant until approximately January 2013, Frontier imposed a 35.2% fee based on the total amount of the vendor costs on all FBO-related invoices that it processed and sent to the State of West Virginia for payment. The evidence established that this fee represented a “markup” on the vendor invoices and was viewed by Frontier as a “revenue opportunity.” For example, on November 30, 2011, one of the primary Frontier employees managing the BTOP grant wrote in an internal email that “we are to add our [fee] to the invoice that goes to the State. The rate has been established by [Frontier employees] so that this is a revenue opportunity for Frontier via [Frontier senior executive].” This same employee told the OIG that it was accurate to describe the FBO fee as a “percentage-based markup.” Moreover, in a November 2, 2012 internal Frontier email with the subject line “Facilities Build Out income,” a Frontier employee involved in financial reporting wrote that “This represents the 35% mark up on completing these jobs for the State.” The email attached an Excel spreadsheet titled “BTOP FBO Profit 10-29-12.xlsx.” Multiple Frontier emails and documents also referred to the FBO fee as a “markup.”

“The rate has been established . . . so that this is a revenue opportunity for Frontier via [Frontier senior executive].”

- November 30, 2011 internal Frontier email

It is unclear how Frontier arrived at 35.2% as the FBO markup amount. Emails indicate that Frontier based the figure on the “design” or “engineering” loadings that had been added to other projects. Frontier employee testimony varied as to the calculation of the markup; however, no Frontier employees interviewed by the OIG could confirm that it

“We agreed with the State that we would increase the amount for this FBO work by 35.2% and they would reimburse us for the actual cost + the 35.2%.”

- November 2, 2012 internal Frontier email

was based on an analysis of actual Frontier costs in processing the BTOP FBO vendor invoices. Thus, the OIG found insufficient evidence that this 35.2% fee was based on an analysis of costs involved in processing the FBO-related invoice work. To the contrary, the evidence indicates that the 35.2% fee was seen within Frontier as distinct from its actual costs in processing the invoices. In a November 2012 internal Frontier email, a Frontier employee claimed that the prevailing agreement with the State was that Frontier “would increase the amount for this FBO work by 35.2% and [that the State] would

reimburse [Frontier] for the actual cost + the 35.2%.”

Additionally, the OIG found no evidence that the specific amount and nature of the FBO markup were ever communicated to the State of West Virginia. In September 2011, Frontier drafted a memorandum to the State making the State aware that it would be adding a 35.2% across-the-board overhead charge for FBO work. However, the evidence

shows that this memorandum was never sent to the State.²³ A Frontier employee told the OIG that, while he believed that the State of West Virginia had been initially told about a “management fee” that Frontier would add to its FBO invoices, he did not believe that the amount of the fee was ever communicated.

In November 2012, an official from the State of West Virginia contacted Frontier and expressed concerns that the prevailing percentage-based FBO fee was unreasonable, in part because Frontier’s work in processing the invoices would not vary significantly with the size of any particular invoice. For example, a \$1,000 FBO vendor invoice would result in a \$352 fee, a \$10,000 FBO vendor invoice would result in a \$3,520 fee, and a \$100,000 FBO vendor invoice would result in a \$35,200 fee, despite the fact that the work required of Frontier in processing the invoice would be similar if not identical in all three scenarios.

In January 2013, Frontier responded by memorandum with a proposal that essentially replaced its 35.2% percentage-based markup with a \$1,808 flat-fee for all FBO-related invoices. In its proposal, Frontier stated that it had “corresponded with the multiple Frontier departments who process [FBO-related invoices] in order to determine what additional costs were involved” in the processing of these invoices. Frontier represented that \$1,808 was the “average cost” to Frontier for processing each invoice.

The memorandum, however, showed that Frontier arrived at the figure by simply taking the total amount of FBO fees as of that date that had been generated by the 35.2% markup (\$441,255.56 in fees), and dividing it by the total number of FBO invoices that had been processed to date (244). The memorandum further represented that the costs described in the memorandum constituted the “incremental costs incurred by Frontier in order to process FBO invoices.” Finally, the memorandum represented that it took Frontier “an average of 4 hours to process each FBO invoice” and provided an outline listing 11 steps purportedly involved in the processing of FBO invoices.²⁴ The outline assigned blocks of time per step, in 15-minute increments, for a total of four hours per invoice.

Frontier and the State of West Virginia memorialized their agreement to the terms of this proposal in a separate memorandum from Frontier to the State of West Virginia dated February 25, 2013. In the February memorandum, Frontier reiterated that the \$1,808 figure was “the actual average cost to Frontier of processing each FBO invoice.” Frontier estimated 330 total FBO jobs at a processing cost of \$596,640. Since Frontier had already submitted 84 invoices to the State with a 35.2% fee that totaled \$266,952, it proposed, and the State agreed, for Frontier to charge a reduced invoice processing fee of \$1,340.20

²³ A Frontier employee with knowledge of the memorandum told the OIG that following a “lack of concurrence internally about the method” in which the communication would be transmitted to the State of West Virginia, Frontier could presently find no evidence that the memorandum was ever sent to the State. The intended recipient at the State of West Virginia also told the OIG that her office had not received the memorandum.

²⁴ As described in more detail below, the 11-step invoice process included multiple steps that involved the mailing of invoices and related documents via paper mail from one Frontier department to another. Additionally, the steps contained apparent redundancies.

on the remaining estimated 246 FBO invoices. The amount was intended to ultimately result in the same total amount as if \$1,808 had been charged for every FBO invoice.

The OIG found no evidence of any backup documentation (e.g., timesheets or other records) to support Frontier’s invoice processing fees. Neither the State of West Virginia nor Frontier produced any backup documentation in response to the OIG’s requests for such information. No Frontier witness interviewed by the OIG could identify any backup documentation for FBO invoice processing. Moreover, several Frontier employees, all of whom had some knowledge of the process by which Frontier developed the 11-step process contained in the January 2013 memorandum, told the OIG that Frontier did not review any such documentation in devising the steps, and furthermore asserted that Frontier did not possess any such documentation.

According to a representative from the State of West Virginia, the State ultimately paid Frontier \$465,388 for its role in processing 311 invoices related to FBO, which amounted to, on average, \$1,496 per FBO invoice.²⁵

C. Frontier Adds “Loadings” Charges to Invoices

From the inception of its work under the grant subrecipient agreement, Frontier included on its invoices to the EOWV a set of expenses labeled as “loadings.” Frontier’s BTOP invoices containing loadings included a note stating, “Loadings were not included as a separate item in the original estimate. Loadings in actual project cost are based on work done and materials used. Loadings are allocated indirect costs such as vehicles, accounting, administration, etc.”

Loadings were not included as a separate item in the original estimate. Loadings in actual project cost are based on work done and materials used. Loadings are allocated indirect costs such as vehicles, accounting, administration, etc.

Source: Image from Frontier BTOP invoices

During the OIG’s review of Frontier records, we found that this category included several types of overhead expenses such as its “Outside Work Equipment Overhead Allocation” and a “Plant Administration Overhead Allocation,” among others. The amount of expenses categorized as “loads,” relative to the total amount of any particular invoice, varied greatly.

The evidence established that “loads” or “loadings” represented Frontier’s purported indirect costs associated with carrying out work under the BTOP project.²⁶ In its response to the OIG’s draft findings, Frontier stated that “the prices Frontier charged the State for the broadband infrastructure were derived from the ‘loaded’ labor and material costs that

²⁵ The final amount, according to this representative, was reduced from \$1,808 for two reasons. First, there were 19 fewer FBO invoices than originally estimated (311 compared to 330). Second, the West Virginia State Auditor’s Office refused to approve invoices that had already been submitted to the State with the 35.2% markup, but had not yet been paid. The Auditor’s Office required every invoice to reflect the reduced \$1,340.20 fee.

²⁶ Some expenses, such as the “Benefits Loading,” were referred to as loadings but actually represented direct costs. As explained in more detail below, the OIG excluded these direct costs in our analysis of unallowable loadings.

Frontier incurred in building it – meaning they included a proportional allocation of other costs associated with the labor and material costs, such as costs for equipment, accounting, and administration.” Frontier employees familiar with loadings stated that the loadings were automatic, system-generated allocations of overhead costs. According to a Frontier employee intimately involved in the process, these cost figures were generated within Frontier’s accounting software, which took expenses from various accounts and allocated them across all of Frontier’s various projects, including work unrelated to the BTOP grant. The employee told the OIG that the loadings charges for Frontier’s BTOP-related work were generated using the same process that was employed across all Frontier entities in the United States. The employee stated further that the loadings charges varied significantly from month to month because the amount of resources allocated to BTOP in comparison with other projects changed from month to month.

The evidence shows that Frontier created a document entitled, “Summary of all processes for WV BTOP billing,” which defined and explained the bases for the various loadings charges. This document, which a Frontier employee told the OIG was created specifically for a meeting with the State of West Virginia, clearly described most of the loadings categories as “[o]verhead [e]xpenses,” while describing a separate, much smaller category of expenses as “[d]irect [e]xpenses.”

The evidence also established that Frontier informed EOWV officials about the loadings charges. For instance, relevant EOWV officials were in possession of the document summarizing BTOP charges, including the description of most loadings categories as “overhead.” In addition, according to a Frontier employee with knowledge of the communications between Frontier and the State of West Virginia, Frontier representatives met with State officials on at least three occasions to explain the loadings charges; the employee told the OIG that the EOWV never stated that these expenses would not be reimbursed. EOWV officials also told the OIG that they ultimately approved Frontier’s loadings charges.

In total, Frontier received between approximately \$6.029 million and \$7.136 million in reimbursement for loadings charges for its work on the BTOP grant.²⁷

D. EOWV Seeks Third-Party Opinion on Frontier Indirect Costs

In May 2013, following internal discussion regarding the propriety of Frontier billing for indirect costs, the State of West Virginia obtained an opinion from a prominent accounting firm that concluded that Frontier, as a commercial organization, was not subject to the rules that would have prevented a similarly situated governmental entity from recovering its indirect costs. The opinion noted, however, that the State could bill to NTIA only those costs billed by Frontier that were allowable per the prevailing OMB cost principles, and that the State would be “responsible for assessing Frontier’s costs to ensure [that Frontier was] not making a profit on the project but [was] rather billing only its costs.”

²⁷ The OIG’s review of Frontier’s invoices and detailed reports identified \$6,029,447 in loadings. However, Frontier’s counsel estimated that, based on their methodology, Frontier received \$7,135,849 in reimbursement for loadings charges.

E. NTIA's Awareness of Frontier's Loadings and FBO Invoice Processing Fees

Emails establish that in May 2013 an NTIA official received and reviewed the 11-step FBO invoice process outlined in Frontier's memorandum to the State of West Virginia and agreed with a State official's initial determination that the costs were direct charges. In particular, the NTIA official told the West Virginia official: "I reviewed these again and agree with your determination that these are direct charges (and not indirect)."

The evidence also establishes that in June 2013 a State of West Virginia official and the same NTIA official again discussed whether Frontier's invoice processing fees were direct or indirect expenses. In a July 2013 email, a State of West Virginia official wrote the NTIA official, stating that "[n]ear the end of June, [we] discussed via phone indirect (Frontier) charges relating to loading, etc." The NTIA official responded that "I talked to a [West Virginia official] and we determined that this was not an issue." In an email sent to other relevant officials at the State of West Virginia, the same State official stated that "NTIA and I discussed the indirect charges issue and [the NTIA official] has indicated he does not consider it to be a problem."

In an August 2014 interview with the OIG, the NTIA official who had purportedly approved the loadings charges denied that he had done so, and stated that he had merely opined that Frontier's FBO invoice processing fees, which at times were also referred to as "loadings," were in fact direct charges and not indirect. The official told the OIG that he had simply stated that, on its face, the outline of the tasks involved in the 11-step process appeared to show direct charges for labor costs. He explicitly denied that he had "approved or blessed" the invoice processing fees or ever opined that the underlying process was reasonable. He further stated that only Frontier employee wages directly attributable to processing an invoice are direct costs, that Frontier should have backup documentation to show how much time was spent on each invoice, that NTIA never saw any backup documentation, and that it was the EOWV's responsibility as the recipient to monitor Frontier's compliance and ensure that its costs were reasonable.

With respect to general "loadings" charges, the NTIA official further told the OIG that, prior to his interview with the OIG, he had never seen invoices with Frontier's "loadings" charges and still did not know what "loadings" were. He also told the OIG that, despite his own email from 13 months earlier where he replied to an email using the term "loading" and stated that it "was not an issue," he was "confident" and "adamant" that he had never discussed or approved loadings charges with EOWV representatives and that those charges were "clearly indirect." In a separate interview with the OIG, the EOWV official who had received the purported approval told the OIG that she believed NTIA had approved both the invoice processing fees and general loadings expenses described above.

As a subrecipient of the BTOP grant, Frontier was required to undergo biannual audits, the results of which were submitted to NTIA. In 2012 and 2014, a major accounting firm issued audit reports to NTIA that concluded that Frontier's performance and costs complied with all requirements that could have a direct and material effect on the grant.

The 2014 audit report identified Frontier's indirect costs and included them as a line item in its Schedules of Project Costs.²⁸

III. Analysis

A. Frontier's FBO Invoice Processing Fees are Unallowable Costs

We found that the invoice processing fees Frontier charged for FBO work did not satisfy the applicable legal requirements. As stated above, OMB Circular A-87 and the Federal Acquisition Regulation (FAR) require that to be allowable, costs must be reasonable, allocable, and adequately documented, among other criteria.²⁹ The evidence established that Frontier's FBO invoice processing fees failed to meet this standard.

Lack of Adequate Documentation

The evidence established that Frontier has no backup documentation to "demonstrate that costs claimed have been incurred . . . and comply with applicable cost principles" as is required by the applicable regulations.³⁰ No backup documentation was produced in response to the OIG's requests, nor could any Frontier witness that we interviewed identify any such documentation. In addition to being its own allowability criteria, this lack of adequate documentation is relevant to our assessment of whether Frontier's invoice processing fees were allocable and reasonable.

Unallocable

Due to the lack of adequate documentation, there is insufficient evidence that, as required by the regulations, the purported tasks outlined in the 11-step process were "incurred specifically for the [BTOP grant]"³¹ and "chargeable or assignable to [a BTOP] cost objective in accordance with relative benefits received."³² Neither Frontier nor the EOWV have provided evidence sufficient to support the total amount Frontier charged in FBO invoice processing fees (\$465,388) as allocable to the BTOP project. According to the regulations, Frontier was "responsible for accounting for costs appropriately and for maintaining records, including supporting documentation, adequate to demonstrate that costs . . . are allocable to the [BTOP grant]."³³

²⁸ Opinion on the Schedules of Funds Sources and Project Costs for National Telecommunications and Information Administration's Broadband Technology Opportunities Program The West Virginia Statewide Broadband Infrastructure Project-"Middle Mile," Award Number NT10BIX5570031, For the Periods November 1, 2010 through October 31, 2011 and November 1, 2011 through December 31, 2013, Independent Auditors' Report.

²⁹ OMB Circular A-87 Attach. A § C.1.a, b, and j.

³⁰ 48 C.F.R. 31.201-2(d) ("A contractor is responsible for accounting for costs appropriately and for maintaining records, including supporting documentation, adequate to demonstrate that costs claimed have been incurred, are allocable to the contract, and comply with applicable cost principles in this subpart and agency supplements."); *see also* OMB Circular A-87 Attach. A § C.1.a, b, and j.

³¹ 48 C.F.R. 31.201-4(a).

³² OMB Circular A-87 Attach. A § C.1.a.

³³ 48 C.F.R. 31.201-2(d).

Unreasonable

Pursuant to the regulations, “[a] cost is reasonable if, in its nature and amount, it does not exceed that which would be incurred by a prudent person in the conduct of competitive business.”³⁴ The OIG found Frontier’s FBO invoice processing fees to be unreasonable for several reasons.

To begin with, even if Frontier did go through an 11-step process that took four hours for each invoice, the OIG finds that the amount Frontier represented as the “average actual cost” to process an invoice—\$1,808 per invoice/\$452 per hour—is unreasonable.³⁵ According to Frontier, the wages of the employees who performed these tasks generally ranged from approximately \$20 to \$30 per hour. Even allowing for some overhead (*e.g.*, benefits), Frontier’s true costs appear to be nowhere close to the amount charged for processing the FBO invoices. Moreover, there is no evidence that Frontier hired any additional employees to perform these tasks. As such, the \$1,808 fee per invoice (\$452 per hour) appears far in excess of Frontier’s actual costs and “exceed[s] that which would be incurred by a prudent person under the circumstances prevailing at the time the decision was made to incur the cost.”³⁶ The amount Frontier charged for FBO invoice processing therefore appears objectively unreasonable.

Moreover, the evidence does not support that Frontier actually went through this 11-step, four-hour process for every FBO invoice.

First, the OIG found insufficient evidence to demonstrate that Frontier had, at any point prior to the State of West Virginia questioning the 35.2% markup in November 2012, made any attempt to ascertain the actual costs it incurred in processing FBO-related invoices from its vendors. In a September 2011 email that appears to be the earliest construct of the FBO markup amount, a Frontier employee described the fee as Frontier adding a “design” or “engineering” load to the FBO vendor invoices. However, the OIG found no evidence that Frontier was performing any additional designing or engineering for the FBO work beyond those costs already being charged to the BTOP project. The email chain had no reference to invoice processing costs, but rather characterized the FBO markup as a “revenue opportunity.” Other Frontier internal documents referred to the FBO markup as “profit.” Notably, a Frontier employee with knowledge of this matter told the OIG that the work that culminated in the January 2013 memorandum to the State of West Virginia represented the first time that Frontier had attempted to establish the steps and time involved in processing FBO-related invoices.

Second, the OIG found insufficient evidence that the 11-step procedure and the corresponding time allocations, which Frontier represented were necessary to process every FBO-related invoice, were accurate. The evidence shows that these steps and time

³⁴ 48 C.F.R. 31.201-3(a); *see* OMB Circular A-87 Attach. A § C.2. (“A cost is reasonable if, in its nature and amount, it does not exceed that which would be incurred by a prudent person under the circumstances prevailing at the time the decision was made to incur the cost.”).

³⁵ As discussed in Note 25, Frontier was ultimately paid an average of \$1,496 fee per FBO invoice in processing fees. Nevertheless, we find this reduced total to also be unreasonable.

³⁶ *See* OMB Circular A-87.

allocations were estimates and not based on actual costs. Moreover, the evidence suggests that Frontier did not devise these estimates based on conversations with the people directly involved in those steps, nor were they based on a review of timesheets or other documentation that could have supported the steps' accuracy. As noted above, neither the State of West Virginia nor Frontier produced any such documentation to the OIG. Moreover, several Frontier employees, all of whom had some knowledge of the process by which Frontier developed the steps, confirmed to the OIG that Frontier did not review any such documentation in devising the steps, and furthermore asserted that Frontier did not possess any such documentation.

Third, the evidence suggests that many of the steps and time allocations found in the memorandum were redundant or not unique to FBO-related invoices. For example, multiple steps described the transmission, via paper mail, of invoices and associated project-related information from one Frontier department to another. During interviews with the OIG, however, Frontier employees could not confirm that each FBO-related invoice was in fact individually and separately mailed (*i.e.*, that multiple invoices would not have been placed in the same envelope). These steps constituted at least 30 minutes of the four hours that Frontier claimed were necessary to process each FBO-related invoice.³⁷ Another step described Frontier West Virginia's receipt of checks from the State of West Virginia and the check's transmittal to Frontier's corporate office in Stamford, Connecticut; a Frontier employee agreed that it was possible that Frontier may have received one reimbursement check for multiple projects, and that it was unlikely this step would have been performed for each FBO-related invoice. Finally, the last step in the process described the closing of various FBO-related projects in Frontier's internal accounting database; Frontier could not confirm to the OIG that this step was not carried out simultaneously for multiple FBO-related projects.

Fourth, in an interview with the OIG, a Frontier employee stated that, during the time period in which Frontier was responsible for FBO-related work, there were multiple such projects underway at the same time across the State of West Virginia, and that many invoices were processed at the same time. As such, the evidence suggests that the time allocations for several of the purported steps in the invoice process may be excessive due to overlap and efficiencies of scale.

In sum, the evidence established that Frontier's FBO invoice processing fees are unallowable and should not have been paid with BTOP grant funds.

In reaching this conclusion, the OIG notes that an NTIA official reviewed the memorandum from Frontier outlining the purported 11-step FBO invoice process, discussed the invoice processing fees with a West Virginia official, and agreed that, on its face, the FBO invoice processing steps amounted to direct costs. As noted above,

³⁷ The Frontier employee who was the primary drafter of the steps told the OIG that no step was allocated less than 15 minutes because 15 minutes was the minimum time increment that the accounting system allowed. However, we note that Frontier explaining the steps and time required to process an invoice was not dependent on Frontier's accounting system, and, in fact, the employees who purportedly performed the processing of FBO invoices did *not* log their time in the accounting system. In interviews with the OIG, Frontier employees acknowledged that the exercise of explaining the steps and time required did not necessarily call for assigning 15-minute minimums to each step, and that some steps may not have actually taken 15 minutes.

however, this official denied to the OIG that he had “approved or blessed” the charge or ever opined that the underlying process or amount charged was reasonable. Although there is some ambiguity in the communications between NTIA and the State, even if the NTIA official approved the invoice processing fees in concept, there is insufficient evidence to conclude that NTIA knowingly approved the construct and factual underpinnings of the processing fees that Frontier charged.

Moreover, the Frontier memorandum outlining the 11-step FBO invoice process that was provided to the NTIA official contained several material representations that are not supported by the facts. For example, the memorandum stated that the \$1,808 fee per invoice was “[b]ased upon actual costs incurred by Frontier in processing FBO invoices.” Despite this clear assertion that the fee represented Frontier’s “actual costs,” the Frontier employee who authored the memorandum told the OIG that it was an “estimation” rather than based on records of actual costs. We find that, at best, Frontier provided the EOWV (which, in turn provided to NTIA) incomplete information. Had Frontier’s memorandum been completely forthcoming, it is unclear whether the NTIA official would have condoned the invoice processing fees at all. Further, even if the NTIA official had approved the fees, the OIG finds that the lack of adequate backup documentation still renders Frontier’s FBO processing fees unallowable.

It was the EOWV’s responsibility, as the grant recipient, to monitor the grant subrecipient (Frontier) and ensure that it was only billing allowable costs.³⁸ The *BTOP Recipient Handbook* states that “BTOP recipients must require all subrecipients . . . to comply with the provisions of the award . . . [including] record keeping . . . [and] [a]pplicable cost principles.”³⁹ While the evidence shows that the EOWV consulted with NTIA in good faith on the allowability of Frontier’s invoice processing fees, that consultation does not obviate the EOWV’s subrecipient monitoring requirements.

The OIG notes that NTIA missed several red flags when reviewing the FBO invoice processing fees. For example, in its review of the Frontier memorandum outlining the 11-step process, NTIA failed to identify the processing fee of \$1,808 per invoice (purportedly at a cost of \$452 per hour) as a potential concern. However, responsibility ultimately lies with the EOWV as the recipient to monitor the subrecipient.

B. Frontier’s Loadings Charges are Unallowable Indirect Costs

There is no dispute that the EOWV was aware that many of Frontier’s “loadings” expenses were indirect costs, yet ultimately did not object to Frontier seeking reimbursement for these expenses with BTOP funds. The various loadings expenses were conspicuously marked as indirect costs on the invoices that were sent to the State. Likewise, the evidence establishes that Frontier provided a document explaining the bases for the various loadings charges to the EOWV and met with State officials on several occasions to discuss loadings. Therefore, the only question is whether these indirect loadings charges were allowable costs under the BTOP grant.

³⁸ *BTOP Recipient Handbook* 125.

³⁹ *Id.*

Frontier's position, expressed in its written submission to the OIG and in briefs filed in related litigation, is that its indirect costs were reimbursable pursuant to its pre-existing MPLS Contract with the State of West Virginia,⁴⁰ which expressly permitted their recovery, and its MOU with the state for its BTOP-related work, which stated that Frontier's invoices would "include an allocated share of additional overhead costs incurred by [Frontier] as a result of being a sub-recipient of the Grant."⁴¹ The MOU also stated that Frontier "may separately invoice EOWV for costs that are not eligible under the Grant," pursuant to the MPLS Contract, and that the "EOWV agrees that any additional overhead costs incurred by [Frontier] as a result of being a sub-recipient of the Grant shall either be allowed as eligible costs under the Grant or under the MPLS Contract." Frontier also stated, in its written submission to the OIG, that "[u]nder applicable cost principles, all payments made by West Virginia under the subaward to Frontier were *direct costs* to West Virginia—and therefore properly chargeable to the BTOP grant." It also argued that the procedures through which recipients negotiated indirect costs prevented the inclusion and consideration of a subrecipient's indirect costs, and that the only way for a subrecipient's indirect costs to be reimbursed with BTOP funds was for a subrecipient to include indirect costs in the prices it charged the recipient. Finally, Frontier has argued that, because it is a commercial organization, its allowable costs were governed by the FAR, which expressly permit the recovery of indirect costs.⁴²

In correspondence with the OIG, NTIA disagreed with Frontier's position, noting that Frontier had agreed in the MOU with West Virginia to comply with the rules and regulations of the BTOP grant, which prohibited recovery of indirect costs unless such costs were specifically included as a line item in the approved budget incorporated into the award. NTIA further stated the MOU provision that allowed for the inclusion of an allocated share of additional overhead costs incurred by Frontier was not applicable because it was contrary to the terms and conditions of West Virginia's BTOP grant. In addition, NTIA stated that any provision in the MPLS Contract that would have permitted Frontier to seek reimbursement for indirect costs would have been superseded by the terms and conditions of West Virginia's BTOP grant. Finally, NTIA informed the OIG that the conclusions of Frontier's 2012 and 2014 third-party audits did not alter its position on the allowability of Frontier's indirect costs.

Although the evidence establishes that Frontier was transparent about the nature and amount of its "loadings" charges and that the EOWV (based on the latter's opinion from the accounting firm and communications with NTIA) believed that Frontier's indirect costs were reimbursable with BTOP funds, the OIG defers to NTIA's interpretation of the prevailing grant rules.

⁴⁰ As noted above, Frontier had a previously existing Multi-Protocol Layer Switching contract with the State of West Virginia, under the jurisdiction of the West Virginia Office of Technology.

⁴¹ Docket entry No. 65 (Frontier Mem. in Support of Mot. to Dismiss) 5-7, 9-10, 28.

⁴² First NOFA, 74 Fed. Reg. at 33,112 & n.37 (July 9, 2009)); 48 C.F.R. 31.203 (*Indirect Costs*); Docket entry No. 65 (Frontier Mem. in Support of Mot. to Dismiss) 5-7, 9-10, 28.

The OIG analyzed Frontier's BTOP invoices and backup documentation and identified \$6,029,447 in loadings charges.⁴³ According to our analysis, which was based on the Frontier document "Summary of all processes for WV BTOP Billing," \$4,239,040 of these loadings charges represented indirect costs and should have been disallowed under NTIA's interpretation of the applicable grant rules.⁴⁴

In reaching this conclusion, the OIG notes that NTIA was consulted on this matter. As described above, a West Virginia representative sent an NTIA official an email in July 2013 asking for an update to a phone call they had in June 2013 about "indirect . . . charges relating to loading, etc." and asked for an update. The NTIA official responded that he had talked to another West Virginia representative "and we determined that this was not an issue." Despite this email, which explicitly contains the word "loading," the same NTIA official told the OIG in August 2014 that he did not know what "loadings" were and that he never discussed this with representatives from the State of West Virginia. The NTIA official told the OIG that this apparent discrepancy was due to the fact that, in writing his July 2013 email, he was thinking about the FBO invoice processing fees discussed above, which he did recall discussing with State representatives.

As with the invoice processing fees, there is insufficient evidence for the OIG to conclude that NTIA knowingly approved EOWV's payment of Frontier's loadings charges. The evidence suggests that there was miscommunication about the nature of the expenses at issue and that the NTIA official thought he was addressing Frontier's distinct FBO invoice processing fees, which were also at times referred to as "loadings," as opposed to loadings generally. At the same time, however, the evidence shows that the EOWV believed in good faith that NTIA had approved the loadings charges.

⁴³ The OIG's loadings calculation is conservative, as Frontier's counsel estimated that, based on their methodology, Frontier received \$7,135,849 in reimbursement for loadings charges. *See* Note 27.

⁴⁴ As explained in Note 26, the OIG found that some expenses labeled as "loadings" were for direct costs.

Section 3: Frontier's Statements Related to Its Use of Maintenance Coil

In 2013, Frontier faced public questions that it had inflated the amount of fiber it built under the BTOP grant by including in its mileage totals excessive amounts of fiber that were left as “maintenance coil.” According to a Frontier brief filed in related litigation, “maintenance coil (or ‘slack loop’) is the extra cable stored at a particular” facility that “[s]ervice providers use to repair damaged fiber and to connect new fiber to the network.”⁴⁵

On multiple occasions, Frontier represented to the State of West Virginia, to the public, and to the OIG that, consistent with industry standard, it had installed 100 feet of maintenance coil for every mile of BTOP fiber placed, for a total of 12 miles of maintenance coil. The OIG’s investigation, however, identified evidence calling into question the accuracy of that representation, and Frontier ultimately acknowledged that it installed approximately 49 miles of maintenance coil, or nearly four times the amount that it had previously asserted was installed in accordance with industry standards.

I. Factual Background

In 2013, following several public questions surrounding its role in the EOWV BTOP grant, Frontier released a “*Myths vs. Reality*” document that responded in detail to several of them. Among the alleged “myths” that Frontier addressed was the notion that it had “overstated the total mileage of BTOP fiber built by including maintenance coils in the total.” Frontier responded as follows:

Untrue. Based on industry standards, Frontier included 100 feet of fiber maintenance coil for every mile of fiber placed. These coils are crucial for future maintenance and repairs, and they allow open access by other carriers. The coils are included in the BTOP mileage total per industry standards, and amount to approximately 12 miles of fiber.⁴⁶

Elsewhere in the document, Frontier stated that it had installed a total of 675 miles of BTOP fiber under the grant. In an October 2014 letter to the OIG, Frontier again represented that it had built 675 miles of BTOP fiber, and reiterated that its “rough estimate” was that 12 miles of this total comprised maintenance coil.⁴⁷

⁴⁵ See Docket entry No. 65 (Frontier Mem. in Support of Mot. to Dismiss 9 n.7).

⁴⁶ In an interview with the OIG, one of the principal Frontier employees responsible for overseeing the BTOP project stated that in his experience and based on generally acceptable industry standards, approximately 100 feet of maintenance coil is needed for every mile of fiber built.

⁴⁷ Frontier noted that it had not previously tracked the total amount of coil, and that it did not do so in the ordinary course of business. It further noted that neither the State nor NTIA had required it to track the amount of maintenance coil.

However, the evidence shows that in a January 2014 email exchange between a Frontier consultant and a Frontier employee, the consultant informed the employee that he believed that Frontier had in fact placed 47.5 miles of maintenance coil, and acknowledged that this total was “4 times greater than [what Frontier] told [the State of West Virginia] earlier.” The consultant added, “I don’t think we need to tell [the representative for the State] unless she asks again.” The Frontier employee who received this email told the OIG in an interview that he discounted the email and did not investigate or escalate the issue further, in part because he believed the consultant was not technically qualified to opine on the issue. The Frontier employee acknowledged, however, that the language in the email suggesting that Frontier did not need to inform the State of West Virginia “troubles” him in retrospect.

“OMG! . . . it looks like not only do we not know how much fiber we actually placed, but we don’t know how much of what we placed is coiled up on poles. Looks like our previous estimate of 12 miles of coil for the entire project is way off the mark. . . .”

If indeed the average coil footage per mile of fiber placed is 400 feet, then the total miles in coils is 47.5 miles. This is 4 times greater than we told [State employee] earlier . . . I don’t think we need to tell [State employee] unless she asks again.”

- *January 24, 2014 email exchange between Frontier consultant and Frontier employee with primary responsibility for managing BTOP grant work*

In a November 2016 email response to several OIG follow-up questions, Frontier’s counsel told the OIG that Frontier had performed a “map review” to calculate the approximate amount of maintenance coil used, and that based solely on the engineering maps, Frontier now estimated that there are approximately 49 miles of maintenance coils on the BTOP project, or roughly 7.26% of fiber on the project. This amount of maintenance coil is similar to what the Frontier consultant estimated in the previously discussed January 2014 email exchange. Although Frontier has stated that there is no definitive method, absent the physical inspection of maintenance coil at every BTOP site, to determine the total amount of maintenance coil, a Frontier employee told the OIG that the amount of maintenance coil reflected in engineering maps for a particular site should generally be consistent with the amount of coil actually installed at that site.

A State of West Virginia official told the OIG in an interview that she did not recall Frontier providing the State an estimate of the amount of maintenance coil that was being installed, but that, in her opinion, 12 miles out of 675 miles of fiber did not seem excessive. She further stated, however, that if Frontier had in fact installed an amount of coil closer to 47.5 miles, she would be troubled. She also told the OIG that she would be troubled if Frontier knew that the number was much higher than what they had told her and had made a decision not to tell her.

An NTIA representative told the OIG that NTIA did not have any oversight over maintenance coil, and that the amount of coil installed was at the grant recipient’s discretion. Nevertheless, he further told OIG that he gave Frontier unofficial guidance

that Frontier should not count coil at all in its mileage totals, and that he believes Frontier's totals in fact do not include maintenance coils. In a separate interview with the OIG, a Frontier employee told the OIG that he believes Frontier did include maintenance coils in its mileage totals, and that he did not recall receiving any instructions or guidance to the contrary.

II. Analysis

The OIG notes that Frontier's most recent estimate of the total amount of maintenance coil installed during its BTOP work differs materially from what was previously represented to the EOWV, to the public, and to the OIG—a roughly 400% increase. We found no evidence that, following the January 2014 discovery of this discrepancy by a Frontier consultant, Frontier made any effort to inform the EOWV about it or otherwise escalate or investigate the issue in any way. Furthermore, the OIG notes that Frontier's primary contact at the EOWV has said she would be "troubled" if Frontier knew about a material difference in the amount of maintenance coil and made a decision not to tell her.

Although the OIG takes no position as to whether the amount of maintenance coil ultimately installed by Frontier was reasonable or consistent with industry standards, we note that Frontier itself, in its *Myths vs. Reality* document, had previously described the industry standard as 100 feet of coil per mile of fiber. In light of the significant discrepancy (approximately four times what had been represented and described as the industry standard), we are referring this issue for NTIA's consideration and any action deemed appropriate.

Appendix A—Frontier’s Written Submission to the OIG

Frontier Communications’ Written Submission Re:

Department of Commerce Office of Inspector General Investigation Regarding National Telecommunications & Information Administration’s Broadband Technology Opportunities Program Grant to the Executive Office of West Virginia, Grant NT 10BLX557301

Background

In August 2009, under the Broadband Technology Opportunities Program (BTOP) of the National Telecommunication and Information Administration (NTIA), the State of West Virginia applied for a grant to build broadband infrastructure to help reach large portions of the state without access to broadband. As one of the primary purposes of BTOP was to develop “broadband infrastructure in unserved and underserved areas in the United States,” in February 2010 NTIA awarded a BTOP grant to West Virginia.

Consistent with its grant application, West Virginia used the state’s existing Multi-Protocol Label Switching network (MPLS) contract with Frontier’s predecessor to build the broadband fiber infrastructure. At the request of NTIA and the State, Frontier later agreed to be considered a “sub-recipient” of the BTOP grant, which was memorialized in a Memorandum of Understanding (MOU) effective October 1, 2010.

Working closely with the State from 2010 to 2013, Frontier built approximately 675 miles of broadband fiber, reaching some of the state’s most underserved citizens, and providing connectivity to 645 community anchor institutions (CAIs): K-12 schools, institutions of higher education, libraries, health care providers, and public safety entities. The broadband fiber also allowed for interconnection by other providers, so that its benefits can be expanded to private homes, companies, and other public entities.

After the project, NTIA commissioned a study by ASR Analytics, LLC, which listed just a few of the benefits of Frontier’s work:

- Improved broadband speeds and reduced costs at K-12 schools, enabling teachers to incorporate multimedia, mobile devices, and other technology into instruction;
- Reduced costs and improved network reliability for the West Virginia Network for Educational Telecomputing;
- Reduced costs and expanded research activities at the National Research Astronomy Observatory because of a direct fiber connection to West Virginia University;
- Enabled the Department of Military and Public Safety to consolidate inmate records into a single system to improve communications and data sharing; and
- Enabled a healthcare system to create a centralized patient-provider communications center.

Frontier’s status as a sub-recipient also required it to undergo biannual NTIA-guided audits, to confirm the allowability of Frontier’s costs and its compliance with the grant. The audits were

conducted by KPMG, following NTIA's Program-Specific Audit Guidelines for BTOP. During the audits, Frontier provided KPMG with full access to its entire BTOP accounting system for a comprehensive review of its costs, pricing, and compliance. In 2012 and 2014, KPMG issued audit reports to NTIA concluding that Frontier's performance and costs complied with all requirements that could have a direct and material effect on the grant.

In 2012, the Office of Inspector General for the Department of Commerce (OIG) conducted a review to determine, in part, whether West Virginia made any material misrepresentations in its grant application, and to assess the NTIA's process for evaluating that application. The OIG's January 23, 2013 report stated that the review included interviews of personnel from the State, NTIA, and the NOAA Grant Office; review of the grant application and award documents; review of financial and performance documents; and site visits to the State, selected CAIs, and the subrecipient (Frontier). The findings stated: "we did not find any material misrepresentations in [West Virginia's] application," and "NTIA followed their defined process, which was found to be reasonable by OIG and GAO, to evaluate the application."

In 2014, the OIG commenced another investigation into the grant, including another review of Frontier's costs and compliance. Frontier has fully cooperated with the investigation, voluntarily making employees available for interviews, producing tens of thousands of pages of documents, and providing additional information whenever requested by the OIG.

In April 2017, the OIG reviewed with Frontier proposed findings of its investigation as they related to Frontier. After nearly three years of investigation, the OIG uncovered no evidence of fraud or criminal activity by Frontier. However, the OIG believes evidence may exist that, as a matter of contract, a portion of Frontier's costs for which the State obtained reimbursement from grant funds may not be reimbursable by the grant. The OIG invited Frontier to submit comments concerning the proposed findings relevant to Frontier in its draft report ("Report"). The OIG's offer to allow Frontier to comment on relevant proposed findings in its Report is consistent with the Inspector General Quality Standards for Investigations, which require that reports "contain exculpatory evidence and relevant mitigating information when discovered during any administrative investigation." As detailed herein, Frontier believes that the Report's proposed findings related to it should be revised to accord with the factual record and the law.

1) Loadings

Executive Summary: Administering the construction of a broadband network spanning 645 sites over a three-year period imposed costs upon Frontier that are not captured by the mere expense of labor and materials at construction sites. These include extensive administrative support from employees working on the BTOP project, as well as increased use of office space, utilities, vehicles, and other equipment. Such costs resulted directly from Frontier's work on the BTOP project, and Frontier was legally permitted to charge West Virginia for them. Comprehensive NTIA-guided audits by independent accounting experts from KPMG in 2012 and 2014 also confirmed the costs are reimbursable with grant funds.

The first issue is whether the loaded costs – or loadings – that Frontier included in the prices it charged to West Virginia under the MPLS contract were reimbursable under the terms of the grant. Consistent with general business practice, the prices Frontier charged the State for the broadband infrastructure were derived from the “loaded” labor and material costs that Frontier incurred in building it - meaning they included a proportional allocation of other costs associated with the labor and material costs, such as costs for equipment, accounting, and administration. The MPLS contract and the MOU allowed Frontier to include loaded costs in its prices to the State, and Frontier was transparent in its billings to the State, which clearly reflected the loaded costs, and the Report should reflect these undisputed facts. The only question raised by the Report is whether the specific terms of the BTOP grant permitted West Virginia to seek reimbursement for the loaded costs from grant funds, an issue unrelated to Frontier’s performance as a grant subrecipient. West Virginia, Frontier, and the independent accounting experts, KPMG, all agree that the grant allowed reimbursement for these costs, and KPMG did not find that Frontier’s costs were unreasonable.

All businesses use loaded costs in pricing their goods and services. Indeed, no business could survive without doing so. And, the grant imposed no restrictions on Frontier doing so. Although West Virginia chose not to seek recovery of its *own* indirect costs when it applied for the grant, that choice did not prohibit Frontier, a subcontractor who later became a subrecipient, from recovering indirect costs from West Virginia, nor West Virginia from seeking reimbursement for those costs from BTOP funds. Under applicable cost principles, all payments made by West Virginia under the subaward to Frontier were *direct costs* to West Virginia—and therefore properly chargeable to the BTOP grant. See OMB Circular A-87, Attachment E, at ¶ C(2)(c) (identifying “pass through funds” as direct costs).

This is confirmed by the procedures for negotiating indirect cost rates. A recipient’s negotiated indirect cost rate is based on the *recipient’s* indirect cost pool and the *recipient’s* direct cost base. See OMB Circular A-87 (Revised May 10, 2004), Attachment E, at ¶¶ A(2), B(4), and C. There is no procedure for including a subrecipient’s direct or indirect costs. To the contrary, although subawards are recognized as direct costs, they are excluded from the recipient’s direct cost base for purposes of calculating the indirect cost rate. *Id.*, Attachment E, at ¶ C.

Thus, when a recipient submits a budget with its application for grant funds, the line item for indirect costs accounts for *its own* indirect costs, not the indirect costs of its subcontractors, or future potential subrecipients, such as Frontier. The terms of West Virginia’s BTOP award limited the reimbursement of indirect costs to recipients to the lesser of (i) the amount in the line item budget or (ii) the indirect costs charged under the recipient’s indirect cost rate. See Department of Commerce Pre-Award Notification Requirements for Grants and Cooperative Agreements, 73 FR at 7700; Department of Commerce Financial Assistance Standard Terms and Conditions, at ¶ A.05(f). In other words, NTIA does not reimburse indirect costs above the recipient’s approved indirect cost rate—which (as discussed above) does *not* take into account the indirect costs of subrecipients. If it were impermissible for a subrecipient to include its indirect costs in prices it charges a grant recipient, a subrecipient’s indirect costs could never be reimbursed, regardless of whether the recipient sought to recover its own indirect costs.

As a grant subrecipient, Frontier was “accountable to [West Virginia] for the use of the funds provided,” not to NTIA. 15 C.F.R. § 24.3 (2010) (defining subgrantee). West Virginia in turn was

responsible for monitoring Frontier's compliance with federal requirements and for negotiating Frontier's recovery of indirect costs. See 15 C.F.R. § 24.40(a) (2010); 15 C.F.R. § 14.52(g) (2010) (indicating that a subrecipient's indirect costs are negotiated with the recipient, not the awarding agency); see also OMB Circular A-87, Attachment A, at ¶ A(3)(b) (2010) ("All subawards are subject to those Federal cost principles applicable to the particular organization concerned."); 48 C.F.R. § 31.103(b)(2) (citing subpart 42.7 for procedures for negotiating indirect cost rates). Here, West Virginia negotiated Frontier's recovery of indirect costs in the MPLS contract and the MOU.

The Report should reflect that this is consistent with the conclusions of the NTIA-required audits of Frontier's performance as a grant subrecipient that the grant permitted Frontier to include indirect costs in its invoices. The 2012 and 2014 audits specifically included a review of allowability of all costs under the grant. After a comprehensive review by independent accounting experts from KPMG, the 2014 audit report identified Frontier's indirect costs, included them as a line item in its Schedules of Project Costs, and concluded that Frontier complied in all material respects with grant requirements. KPMG reported these costs and conclusions to NTIA. The Report should also reflect that, consistent with KPMG's audit findings, after the NTIA received the audit results, it did not object to the inclusion of indirect costs or Frontier's compliance. Moreover, neither West Virginia nor NTIA to date has raised any issues with the ultimate value of Frontier's work or compliance with BTOP grant requirements.

Finally, the Report should reflect that the proportion of Frontier's costs the OIG Report identifies as "indirect," and therefore unallowable under the grant, is 11% of direct costs, which is roughly equivalent to the 10% rate that federal law deems "de minimis." After the BTOP grant was awarded to West Virginia, the federal government issued new Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards, which allow grant recipients that have not negotiated an indirect cost rate to charge indirect costs at a "de minimis rate" of 10 percent of direct costs.

2) **FBO Management Fees**

Executive Summary: To ensure that CAIs did not go without network access, Frontier agreed to manage "FBO" work at more than 300 CAI sites which required on-site construction to connect to Frontier's fiber. Although Frontier does not do this work, and therefore has no internal processes for administering it, Frontier agreed to do so for the State in order to make sure CAIs could connect to the fiber, and to save the State the costs and burden of managing and contracting for the work. For Frontier's management of the work, it negotiated and received management fees which, the Report concludes, total \$465,388 across 300+ CAIs. Again, it is not disputed that Frontier was permitted to charge West Virginia these fees. And, again, comprehensive NTIA-guided audits by KPMG in 2012 and 2014 reviewed the costs and made no finding that any of the costs were inappropriate or unallowable under the grant.

The second issue is whether the fee that Frontier charged West Virginia for managing facility build out work (FBO management fee) was reimbursable under the grant. As with loadings, the Report should reflect that the terms of Frontier's agreements with West Virginia allowed Frontier to

charge an FBO management fee, and that Frontier was transparent in its billings to the State, which clearly reflected the fee. The question raised by the Report is whether the specific terms of the BTOP grant permitted West Virginia to seek reimbursement from grant funds for the FBO management fee, an issue unrelated to Frontier's work or compliance as the grant subrecipient.

The MPLS contract required Frontier to construct fiber up to the demarcation point (DEMARC) for each CAI. The DEMARC is the border between facilities owned by Frontier and facilities owned by the CAI. In many cases, the DEMARC was at the CAI itself, meaning that the fiber could be connected to the CAI without any additional construction. In some cases, however, the DEMARC was outside the CAI, meaning additional construction would be required at the CAI itself to allow connection to the Frontier fiber. This onsite CAI construction was referred to as facility build-out, or FBO. Because Frontier's construction responsibility ended at the DEMARC, West Virginia needed someone to perform the FBO work, or else some CAIs would be unable to connect to the fiber.

In May 2011, West Virginia asked Frontier to do the FBO work. In a May 2011 letter to West Virginia, Frontier declined: "We do not ordinarily undertake such work. We believe that the customer premises work can and should be performed by the anchor tenant or its vendor at the time that the anchor tenant actually orders service." Faced with the prospect of CAIs unable to connect to the fiber, West Virginia urged Frontier to reconsider, and asked if Frontier could subcontract the work to vendors capable of doing it. Under the proposed arrangement, using the MPLS contract, Frontier would contract with subcontractors to perform the FBO work, oversee the subcontractors' performance, be the single point of contact to invoice West Virginia, and bear all legal obligations of payment to the subcontractors. As the contracting party, Frontier would also assume the legal liability for FBO construction at all 300+ sites, as well as the risk of carrying amounts it paid vendors until it was reimbursed by West Virginia. (This risk in fact materialized, as in some cases Frontier did not receive reimbursement from West Virginia until more than a year after it paid vendors for completed FBO work.)

After discussion and arms-length negotiation between Frontier and West Virginia, the parties agreed to West Virginia's proposal in exchange for a mark-up on FBO invoices to account for the additional tasks, burdens, and responsibilities Frontier was assuming. Because Frontier does not typically do FBO management work, however, Frontier had no existing mechanism for assigning a cost to the additional tasks, burdens, and responsibilities, nor any precedent for what to charge. In the absence of such a precedent, Frontier employees identified actual Frontier work and costs they deemed most closely analogous to the management work and determined that an appropriate mark-up would be 35.2% of the construction cost. In November 2011, the parties executed an amendment to the MPLS contract memorializing that FBO build-out work would be governed by the MPLS, and assigning Frontier as the single point of contact for FBO ordering, implementation and billing.

After executing the amendment, Frontier began submitting, and the State began paying, FBO invoices for sums including the FBO management fee. One year later, however, after West Virginia hired a new Chief Technology Officer, West Virginia insisted that Frontier charge a flat FBO management fee for each FBO project it managed, instead of a percentage-based fee. West

Virginia asked Frontier to identify the Frontier tasks required to process each invoice and estimate the amount of time each task required.

In a January 2013 letter to the State, Frontier provided the requested information, and offered a proposal for FBO management fees. Frontier's letter made explicit that its proposal was based not just on Frontier's invoice processing costs but also its "overhead," a fact the Report should acknowledge. As memorialized in a February 2013 letter to the State, the State accepted Frontier's proposal. For the 27 FBO invoices the State had already paid, Frontier would retain the FBO management fees as paid. For the 57 outstanding invoices the State had not yet paid, the State would pay the percentage-based FBO management fees as invoiced. And, "in consideration of the amounts the State has already paid for invoices including FBO work, and in consideration of the State paying the 57 invoices it is currently holding which contain FBO work," Frontier will include an FBO management fee of only \$1,340.20 for the FBO projects yet to be invoiced. The \$1,342.20 fee on remaining invoices, the letter stated, would result in an average FBO management fee of \$1,808 for each of the 330 estimated FBO jobs.

In 2014, however, after a comprehensive review of invoices by the West Virginia State Auditor's Office, West Virginia informed Frontier that the State Auditor's Office would not allow it to pay percentage-based FBO management fee at all. Therefore, for the 57 invoices outstanding at the time of the February 2013 agreement between the State and Frontier, instead of paying a percentage-based FBO management fee as agreed, West Virginia paid the \$1,342.20 fixed fee, resulting in substantially lower total FBO management fees than had been agreed upon. Frontier told West Virginia it would accept these lower fees in order to facilitate the close-out of the BTOP project.

Frontier provides the following comments regarding the Report's proposed findings. First, the proposed findings are incorrect to the extent they rest on the presumption that the grant did not allow West Virginia to receive reimbursement for its payment of Frontier's indirect costs. (See Section I, above.)

Second, the proposed findings focus too narrowly on the tasks involved in processing invoices, while ignoring the context in which FBO management arose. Frontier believes the Report should reflect that Frontier does not do FBO management work, and so initially declined the State's request for Frontier to do such work. When Frontier agreed to reconsider after urging by the State, Frontier was left to take on an unprecedented project, and the State and Frontier were left to negotiate a reasonable fee for Frontier assuming the unwanted costs, responsibilities, and legal liabilities related to the FBO work. Frontier used its best efforts to calculate an appropriate FBO management fee. Under the circumstances, there is no evidence that Frontier's efforts were unreasonable, or that its management fee as finally agreed upon is inconsistent with industry standards for such fees. The Report should be clear that the OIG is not providing, nor has any basis on which to provide, an opinion on the reasonableness of the FBO management fee, given industry standards and Frontier being an entity lacking pre-existing mechanisms for managing and administering FBO work.

Third, the proposed findings ignore the costs that Frontier would have incurred to create a process that met the Report's apparent cost documentation requirement. If Frontier had been required to track the time of every employee with any involvement in FBO management and invoicing, and document every cost associated with that work, it would have had to design an accounting system and corresponding processes to meet those requirements. Such design and implementation costs, including possible legal and accounting fees, would have directly resulted from the FBO management work, and yet the Report does not assess the import of those potential costs, or even mention them.

Fourth, the proposed findings ignore the costs West Virginia avoided by Frontier's agreement to take on the burdens of FBO management work. If Frontier had not agreed to such work and the State had managed it itself, the State would have incurred the substantial costs and burdens of managing and administering the work, including the onerous state-contracting process for 300+ different sites. The Report does not analyze these avoided costs, or consider them in the proposed findings that the FBO management fee was neither reasonable nor reimbursable with grant funds.

Finally, as with loadings, the Report should reflect that Frontier's FBO management fees were subject to scrutiny and approval by KPMG during comprehensive NTIA-guided audits on the allowability of costs and Frontier's compliance with the grant, and none of the FBO management fees were found to be unallowable. If the Report's findings conflict with these heretofore unchallenged conclusions, the Report should disclose that fact.

3) **Maintenance Coils**

Executive Summary: To ensure the open access nature of the project and consistent with industry standards, Frontier installed maintenance coils throughout the facilities it constructed. Without these maintenance coils, other providers would be unable to connect to the fiber Frontier constructed. The amounts and use of the coils were left solely to the professional judgments of the engineers who designed each fiber construction project, and there is no evidence in the record that those judgments were inappropriate. To the contrary, a Frontier review of the engineering maps, requested by the OIG, confirmed that the amounts of coils used appear consistent with industry standards.

Maintenance coils – aka slack coils or slack loops – are an essential part of any fiber network construction project. They facilitate fiber repair and, significantly for the BTOP project, are essential to open access. Without them, other service providers could not connect to the fiber network Frontier built.

Consistent with industry standards, Frontier installed maintenance coils at all 645 CAIs on the BTOP project. The number and length of maintenance coils for each CAI project were determined solely by the professional judgment of the engineer for that CAI. The proportion of maintenance coils could vary from one CAI to the next based on the engineer's judgment, site conditions, and the length of fiber on the project. As to each engineer's judgment, depending on conditions such as pole height and terrain, some engineers might use a 200 foot coil every 2,000 feet, while other engineers might use 100 feet of fiber per mile. As to fiber length of the project, every CAI project,

no matter the size, requires maintenance coils. While 200 feet of coils on a 5,000 foot project would amount to 4 % of the total fiber, 200 feet of coils on a 1,000 foot project would amount to 20 % of the total fiber.

In designing a given CAI project, a Frontier engineer would record on an engineering map the necessary locations and their lengths. However, aside from these maps, Frontier does not separately track or record the amount of fiber it uses for maintenance coil as opposed to fiber used for other purposes. Neither the grant nor any law requires doing so.

In late 2013, a West Virginia official asked a Frontier employee about its use of maintenance coils, including the amount of fiber used for maintenance coils on the entire BTOP project. Without either: (1) reviewing all 645 engineering maps; or (2) conducting a physical inspection of all 645 CAI construction sites and measuring the coils, there is no way to determine the amount of fiber used for maintenance coils. Instead, the Frontier employee, not a site engineer himself, estimated that, if there were an average of 100 feet per mile over the 675 miles of fiber used, the fiber for coils would total roughly 12 miles. In reaching that estimate, however, the employee was unaware of the factors that often caused the proportion of maintenance coils to be much higher than 100 feet per mile. The Frontier employee informed the West Virginia official of the estimate and stated that a more accurate estimate could be determined by reviewing the engineering maps it had provided to West Virginia.

In January 2014, while working on an unrelated task, a Frontier consultant reviewed the engineering maps for a CAI project and informed the Frontier employee that his previously used figure of 100 feet per mile to estimate 12 miles of coils on the project may have underestimated the amount of maintenance coils. However, because of the small sample size (one CAI) and because the consultant was not himself a construction engineer, the consultant and employee did not revisit the prior estimate of 12 miles. The consultant and employee knew that, whatever amounts of coils were used on the project, those amounts were determined by the professional judgment of each engineer and could be determined by a review of the engineering maps Frontier had provided to the State.

As one of several requests in a September 2014 letter seeking information and documents from Frontier, the OIG asked for the amount of maintenance coils used on the project. In its October 2014 response, Frontier stated that the distance would have to be verified from the engineering maps it was providing with the letter, but offered a “rough estimate.” The Frontier representatives involved in preparing the response were unaware of the factors that could make the amount of maintenance coils higher than the 12 mile estimate.

In October 2016, the OIG asked Frontier to conduct a review of all 645 CAI engineering maps to determine the approximate amount of maintenance coils used on the project. Consistent with its cooperation throughout the investigation, Frontier conducted the review at its own expense, requiring several weeks of work. The map review concluded that there were roughly 47.5 miles of maintenance coils, or 7.26% of fiber on the project. This proportion of maintenance coils is consistent with industry practice. For example, the NTIA Case Study Report for Zayo Group states that, on that BTOP project, a maintenance coil was created every 2,000 feet of fiber (again apparently not accounting for the need to use maintenance coils even on fiber construction projects shorter than 2,000 feet.) Assuming the coils were between 100-200 feet in length, this would mean maintenance coils comprised between 4.8% and 9% of the total fiber on the Zayo Group project. The report endorses the use of maintenance coils, and takes no issue with the proportion of

maintenance coil used on the Zayo Group project.

In sum, the amount of maintenance coils used for each CAI construction project was left to the professional judgment of the engineer for that project, and there is no evidence that those professional judgments were unsound.