

Procurement And Financing Of KentuckyWired

Draft
November 22, 2019

Program Review and Investigations Committee

Project Staff

Van Knowles
Greg Daly
Sarah Ortkiese
Richard Shufelt
Jeremy Skinner
Susannah Stitzer
Joel Thomas

Abstract

KentuckyWired proposes to bring high-capacity fiber optic connections from the internet backbone to state agencies, local telecoms, and other interested parties. The project has been significantly delayed and is likely to face funding shortfalls over the next 25 years that will require more state appropriations than planned. Executive branch officials committed state appropriations to cover approximately \$646 million in debt service out of a \$1.2 billion total cost. The state accepted certain risks to lower construction costs but paid at least that much in resulting reimbursement claims from the contractor. Some risks were handled poorly. Causes of the shortfalls in planned funding include the loss of funds from the K-12 education network and questionable assumptions about increases in broadband market prices. Wholesale leasing of fiber was proposed as a way to cover shortfalls but is based on the same questionable assumptions and seems unlikely to provide the funding needed.

Legislative Research Commission

Frankfort, Kentucky
lrc.ky.gov

Paid for with state funds

Acknowledgments

Program Review staff would like to acknowledge the assistance of the officials and staff of the Kentucky Communications Network Authority, Finance and Administration Cabinet, Commonwealth Office of Technology, Kentucky Department of Education, Cabinet for Economic Development, Kentucky Transportation Cabinet, Center for Rural Development, Kentucky Telecom Association, Kentucky Community and Technical Colleges, University of Kentucky, Kentucky Office of Homeland Security, Kentucky State Police, Council on Postsecondary Education, and others who provided information and assistance with this report.

Contents

Summary	vii
Chapter 1: Overview Of KentuckyWired	1
Background	1
Project Structure And Funding	3
Financing And The Repayment Shortfall	4
Wholesale Marketing Of KentuckyWired Fiber	6
Broadband And Economic Development	6
Teleworks USA	7
Broadband Adoption And Utilization	7
Access To Broadband In Kentucky	8
Middle Mile	8
Last Mile	9
Cost Of Rural Broadband Expansion	9
Major Conclusions And Supporting Findings	10
Policies And Procedures	10
Project Structure And Risks	11
Financing And Funding	12
Outstanding Questions	14
Chapter 2: Oversight Of KentuckyWired	17
Executive Oversight	17
Authority Of Cabinet	17
Purchasing Agency	17
Modification Of Contracts	18
Scope Of Modifications	19
Related Contracts	19
Legislative Oversight	20
Government Contract Review Committee	20
Capital Projects And Bond Oversight Committee	21
Legislative Oversight Of KentuckyWired	22
Oversight Of Bond Issue	22
KentuckyWired Bond Issue	22
Bond Issue And Statutory Requirements	23
Transfer Of Funds To KentuckyWired	23
Follow-Up Reporting	24
Chapter 3: Risks And Supervening Events	25
Risk Allocation Principles	25
Availability Payments And Demand Risk	25
Supervening Events	26
KentuckyWired Risk Allocation	27

Pole Attachments	28
Pole Attachment Delays.....	28
Pole Make-Ready Delays.....	30
Easements	30
Rights-Of-Way.....	32
Early Termination Provisions	33
Chapter 4: Financial Structure	37
Financing Overview.....	37
Early Development Phase	41
Financial Aspects of Macquarie Proposal.....	41
Private Non-Recourse Debt	42
Negotiation Of Financing	42
Tax-Exempt Financing.....	43
Bond Issuance And Financial Close	44
Direct Equity Investment	44
Availability Payments And Adjustments.....	46
Breakdown Of State Agency Spending	46
Additional Savings And Other Funds	47
Funding Shortfalls.....	47
Shortfalls In Meeting Availability Payments.....	47
K-12 Spending And E-rate.....	47
Market Price Projections	50
Costs Other Than Availability Payments.....	52
System Refresh	52
Supervening Events And Settlement	53
KCNA Operating Expense.....	53
Rent And Purchase Value Of CRD Section.....	53
State Bonds And Designated Equipment Purchase	53
Sections Built By Other Telecoms.....	53
Hut Maintenance Contract	55
Requests For Service Improvement	55
Damage In Excess Of Insurance	55
Wholesale Revenue.....	56
Wholesale Revenue Sharing	56
Termination Scenarios	59
Contractor Default	59
The State As A Contracting Entity	59
Termination For Convenience	60
Estimated Cost Of Termination For Convenience.....	60
Termination By Funding Out.....	61
Termination Of Wholesaler Agreement.....	62

Appendix: Open Questions About KentuckyWired	67
--	----

Tables

4.1	Estimated Expenses Of KentuckyWired Through September 2045	39
4.2	Estimated Sources Of KentuckyWired Funds Compared With Costs Through September 2045.....	40
4.3	Bond Proceeds And Amounts Released	44
4.4	Comparative Internal Rates Of Return Of P3 Projects	45
4.5	Projected KentuckyWired Monthly Customer Spending, September 3, 2015	46

Figures

1.A	KentuckyWired System Map.....	3
1.B	KentuckyWired Consortium Structure	4
4.A	Gap In Availability Payments Without K-12 Revenue Assuming 2.5 Percent Annual Increase In KentuckyWired Customer Spending	50
4.B	Gap In Availability Payments Without K-12 Revenue Assuming 1 Percent Annual Increase In KentuckyWired Customer Spending	52
4.C	2015 Revenue Share With Center For Rural Development.....	57
4.D	2019 Revenue Share With Center For Rural Development.....	58

Summary

The idea for KentuckyWired originated in eastern Kentucky as regional leaders and organizations wanted better access to high-speed internet. By late 2011 or early 2012, the Center for Rural Development in Somerset began working on the concept of a fiber optic network. Such a network could provide what is called the middle mile: high-speed broadband between the main internet backbone and any local utilities that might want to offer local internet, cell phone, and other services in remote parts of the state. The goal was to serve companies that might want to locate in rural Kentucky and to give local entrepreneurs a platform from which to compete globally.

In early 2014, Governor Steve Beshear and US Representative Hal Rogers announced a statewide project to construct such a high-speed optical fiber network. The network, now known as KentuckyWired, was intended to bring high-speed internet access to every county, promoting economic development and equity in rural areas.

On December 9, 2013, before the public announcement, the Finance and Administration Cabinet (FAC) published a request for proposals (RFP) for a consultant to assist with planning such a network. The 2014-2016 budget authorized \$70 million for the project: \$20 million in federal funding, \$30 million in state bonds, and \$20 million from other sources. Also in early 2014, Columbia Telecommunications Corporation (Columbia) began to assist the state with design and development.

In April 2014, FAC issued a request for information to determine potential vendor interest and to obtain vendors' advice about designing and building the network. In July, Columbia provided a detailed report on all major elements of building the network. The report suggested the state consider pursuing a public-private partnership (P3) because of the need to meet numerous financial and technical challenges. Columbia estimated construction costs at \$410 million. A few days later, FAC issued an RFP for a private partner.

In December 2014, a contract was awarded to Macquarie Infrastructure Developments. In August 2015, the governor established the Kentucky Communications Network Authority (KCNA) within the Governor's Office to oversee the project and provide access to the network.

In September 2015, after extensive negotiations, state officials and Macquarie rewrote the contract as a set of several new contracts. Those agreements projected that the network would be completed by July 2018 with a construction cost of \$274.8 million. The design included more than 3,200 miles of fiber-optic cable across the state and connections to 1,100 government facilities. The network would have six interconnected rings to increase reliability in case of a failure at any single point. The term of the contract was 30 years for construction, operation, maintenance, and debt repayment.

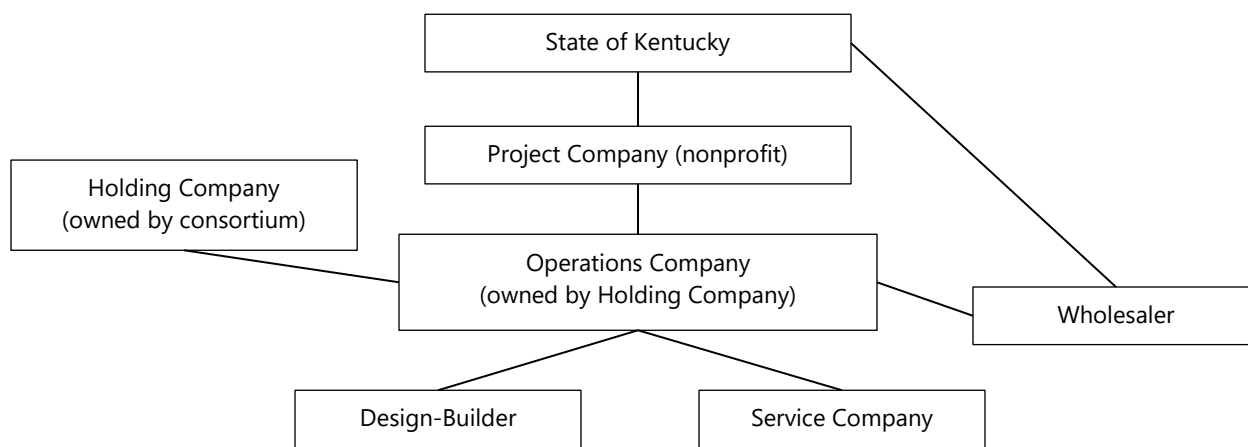
As of October 2019, the completion of three rings had been announced, but none were in use yet because testing and validation had not been completed. Final completion of all rings has been rescheduled to October 2020.

Project Structure And Funding

The state established the KentuckyWired Infrastructure Company (Project Company), a private nonprofit, in order to borrow via less expensive tax-exempt bonds. Macquarie assigned all its responsibilities for building and operating the network to Project Company. The Macquarie consortium created the KentuckyWired Operations Company (Operations Company) to manage the network's design, construction, and operation, and Project Company assigned almost all of its responsibilities to Operations Company. The consortium also formed a construction company (Design-Builder) and a service company (Service Company), and Operations Company assigned design, construction, and service responsibilities to those companies.

Macquarie, Ledcor, and First Solutions, three of the consortium members, formed a company (Holding Company) to be the sole member of Operations Company. Holding Company provides the equity investment to the project.

KentuckyWired Consortium Structure



Note: Lines represent direct contractual relationships.

Source: Program Review staff compilation of terms from relevant contracts.

At the same time in September 2015, the state received \$311.4 million in net bond proceeds (total debt of \$646 million including interest) to finance the design, construction, and other startup costs. The Macquarie consortium also contributed \$6.5 million in equity with the expectation of a significant return over 30 years. Such financing is common with P3s and was technically non-recourse private funds, meaning that the lenders could not turn directly to the state if Project Company, the borrower, was unable to pay the debt. However, consistent with many P3s, the state promised to make what are called availability payments to Project Company, beginning when the first network sections became operational, increasing as each later section was completed, and continuing with annual adjustments for the remainder of the 30-year term. Availability payments, which include repayment of the private-sector borrowing and equity investment and other expenses, total approximately \$1.2 billion. Therefore, state appropriations are required to pay for the project's debt.

State officials assumed that all executive branch agencies along with K-12 schools, the courts, and higher education would use the network as soon as portions of it became operational. The money those agencies were spending on network services would be used to make the availability payments. The financial model also assumed that the state's broadband spending would increase over the 30-year period. Working from this expected income, state officials and the vendor estimated what the state could afford.

It soon became clear that the KentuckyWired contract would not be eligible for an important federal education subsidy called the E-rate program. If the Kentucky Department of Education (KDE) were to switch its K-12 network to KentuckyWired, the state would lose more than \$11 million dollars in federal rebates annually. KDE frequently informed project leaders of the need to protect E-rate eligibility. FAC attempted to resolve this problem by issuing a new RFP in October 2015, but the RFP was canceled without explanation after a protest from AT&T. This left a shortfall of at least 43 percent of the money needed for availability payments.

The contract allowed claims for additional compensation or schedule changes based on so-called supervening events that were not Design-Builder's responsibility. Eventually, these claims were estimated to be more than \$191 million. Between March and December 2018, the state and the consortium negotiated a settlement, agreeing to reduce the amount paid for claims to approximately \$101 million, streamline future construction, minimize future claims, and set a new completion target of October 2020.

To finance the settlement, the 2018 General Assembly authorized KCNA to borrow up to \$110 million of additional funds. On August 6, 2019, KCNA issued bonds and received net proceeds of \$118 million to be used to finance the settlement and some other expenses not covered by availability payments.

Columbia and Macquarie advised building extra fiber into the network and creating a wholesaler, a separate company to market and lease the extra capacity. Macquarie projected approximately \$1.1 billion in wholesale revenue for the state through 2045, but this number is uncertain. Wholesale revenues have been mentioned as a way to cover shortfalls such as the loss of K-12 spending and expenses not covered by availability payments.

Whatever the state's wholesale revenue turns out to be, some of it might go to the Center for Rural Development. In August 2019, it and the state entered into a lease agreement that gave the center ownership of parts of the project's eastern Kentucky infrastructure in exchange for \$43.6 million in federal grants. The state also agreed to pay the center a minimum of \$2 million per year in rent plus a share of wholesale revenues. It is not clear whether this agreement is a net benefit to the state, and it might reduce the wholesale revenues available to cover the K-12 and other shortfalls in making availability payments.

KentuckyWired was justified in part to encourage economic development. High-speed broadband is necessary for many businesses but does not guarantee business development. It is possible that KentuckyWired is building alongside existing middle-mile cables, but increased

demand was expected to justify the added capacity. It is not known whether KentuckyWired will facilitate local utilities' last-mile connections in rural areas.

Major Conclusions

Policies And Procedures. The contract negotiations and bond sale technically followed all legislative oversight rules. Accepted procedures at the time permitted the executive branch to commit the state to an indeterminate amount of debt through private financing, but current procedures are considered adequate. There might have been violations of state law or FAC policy with respect to recording of contracts.

Project Structure And Risks. The construction schedule was considered aggressive but achievable. The risk allocation favored the private partners but might have been necessary to obtain financing and to lower costs. State officials received warnings about many of the risks and handled some of them poorly.

Financing And Funding. KentuckyWired faces significant funding challenges, most of which should have been anticipated. These include loss of expected K-12 participation; wholesale revenue sharing; supervening events, including delays; other substantial costs outside the availability payments; and variation in broadband market prices. The K-12 shortfall alone might be \$564 million by September 2045.

Chapter 1

Overview Of KentuckyWired

Background

In 2011 or 2012, eastern Kentucky leaders began working on the idea of a statewide fiber middle mile to connect local utilities to the internet backbone. In early 2014, Governor Steve Beshear and Representative Hal Rogers announced the project.

The idea for what became KentuckyWired originated in eastern Kentucky as regional leaders and organizations expressed a need for increased accessibility to high-speed internet. By late 2011 or early 2012, the Center for Rural Development in Somerset began working on the concept of a fiber optic network.¹ Such a network could provide what is called the middle mile: high-speed broadband between the main internet backbone and any local utilities that might want to offer local internet, cell phone, and other services in remote parts of the state. Another group, Shaping Our Appalachian Region, repeatedly recommended that the state invest in fiber infrastructure to improve connectivity in Kentucky's rural communities.² The goal was to serve companies that might want to locate in rural Kentucky and to give local entrepreneurs a platform from which to compete globally.³

In early 2014, Governor Steve Beshear and US Representative Hal Rogers announced a statewide project to construct such a high-speed optical fiber network. The network, now known as KentuckyWired, was intended to bring high-speed internet access to every county in the state, promoting economic development and equity in rural areas.⁴

The state hired Columbia Telecommunications Corporation (Columbia) as a consultant. The 2014-2016 budget proposed \$100 million for the project. The General Assembly authorized \$70 million, including \$20 million from third-party financing.

Before the announcement, the Finance and Administration Cabinet (FAC) had begun the process on December 4, 2013, to hire a consultant to assist with planning a statewide fiber-optic network.⁵ After the Shaping Our Appalachian Region conference on December 9, the request for proposals (RFP) for the consultant was published.⁶ The governor's 2014-2016 budget proposed \$100 million for the project.⁷ The General Assembly authorized \$70 million: \$20 million in federal funding, \$30 million in state bonds, and \$20 million from third-party financing.⁸ Also in early 2014, the consultant, Columbia Telecommunications Corporation (Columbia), began to assist the state in the design and development of a statewide network.

In April 2014, FAC issued a request for information to determine potential vendor interest and to obtain vendors' advice about designing and building the network.⁹ In July, Columbia provided a detailed report on all major elements of building the network.¹⁰

In July 2014, Columbia estimated that construction costs would be \$410 million and suggested using a public-private partnership (P3). The state issued a request for proposals (RFP) shortly after and awarded a contract to Macquarie Infrastructure Developments in December.

The report estimated construction costs at \$410 million and suggested the state consider pursuing a concessionaire model—a public-private partnership (P3)—because of the need to meet numerous financial and technical challenges.^{a 11} A few days later, FAC issued an RFP for a P3 concessionaire.¹²

In December 2014, a contract was awarded to Macquarie Infrastructure Developments. The contract scope was “to explore the feasibility of the finance, design, construction, operation, maintenance, and refreshing” of the network.¹³ In August 2015, the governor established the Kentucky Communications Network Authority (KCNA) within the Governor’s Office to oversee the project and provide access to the network (Executive Order 2015-0574).

Extensive negotiations resulted in several new contracts that replaced the original in September 2015. Construction cost was fixed at \$274.8 million to build six interconnected fiber rings by July 2018. Debt would be repaid over 30 years.

In September 2015, after extensive negotiations, state officials and Macquarie rewrote the contract as a set of several new contracts. Those agreements projected that the network would be completed by July 2018 with a fixed construction cost of \$274.8 million.¹⁴ The design included more than 3,200 miles of fiber-optic cable across the state and connections to 1,100 government facilities and every county.¹⁵ As illustrated in Figure 1.A, the network would have six interconnected rings to increase reliability in case of a failure at any single point.^b The term of the contract was 30 years for construction, operation, maintenance, and debt repayment.

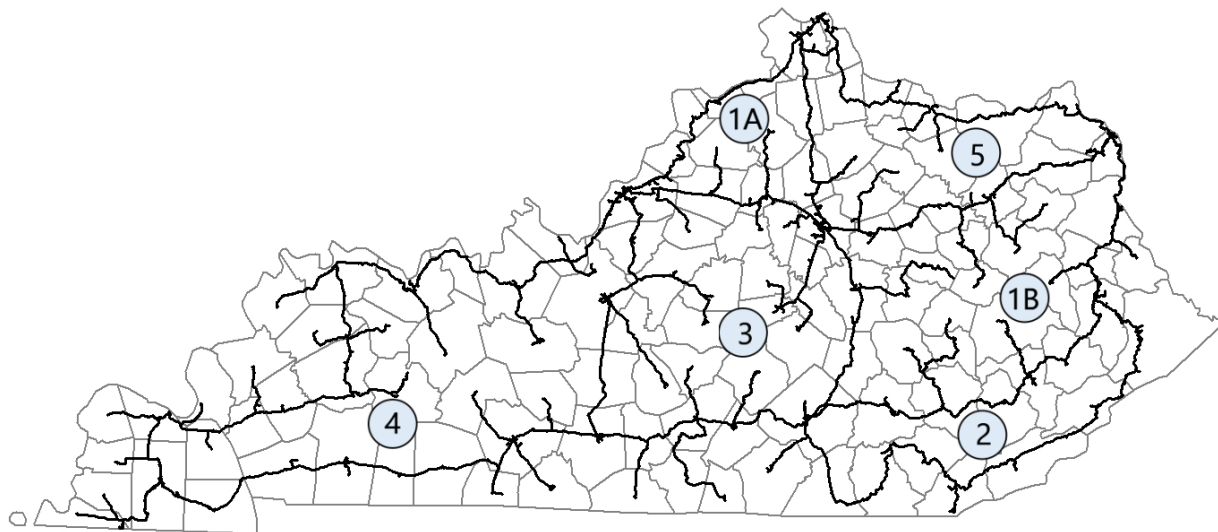
As of October 2019, three rings had been completed but were not operational. Final completion of all rings was rescheduled to October 2020.

As of October 2019, the completion of three rings had been announced, but none was in use yet because testing and validation had not been completed. Final completion of all rings has been rescheduled to October 2020.

^a Columbia estimated \$340 million for the middle-mile backbone and \$70 million to reach specific sites around the state.

^b This counts rings 1A and 1B as two separate rings.

Figure 1.A
KentuckyWired System Map



Note: Circled numbers are the ring numbers.

Source: Program Review staff compilation of network locations from KCNA.

Project Structure And Funding

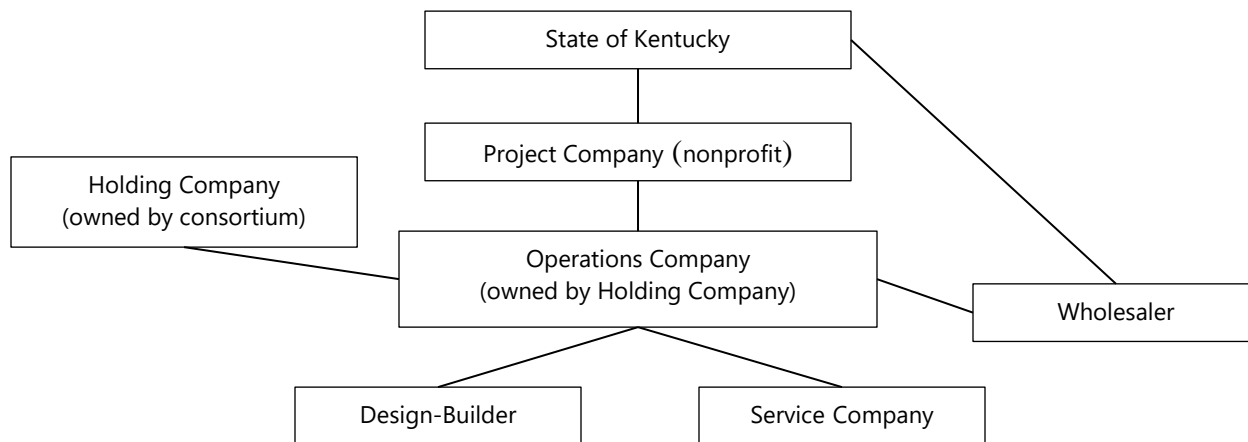
The state is party to the agreements with Project Company (KentuckyWired Infrastructure Company) and the wholesaler (OpenFiber). Other contracts govern the relationships of the other companies.

Figure 1.B shows a simplified project structure. The state established the KentuckyWired Infrastructure Company (Project Company), a private nonprofit, in order to borrow via less expensive tax-exempt bonds. Macquarie assigned all its responsibilities for building and operating the network to Project Company. Further, the Macquarie consortium created the KentuckyWired Operations Company (Operations Company) to manage the network's design, construction, and operation, and Project Company assigned almost all of its responsibilities to Operations Company. The consortium also formed a construction company (Design-Builder) and a service company (Service Company). Operations Company assigned design, construction, and service responsibilities to those companies.

Macquarie, Ledcor, and First Solutions, three of the consortium members, formed a company (Holding Company) to be the sole member of Operations Company.^c Holding Company provides the private (equity) investment to the project.

^c In 2016, the Dutch Infrastructure Fund obtained 75 percent of Macquarie's share.

Figure 1.B
KentuckyWired Consortium Structure



Note: Lines represent direct contractual relationships.

Source: Program Review staff compilation of terms from relevant contracts.

Financing And The Repayment Shortfall

At financial close in September 2015, \$311.4 million in bond proceeds were received. The consortium directly contributed \$6.5 million. To pay for the borrowing and other costs, the state committed to make "availability payments" and assumed existing state agency spending on broadband would be enough.

At the same time in September 2015, Project Company received \$311.4 million in net bond proceeds (total debt service of \$646 million including interest) to finance the design, construction, and other startup costs.^{d 16} This event was called financial close. The Macquarie consortium also directly contributed \$6.5 million in equity with the expectation of a significant return over 30 years. Such financing is common with P3s and was technically non-recourse private funds, meaning that the lenders could not turn directly to the state if Project Company, the borrower, was unable to pay the debt. However, consistent with many P3s, the state promised to make what are called availability payments to Project Company, beginning when the first network sections became operational, increasing as each later section was completed, and continuing with annual adjustments for the remainder of the 30-year term. Availability payments include repayment of the private-sector borrowing and equity investment, along with additional funds for ongoing operation and borrowing-related expenses. They total approximately \$1.2 billion.^e Therefore, state appropriations are required to pay for the project's debt.

^d Other costs were to pay debt service during the construction period and to pay for the issuance of the bonds.

^e This is slightly more than the original amount and is based on changes to availability payments provided in the 2018 settlement agreement.

State officials assumed that all executive branch agencies, including the Kentucky Department of Education (KDE), the courts, and higher education would use the network as soon as portions of it became operational. The money those agencies were spending on network services would be used to make the availability payments. The financial model also assumed that the state's broadband spending would increase over the 30-year period. Working from this expected income, state officials and the vendor estimated what the state could afford.

Anticipated agency spending included the K-12 education network, but it was not available, leaving a shortfall. Claims for supervening events soon came to an added \$191 million. This was settled for \$101 million along with a rescheduled completion of October 2020.

It soon became clear that services provided through the KentuckyWired contract with Macquarie would not be eligible for an important federal education subsidy called the E-rate program. If KDE were simply to switch its K-12 network to KentuckyWired, the state would lose more than \$11 million in federal rebates annually.^f Starting as early as January 2014, KDE frequently informed project leaders of the need to protect E-rate eligibility. FAC attempted to resolve this problem by issuing a new RFP in October 2015, but the RFP was canceled without explanation after a protest from AT&T, the existing K-12 network provider. This left a shortfall of at least 43 percent of the money needed for availability payments.

Within 4 weeks of executing the rewritten contracts, Design-Builder filed the first of many claims requesting schedule changes or additional compensation from the state. The contract provided schedule and monetary relief for so-called supervening events that were not Design-Builder's responsibility. Eventually, these claims were estimated to be more than \$191 million of additional expense to the state. In March 2018, the state and the consortium entered a memorandum of understanding stating that they would negotiate a settlement. Between then and December 2018, the state and the consortium negotiated a final settlement, agreeing to reduce the amount paid Design-Builder to approximately \$101 million, streamline future construction, minimize future claims, and set a new completion target of October 2020. Bondholders approved the settlement on February 28, 2019.¹⁷

Based on the March memorandum, the 2018 General Assembly authorized KCNA to borrow up to \$110 million of additional funds (KRS 154.15-020). On August 6, 2019, KCNA arranged for the issuance of bonds and received net proceeds of \$118 million to be

^f The \$11 million was the FY 2015 rebate to KDE alone. There is a multiplier effect because school districts also receive rebates based in part on grants KDE funds with its own rebate. The total of local rebates is not readily available.

used to finance the settlement and some other expenses not covered by availability payments.¹⁸

The network included extra fiber to be marketed and leased by a separate wholesaler. Macquarie projected \$1.1 billion in wholesale revenue through 2047, but this number is uncertain. The revenue has been cited to cover shortfalls.

Wholesale Marketing Of Kentucky Wired Fiber

Columbia and Macquarie advised building extra fiber into the network and creating a wholesaler, a separate company to market and lease the extra capacity. Macquarie projected approximately \$1.1 billion in wholesale revenue for the state through 2047, but this number is uncertain. Wholesale revenues have been mentioned as a way to cover shortfalls such as the loss of K-12 spending and expenses not covered by availability payments.

Some wholesale revenue might be shared with the Center for Rural Development (CRD) under a 2019 agreement that gave ownership of part of the network to CRD in exchange for federal grants, annual rent, and a share of wholesale revenue after certain expenses.

Whatever the state's wholesale revenue turns out to be, some of it might go to the Center for Rural Development (CRD). A 2015 agreement with the center might have required the state to share significant wholesale revenues with CRD. That became moot in August 2019, when the state and CRD entered into a lease agreement that replaced the original agreement.¹⁹ The state agreed that CRD would own parts of the project's eastern Kentucky infrastructure. CRD agreed to provide \$43.6 million in federal grants. The state also agreed to pay the center a minimum of \$2 million per year in rent for at least 26 years. Wholesale revenues will be shared after certain other expenses of the project are deducted, which might reduce the amount available for the K-12 shortfall.

Broadband And Economic Development

Rural broadband access can have an economic impact in several ways. A comprehensive study in Indiana identified seven general benefit categories: telemedicine, education, business investment and general economic development, farm income, civic engagement, and property values.²⁰

According to the Kentucky Cabinet for Economic Development, prospective companies consider high speed broadband a necessity.

The Kentucky Cabinet for Economic Development stated that approximately 50 percent of requests for information from prospective companies and third-party site selectors mention broadband as a necessity. Even when broadband was not mentioned specifically, the cabinet assumed that it was expected: "Lack of high speed broadband is a non-starter for any scalable business."²¹

Broadband access does not guarantee an advantage for a location. Companies consider other factors such as workforce preparation,

quality sites, and transportation infrastructure. According to Ronin Technology Advisors, “Merely having broadband likely places a location on a level playing field with other communities.”²²

Teleworks USA

Teleworks USA which helps job seekers find opportunities to work from home in rural areas, is an example of how high speed broadband is working in eastern Kentucky, but adequate access speeds are unavailable in many places.

Teleworks USA is an example of how high speed broadband has had a positive effect in eastern Kentucky. Teleworks is a Kentucky-based program that helps job seekers find opportunities to work from home in rural areas. Its website noted that in order to work from home, download speed of 1.5 megabits per second (Mbps) and upload speed of 0.5 Mbps were the minimum, and mobile data was not reliable enough.²³ Teleworks offers eight hubs, or physical locations, in southeastern Kentucky that have a small amount of shared office space with higher speed connections. Teleworks recommends that potential hub locations have at least 100 Mbps speeds available, which some communities do not have.²⁴

In Owsley County, Teleworks created 137 jobs from 2016 to 2017.²⁵ The county’s local exchange carrier, People’s Rural Telephone, provides last mile fiber connections in its service area. The high speed connectivity provided by People’s has been critical to the success of Teleworks. People’s will receive a \$2.4 million federal grant to construct a fiber-to-the-premises network in Lee County.²⁶

Broadband Adoption And Utilization

Having access to a broadband connection does not mean it is being used effectively.

Having access to broadband is the first step, adoption and utilization are also required. Utilization includes how a business or individual takes greatest advantage of their broadband access by using applications or processes that benefit from high speed connectivity and being aware of and adopting internet developments critical to economic success.

Some communities may have access to broadband, but it may not meet the current Federal Communication Commission standard for speed.

Indicators of access to broadband do not equal adoption or utilization and may be misleading. Areas with access may have only one provider and prohibitively high subscription costs.²⁷ The Federal Communications Commission identified 25 Mbps downstream and 3 Mbps upstream speeds as the standard for broadband access. A community may have access to broadband services, but the speeds may not meet this standard.

In communities that have access to high speed broadband, potential customers might not consider the services important. Lack of

Problems such as lacking digital literacy and low income rates affect how much a community adopts and uses broadband services.

outreach and education may limit how much a community adopts broadband services. The level of digital literacy or the perceived importance of the internet can be major barriers to adoption.²⁸ The share of a community's residents who are low income may also affect how much a community adopts and uses broadband services.

Access To Broadband In Kentucky

As a middle-mile network, KentuckyWired's objectives include facilitating access to high-speed broadband in all of Kentucky's counties. A middle-mile network provides the connection from the main internet backbone to local and regional telecommunications companies that build and market the last-mile connections to businesses and homes. In 2014, Columbia, the state's consultant group, noted that KentuckyWired would put its fiber alongside existing fiber in some locations, but the consultants expected demand would increase enough to warrant this surplus fiber.²⁹

Middle Mile

Identifying where the middle mile exists in the state is difficult; most available data attempt to show last mile connections. The current middle mile in Kentucky is probably fiber owned by many different companies, including rural telecoms.

Identifying existing middle mile coverage is difficult. Most available data attempt to show last-mile connections and are incomplete and likely over represent actual coverage.³⁰

Available information suggests that all of Kentucky's middle mile likely consists of fiber because of the quantity of bandwidth required by customers.³¹ The amount of fiber and its age across the middle mile are unknown but likely vary across the state. According to KDE, all Kentucky schools have had fiber connections to the internet since 2015³². All school districts use the state's KIH3 contract with AT&T and its subcontractors to connect from the district office to the internet. The districts then use the same or other contracts to connect each school to the district office.³³

Many rural providers or their partnerships bypass a regional internet service provider and have a fiber circuit that connects directly to an internet exchange. The physical fiber may still be maintained by a regional or middle mile provider, but services would be purchased at the internet exchange.

The middle mile in Kentucky is owned by multiple providers, including larger companies such as AT&T, Windstream, CenturyLink, and Zayo, along with smaller telecoms. Some of these providers also offer last mile services. Many rural telecoms own at least some middle-mile sections. Rural broadband providers commonly have 10 gigabit per second connections to the middle mile, and groups or partnerships of rural providers may have multiple 10 to 100 gigabit connections to multiple internet service providers to better ensure diversity and redundancy.³⁴ These connections often bypass regional internet service providers and

connect directly to an internet exchange or carrier hotel.^g The result is lower cost, greater bandwidth, and reduced delay or latency.³⁵

While a single pair of fiber strands might provide enough capacity for a rural telecommunications company, KentuckyWired includes 144 pairs along most of its route. This represents an increase of capacity in many places. The wholesaler, OpenFiber, will be able to provide fiber leases to local telecommunications companies and others and can provide additional services for customers seeking high-speed broadband.

Last Mile

Although there are a variety of sources for internet use data, broadband speeds, coverage, and provider data, no combination of sources provides a complete and accurate assessment of broadband in the United States.

Determining the accessibility of broadband in Kentucky is difficult. A statewide survey and study of adoption rates would be required to understand the full extent of broadband coverage in the state. Although there are a variety of sources for data on internet use, broadband speeds, coverage, and providers, no combination of sources gives a complete and accurate assessment of broadband in the United States. Data on how much broadband service that businesses and individuals are using is nonexistent.³⁶ Identifying specific barriers to internet use is difficult, but income and education are likely factors.³⁷ Rural internet is more expensive, and rural household incomes are typically lower than in urban areas.³⁸

Cost Of Rural Broadband Expansion

Building networks in rural areas is cost prohibitive for many telecoms. The cost of installing last mile fiber in rural parts of Kentucky could range from \$30,000 to \$75,000 per mile.

The cost of building out into rural areas is a barrier for telecommunications companies. With the possible exception of rural companies, not many will build into rural areas unless the population density is high enough to ensure sufficient profits.³⁹ In addition to population, construction costs vary depending on the terrain and existing infrastructure in an area. In a mountainous rural location, the cost is higher. According to the Kentucky Telecom Association, the estimated cost to build out last mile fiber in rural areas could range from \$30,000 to \$75,000 per mile.⁴⁰ Currently, the combination of low population, no major transportation hubs, and terrain make building a high speed broadband network cost prohibitive for the private sector.⁴¹

^g Carrier hotels are data centers where telecoms install servers and other equipment for network connectivity purposes. Internet exchanges can be found in carrier hotels. Internet exchanges also offer the ability to connect directly to other internet service providers and content providers like Netflix and Facebook.

Major Conclusions And Supporting Findings

Major conclusions and supporting findings

This section outlines conclusions that Program Review staff view as the most significant. Detailed findings follow each conclusion.

Policies And Procedures

Policies and procedures

Conclusion. The contract negotiations and bond sale technically followed all legislative oversight rules. Accepted procedures at the time permitted the executive branch to commit the state to an indeterminate amount of debt through private financing, but current procedures are considered adequate. There might have been violations of state law or FAC policy with respect to recording of contracts.

Findings.

- The project's financing technically followed all required legislative oversight rules. The Capital Projects and Bond Oversight Committee canceled several 2015 meetings and did not review the bond sale or fund transfer.
- Accepted procedures by executive officials and legislative committees permitted executive branch agencies to accept an indeterminate amount of private financing and to commit the state to repaying that debt.
- Capital Projects and Bond Oversight Committee staff reported that current procedures and statutes were adequate to oversee capital projects such as KentuckyWired in the future.
- The negotiations to amend the contract were unusual for Kentucky but technically consistent with the Kentucky Model Procurement Code and typical of a P3 with availability payments. Changes after the award were within the scope of the RFP and proposal.
- Procurement activities do not have to follow FAC regulations if they are approved by the cabinet secretary's office. Most procurement irregularities with KentuckyWired were approved by the secretary or a deputy secretary.
- There might have been violations of either state law or FAC policies related to recording of contracts. For example, the agreements with the Center for Rural Development and certain other agreements should have been recorded in the statewide accounting system and perhaps submitted to the Government Contract Review Committee.

Project Structure And Risks

Project structure and risks

Conclusion. The construction schedule was considered aggressive but achievable. The risk allocation favored the private partners but might have been necessary to obtain financing and to lower costs. State officials received warnings about many of the risks and handled some of them poorly.

Findings.

- The construction timeline requested in the RFP was unrealistically short and was later extended to 35 months. This was shorter than Columbia's recommendation but considered achievable by rating agencies.
- Risk allocation was favorable to the private partners, but rating agencies found the allocation to be reasonable and perhaps necessary. As the first availability-payment-based P3 in Kentucky and the first statewide broadband P3, a rating agency said its rating depended on the state's accepting some of the risk. The state's promise to make availability payments and to cover the cost of supervening events shielded the lenders from risks.
- The state accepted additional risks in exchange for a lower fixed price but experienced increased costs as a result of related supervening event claims.
- Kentucky's consultants in planning the RFP correctly predicted many of the project's key risks. The state poorly managed some of the risks that it accepted. The most significant were pole attachment agreements, state highway rights-of-way, and private easements.
- The state had the option to cancel the contract for less than \$7 million prior to financial close.

Financing And Funding

Financing and funding

Conclusion. KentuckyWired faces significant funding challenges, most of which should have been anticipated. These include loss of expected K-12 participation; wholesale revenue sharing; supervening events, including delays; other substantial costs outside the availability payments; and variation in broadband market prices. The K-12 shortfall alone might be up to \$564 million by September 2045.

Findings.

- The projected cost of construction increased from \$100 million in the 2014 budget recommendation to \$274.8 million under the contract with Macquarie. This did not include construction on several sections by other parties.
- The cost of financing is the largest single cost to the project, so creating a nonprofit Project Company to obtain tax-exempt bonds resulted in lower financing cost.
 - Establishing Project Company as the borrower had no effect on the state's risk, and state control of Project Company had no effect on the state's obligations.
 - By agreeing to availability payments, the state would have faced the same risks and obligations regardless of the borrower or the tax status of the bonds.
- KentuckyWired faces two funding issues: shortfalls in funding availability payments and additional costs not covered by them.
- It is unlikely that KentuckyWired will meet its funding requirements using existing agency spending.
 - The failure of KentuckyWired to obtain the contract to serve the K-12 network left an immediate shortfall of approximately 43 percent of the funds needed for availability payments, a gap of up to \$564 million during the term of the contract.
 - In order to fund the remaining commitment, state agencies might have to pay above-market rates or upgrade to more expensive services they might not need. The financial model assumed that market prices for broadband services and the corresponding state agency expenditures would increase by 2.5 percent per year, but broadband prices have not historically gone up at that rate, and officials promised that KentuckyWired would drive prices down.

- The fixed-price contract included exceptions for supervening events, and such claims reached \$191 million. In December 2018, the parties settled for a payment of \$101 million and amended the schedule and the contracts.
 - According to third-party assessments, the settlement was a reasonable solution to the parties' disputes over the claims.
 - Contract amendments clarified terms and responsibilities, reset completion to October 2020, and gave the state a reasonable opportunity to minimize future claims.
 - KCNA arranged for the issuance of bonds to pay the settlement amount and pay some additional expenses. With interest, the total cost will be more than \$201 million.
- Wholesale revenues, originally proposed as a windfall, might be the only way to pay for project costs after the shortfalls and additional expenses, but the projected amount is optimistic, and the shortfalls exceed conservative projections. Construction delays have further delayed wholesale revenues.
- The 2019 agreement with the Center for Rural Development provides \$43.6 million in federal grants but also gives the center ownership of part of the network and requires the state to pay \$2 million per year in rent. It is not clear whether this is a net benefit to the state. The agreement gives the center a share of wholesale revenue after deducting most non-availability-payment expenses, but it might reduce the amount available for the K-12 shortfall.
- The state has to replace outmoded equipment and software (system refresh) at least twice, at 10 and 20 years after financial close. Another will be required around 2045 if the network continues to operate.
 - The first refresh was estimated to cost \$43.7 million. Applying the same 2.5 percent annual escalation as used for other expenses, the total cost of three refreshes would be \$142.5 million.
 - There are indications from multiple sources that some equipment will need to be refreshed more often in order to remain competitive. The wholesaler might also request additional refreshes.
 - No refresh costs are covered by the baseline availability payments.^h

^h Availability payments could be adjusted to cover these costs, but the state would still have to find funds to pay them.

- Termination for convenience would require the state to repay debt to the bondholders less some of the interest, repay equity to the consortium, and pay certain costs to the contractor.
- Availability payments are contractual obligations similar to debt, and failure to appropriate funds for them would seriously damage the state's credit rating.

Outstanding Questions

The appendix lists several issues about KentuckyWired that remain unresolved. In some cases, their resolution depends on having access to confidential or proprietary information. In other cases, they require additional research, perhaps including an extended search for documents and individuals who can provide information. Searching documents is especially difficult because in response to just the first few document requests, FAC provided nearly 406,000 candidate documents.

¹ Representative Rogers's statement in video of press conference held Dec. 23, 2014. (37:10).

² Rural Policy Research Institute. *Shaping Our Appalachian Region: Final Report To The Executive Board*. September 23, 2014. Web. Accessed Feb. 15, 2019.

³ Kentucky. Finance and Administration Cabinet. "Finance Cabinet Heavily Involved In New Broadband Initiative Recently Announced." In *Current FACts FAC News To Use*. Jan. 30, 2014. Web. Accessed Oct. 10, 2018.

⁴ Kentucky. Finance and Administration Cabinet. "Commonwealth Of Kentucky Request for Proposal (RFP) For Next Generation Kentucky Information Highway (NG-KIH) Initiative Finance/Concessionaire Partner RFP 758 1500000003." July 11, 2014. P. 8.

⁵ Kentucky, Finance and Administration Cabinet. Form EO1 079 14000003572. Dec. 4, 2013.

⁶ Kentucky, Finance and Administration Cabinet. Form RFP 079 14000000126. Dec. 9, 2013.

⁷ Kentucky. Office of State Budget Director. *Commonwealth Of Kentucky 2014-2016 Executive Budget*. Jan. 21, 2014. P. 16.

⁸ H.B. 235, Gen. Assem., Reg. Sess. (Ky.2014). P. 126

⁹ Kentucky. Finance and Administration Cabinet. "Request For Information. Next Generation Kentucky Information Highway (NG-KIH) (Statewide Middle Mile Fiber Optic Infrastructure)." April 15, 2014.

¹⁰ Columbia Telecommunications Corporation. *The Next Generation Kentucky Information Highway: Building Fiber Optic Infrastructure*. Kensington, MD. July 2014.

¹¹ Columbia Telecommunications Corporation. *The Next Generation Kentucky Information Highway: Building Fiber Optic Infrastructure*. Kensington, MD. July 2014. Pp. 37, 76.

¹² Kentucky. Finance and Administration Cabinet. "Commonwealth Of Kentucky Request For Proposal (RFP) For Next Generation Kentucky Information Highway (NG-KIH) Initiative Finance/Concessionaire Partner RFP 758 1500000003." July 11, 2014.

¹³ Kentucky. Finance and Administration Cabinet. "Master Agreement For Next Generation Kentucky Information Highway Initiative Concessionaire Partner." Dec. 22, 2014.

¹⁴ Kentucky Wired Operations Company LLC. "Design-Build Agreement Next Generation Kentucky Information Highway Project." Sept. 3, 2015. P. 50.

¹⁵ Kentucky. Finance and Administration Cabinet. "Project Agreement: Next Generation Kentucky Information Highway Project." Sept. 3, 2015. Schedule 3, P. 44.

¹⁶ Kentucky. Kentucky Economic Development Finance Authority. *Official Statement*. Sept. 1, 2015. P. 1.

¹⁷ Arup North America Ltd. "KentuckyWired Infrastructure Company Inc Next Generation Information Highway Project LTA Monthly Progress Report AP 41, Requisition No 116." March 8, 2019. P. 24. Web. Accessed March 12, 2019.

¹⁸ Stewart Hendrix. Letter to Senator Girdler and Representative Thomas. "Re: Kentucky Communications Network Authority bond issuance." Sept. 3, 2019.

¹⁹ Kentucky. Finance and Administration Cabinet. "Dark Fiber Lease Agreement." Aug. 19, 2019.

²⁰ Alison Grant, Wallace E. Tyner, and Larry DeBoer. *Research & Policy Insights: Estimation Of The Net Benefits Of Indiana Statewide Adoption Of Rural Broadband*. Purdue Univ., Aug. 2018. P. 5.

²¹ Terry Gill, secretary. Kentucky Cabinet for Economic Development. Email to Joel Thomas. Feb. 6, 2019

-
- ²² Ronin Technology Advisors. "The Importance Of Broadband To Site Selection." Web. Accessed Oct. 29, 2019.
- ²³ Teleworks USA. "Frequently Asked Questions." Web. Accessed Nov. 4, 2019.
- ²⁴ Teleworks USA. "Are You Looking To Develop A New Teleworks USA Hub In Your Community?" Web. Accessed Nov. 4, 2019.
- ²⁵ Lydia DePillis. "In Rural America, Building The Internet For Everyone Has Stalled." *CNN Money*. Dec. 18, 2017. Web. Accessed Oct. 29, 2019.
- ²⁶ There Is A Future. "USDA Targets 14 States With \$152 Million In Rural Broadband Funding." Web. Accessed Oct. 29, 2019.
- ²⁷ Lauren Gibbons. "Rural Communities Suffer The Most Without Access To The Web." *Government Technology*. June 29, 2018. Web. Accessed Oct. 22, 2019.
- ²⁸ North Carolina. Dept. of Information Technology. Broadband Infrastructure Office. *Barriers To Broadband Adoption*. June 2016.
- ²⁹ Columbia Telecommunications Corp. "The Next Generation Kentucky Information Highway: Building Fiber Optic Infrastructure." July 2014. P. 80.
- ³⁰ Marrian Zhou. "FCC Kicks Off Investigation Into Broadband Map Accuracy." *CNet*. Dec. 7, 2018. Web. Accessed Oct. 4, 2019.
- ³¹ Tyler Campbell, executive director. Kentucky Telecom Assn. Email to Joel Thomas. Sept. 27, 2019.
- ³² David Couch, chief information officer. Kentucky Dept. of Education. Email to Van Knowles. Oct. 8, 2019.
- ³³ David Couch, chief information officer, Todd Allen, deputy general counsel. Kentucky Dept. of Education. Interview. March 11, 2019.
- ³⁴ Tyler Campbell, executive director. Kentucky Telecom Assn. Email to Joel Thomas. Sept. 27, 2019.
- ³⁵ Mike Jensen. "Promoting The Use Of Internet Exchange Points: A Guide To Policy, Management, And Technical Issues." *Internet Society Reports*. March, 2009. Web. Accessed Oct. 4, 2019.
- ³⁶ Marrian Zhou. "FCC Kicks Off Investigation Into Broadband Map Accuracy." *CNet*. Dec. 7, 2018. Web. Accessed Nov. 1, 2019.
- ³⁷ Edward Carlson and Justin Goss. *The State Of The Urban/Rural Digital Divide*. National Telecommunications and Information Administration. Aug. 10, 2016.
- ³⁸ Marguerite Reardon. "Why Rural Areas Can't Catch A Break On Speedy Broadband." *CNet*. Oct. 23, 2018. Web. Accessed Oct. 17, 2019.
- ³⁹ Tyler Campbell, Kentucky Telecommunications Assn. Interview. April 2, 2019.
- ⁴⁰ Tyler Campbell executive director. Kentucky Telecom Assn. Email to Joel Thomas. Oct. 25, 2019.
- ⁴¹ Terry Gill, secretary. Kentucky Cabinet for Economic Development. Letter to Joel Thomas. March 21, 2019. P.3.

Chapter 2

Oversight Of KentuckyWired

This chapter describes the oversight provided by executive and legislative bodies over capital projects in general and KentuckyWired specifically. Accepted procedures under statutes effective in 2015 permitted KentuckyWired to commit to debt without sufficient funds to repay it.

Executive Oversight

In addition to following the statutes related to procurement, capital projects, and debt issuance, the executive branch follows FAC policies, which have the force of law because they are incorporated by reference into 200 KAR 5:021.

Authority Of Cabinet

Statute allows the cabinet to approve agreements that did not follow its regulatory policies and procedures.

Although KRS 45A.045 requires all agencies to follow the cabinet's purchasing regulations, which include its policies, the statute includes a provision that permits bypassing the regulations if the cabinet approves. This provision appears to support the validity of the agreements described below that did not follow regulatory policies and procedures but were signed by the cabinet secretary or deputy secretary and, in one case, also signed by the director of the Office of Procurement Services.

Purchasing Agency

Although typically the Division of Engineering and Contract Administration would handle procurements for capital construction projects, the Office of Procurement Services handled procurements for KentuckyWired.

Procurements may be handled through the Office of Procurement Services (OPS) or the Division of Engineering and Contract Administration (DECA), both within FAC. Although there does not appear to be statutory or regulatory requirement that DECA handle capital projects, officials of these agencies said that DECA would normally handle capital projects, especially if they were already in the capital budget. However, OPS handled KentuckyWired. Current officials of OPS and DECA said they did not know why.¹

Under FAC's typical procedure, KentuckyWired was a capital project involving millions of dollars of construction and equipment. It was listed as such in the 2014-2016 proposed budget

and enacted as a capital project in the budget bill. As such, KentuckyWired would ordinarily have been handled by DECA. The procurement type used on the requisition form for the RFP was not construction but standard services. This was later changed to computer equipment or software. These procurement types would ordinarily be handled by OPS but were not appropriate for a capital project.

Modification Of Contracts

Having handled the procurement, the assigned OPS buyer, who was the assistant director of OPS, became the gatekeeper for all contract modifications. The contract stated, “All communications of a contractual or legal nature are to be made to the Commonwealth buyer.”² Further, FAC’s policy at that time stated that the contractor must contact OPS with any need for modification, and OPS must provide approval of all contract modifications (FAP 110-10-00 Section 22). The policy cited a regulation that required all changes to construction contracts be done by modifications kept in the FAC agency’s contract file along with the purchasing officer’s explanation of the reasons for the change (200 KAR 5:311 Section 2). The contract also required, by reference to the RFP, that the contractor not assign the contract without the prior written consent of the buyer.

The assigned Office of Procurement Services buyer became gatekeeper for all contract modifications but was unaware of rewritten agreements until well after they had occurred. The contract record in the statewide financial system was updated to reflect the changes only after a payment to Project Company was needed.

The buyer reported that she had not been party to or aware of all the negotiations between the state and the consortium to rewrite the contract and restructure the vendor relationship. Further, at the time of financial close in September 2015, a FAC deputy secretary provided the buyer with an executed copy of an amended contract for processing and promised that the remaining documents would be forwarded as soon as they were received.³ The buyer was not informed about the assignment of the contract from Macquarie to Project Company or any of the several other contracts signed at financial close. It was not until March 29, 2016, that the buyer became aware of and received copies of these contracts, and it was on July 8, after a payment to Project Company was needed, that the contract record in the statewide financial system was updated to reflect the changes.^{a 4}

Failing to involve the buyer in the negotiations that altered the contracts could have violated FAC policy, thereby violating 200 KAR 5:021. Failing to submit the assignment of the contract to

^a The contract in eMARS still showed Macquarie as the vendor, so it was not possible to pay Project Company until the vendor was changed. This happened on July 11, after the assignment and other necessary contracts were recorded.

the buyer could have violated the terms of the contract. Failing to file the assignment and relevant modifications with OPS could have violated 200 KAR 5:311. These possible violations were moot because the assignment and other contracts directly involving the state were signed by FAC Secretary Flanery, and the amended master agreement was also signed by the director of OPS, for whom the buyer worked.⁵

Changes made to the contract after the award were substantial and questioned by the Auditor of Public Accounts. They were unusual but stayed within the scope of the RFP and proposal.

Scope Of Modifications. Another FAC policy in effect at the time stated that “A Modification shall be used to make corrections or changes to a Solicitation or contract. A Modification shall not be used to ... initiate a major change outside the original scope of the contract” (FAP 111-11-00 Section 1). The Auditor of Public Accounts questioned whether the negotiations and changes made after the original award violated this policy.⁶ Although the changes were substantial, they also appeared to be within the scope of the RFP and the Macquarie proposal, both of which were included in the original contract by reference. The rewritten contracts needed to supersede the entirety of the original contract, which probably is why they explicitly superseded the RFP and proposal.

Related Contracts

Multiple additional agreements that may require payments have not been entered into eMARS or were entered well after their execution. For those not entered, it is unclear how payments will be made.

In February 2019, KCNA provided OPS with more than 300 additional documents related to the KentuckyWired contract. OPS officials asserted that all the documents were subsidiary to the contract and so did not need to be entered separately into the accounting system, primarily because none of them required payments from the state to the other parties.⁷ There are a few exceptions and a more recent agreement that merit further discussion.

The 2015 CRD memorandum of agreement and purported addendum apparently were developed and executed without any involvement of a FAC purchasing agency. The agreement itself was signed by a FAC deputy secretary but was not entered into eMARS until February 2019, when it was attached to the KentuckyWired contract. While the agreement did not mention a dollar amount, it specified a lease of eastern Kentucky fiber to the state. The addendum, if valid, would have required the state’s revenue from KentuckyWired to be shared with CRD. It is unclear whether this agreement should have been entered into eMARS as a separate agreement and reviewed by the Government Contract Review Committee.

The 2019 CRD lease agreement was signed by FAC Secretary Landrum but apparently was developed and executed without any involvement of a FAC purchasing agency. The agreement was executed on August 19 and was later entered into eMARS as a purchase order on October 15.^b It is not clear whether this agreement qualifies as a memorandum of agreement that is subject to legislative review, but its designation in eMARS as a purchase order will prevent it from being submitted.

The state entered into six agreements with local or regional telecommunications companies to construct parts of the network instead of the Macquarie consortium. Again, FAC Secretary Landrum signed these agreements that apparently were not handled by a purchasing agency. Program Review staff did not find them in eMARS, meaning the state cannot follow typical payment procedures.

Legislative Oversight

During legislative sessions, various legislative committees and the General Assembly as a whole exercise oversight. During interims and sessions, the Capital Projects and Bond Oversight Committee (CPBOC) provides legislative oversight of projects such as KentuckyWired and its related bonds. The Government Contract Review Committee has no direct role with KentuckyWired itself but might have jurisdiction over some related agreements.

Government Contract Review Committee

The Government Contract Review Committee had no direct role in KentuckyWired. In 2018, its responsibility for reviewing P3 contracts was given to the Capital Projects and Bond Oversight Committee (CPBOC).

This committee had no direct role in the KentuckyWired procurement. The committee received several related legal contracts for review. It is possible that some related agreements mentioned earlier should have been submitted for review.

For the period April 8, 2016, to July 14, 2018, the committee was responsible for reviewing contracts awarded as P3s under KRS 45A.077. Committee staff did not recall reviewing any P3 contracts. In 2018, this responsibility was given to CPBOC (2018 Ky. Acts ch. 92).

^b PO 137 2000003170

Capital Projects And Bond Oversight Committee

CPBOC examines bond issues and other actions for capital projects. The committee may disapprove the requested action and determines compliance with relevant statutes. It may request a court injunction if it finds violations.

The committee receives regular reports about all capital projects but has two points of review and approval: bond issues and other actions (KRS 45.810 and 45.800).^c Other actions include fund transfers, P3 contracts, and alterations of projects. New projects not included in the budget come before the committee for review, after which funds may be transferred to them (KRS 45.760(7) and 45.800). If the committee does not approve the requested action, the relevant agency head, usually the FAC secretary, may decide to proceed regardless (KRS 45.800(3) and 45.810(3)).

When projects are submitted for review and approval, the committee is also required to examine their compliance with all relevant statutes. If the committee determines that any of the statutes has been violated, it may request that the Legislative Research Commission seek a court injunction to prevent further action on the project (KRS 45.795). This is distinct from the committee's approval or disapproval of the submission itself.

If the committee cancels a meeting at which a project was scheduled for review, the agency head may decide to proceed without committee approval or disapproval. Accepted practice by the committee is that it may only review a submission at the meeting for which it was submitted. If it has not approved a submission, either explicitly or through a canceled meeting, the committee may request an injunction at the next meeting in response to the agency head's decision to proceed, if it has reason to believe any statutes were violated.

Committee staff pointed out that five meetings in 2015 were canceled because of a lack of quorum, including the two meetings at which the KentuckyWired project would have been considered. It does not appear that there was any connection between those submissions and the committee's decisions to cancel the meetings.

CPBOC staff reported that current procedures and statutes are adequate to oversee capital projects such as KentuckyWired in the future.

^c The committee and executive branch agencies all refer to fund transfers as appropriation increases. This report uses the term *fund transfer* because that is what the statutes use.

Legislative Oversight Of KentuckyWired

During the 2014 Regular Session, the General Assembly authorized \$70 million for KentuckyWired. Of that amount, \$20 million was designated as “Other – Third Party Financing” in the executive branch budget recommendation and in the enacted budget.⁸ The remainder was state borrowing (\$30 million) and federal funds (\$20 million). The budget bill also created the Next Generation Kentucky Information Highway Fund (Fund) into which all funds appropriated for use by state agencies for network connections would be deposited. The contributions by K-12 and higher education depended on approval by the Kentucky Board of Education and Council on Postsecondary Education.

The sole source of revenue to repay the project’s debt was state-appropriated availability payments. If Macquarie had arranged financing on its own, no limit would have applied, and no statutory review would have been required.

Oversight Of Bond Issue. KentuckyWired used an availability payment model: The sole source of revenue to repay the debt was state-appropriated availability payments. This meant that the bond issue was indirectly but solely supported by state appropriations.

By statute, Macquarie could have financed the project by issuing bonds privately. There was no statute that required private bond issues to be reviewed by CPBOC, even if state appropriations supported them.

The state formed the private nonprofit Project Company in order to issue tax-exempt bonds. This technically classified the bond funds as “private funds.” The bond review statute applied only because they were issued by a state agency.

In this case, the state formed the private nonprofit Project Company in order to issue tax-exempt bonds. Because this was a private company, the bond funds were classified as private funds. The entity chosen to issue the bonds for Project Company was a state agency, the Kentucky Economic Development Finance Authority (KEDFA). As a state agency, KEDFA’s bond issue fell under KRS 45.810.

The KentuckyWired bond issue proceeded without CPBOC review because the committee did not meet in July 2015. It could have requested an injunction if it had been aware of any statutory violations.

KentuckyWired Bond Issue. Any state agency issuing debt must submit the issue to CPBOC for review at least 14 days prior to the committee’s meeting date (KRS 45.810). On July 7, 2015, the FAC Office of Financial Management submitted its proposed debt issues, including KentuckyWired, for consideration at the July 21 meeting. However, on July 9, the committee co-chairs notified FAC Secretary Flanery that the July 21 meeting was canceled. Whenever the committee has not approved a bond issue, the statute permits the secretary to proceed with the project, informing the committee of the decision. On July 20, the secretary informed the committee that KentuckyWired and some of the other bond issues would proceed. The committee next met on August 18, prior to the bond sale, and could have requested an injunction if it had been aware of any statutory violations.

The bond sale followed accepted procedures. The \$20 million mentioned in the budget bill was treated as a placeholder for an unknown amount of debt.

Bond Issue And Statutory Requirements. The KentuckyWired bond sale followed the accepted interpretation of statutes. Even though the bond issue resulted in \$305.2 million in borrowing with a total debt service of \$646.3 million, and the 2014 budget bill listed only \$20 million for third-party financing, such budget numbers are commonly considered placeholders for an unknown amount of funds. For example, the 2015 letter from FAC to CPBOC regarding the fund transfer approval said,

Pursuant to KRS 45.760(6), the Secretary ... has approved an appropriation increase for ... [KentuckyWired]. ... The enacted budget bill contemplated the use of private funds The amount of private funds possible was uncertain at that time.⁹

Another requirement for such bond issues is that the source of funds for repayment be identified (KRS 45.810(2)(b)). In this case, the Fund was the source of repayment. The appropriation had no dollar amount, and it was later determined to be insufficient, but at the time state officials assumed it would cover the availability payments that included the debt service.

The KentuckyWired bond proceeds were transferred to the project account without CPBOC review because the committee did not meet in September 2015.

Transfer Of Funds To KentuckyWired. KRS 45.760(6) states that otherwise available funds may be transferred to a project during a legislative interim. If the source of funds is private or federal, there is no limit. Therefore, because the bond proceeds were technically private funds, their transfer to the project allotment was permissible.

To transfer private funds, the agency head must submit the project to CPBOC at least 14 days prior to its meeting date (KRS 45.800). On September 1, 2015, just after the bond sale, FAC Secretary Flanery submitted the fund transfer request to CPBOC for its September 15 meeting. The letter identified the bond funds as private and did not mention any state obligation to repay them. On September 9, the committee co-chairs replied that the September meeting was canceled. Whenever the committee has not approved a fund transfer, KRS 45.800 permits the agency head to proceed with the transfer, informing the committee of the decision. On September 10, the secretary informed the committee that most of the projects, including KentuckyWired, would proceed.

By the next committee meeting on October 20, the bond funds were available, and work had begun on the project. The FAC Office of Financial Management presented KEDFA's final bond information report and discussed the project and its budget.

Follow-Up Reporting. A full accounting of costs associated with the issuance of bonds must be sent to CPBOC and the Interim Joint Committee on Appropriations and Revenue (KRS 45.816). KEDFA fulfilled its obligation on October 7, 2015.^d The date on the letter, August 7, was an error.

¹ Joan Graham, Executive Director, Office of Procurement Services; Jennifer Linton, Executive Director, and Margaret MacDonald, Statewide Procurement Manager, Division of Engineering and Contract Administration. Finance and Administration Cabinet. Interview. August 15, 2019.

² Kentucky. Finance and Administration Cabinet. “Master Agreement For Next Generation Kentucky Information Highway (NG-KIH) Initiative Concessionaire Partner.” Dec. 22, 2014. Section III.35.

³ Robin Kinney, deputy secretary. Finance and Administration Cabinet. Email to Stephanie Williams. Sept. 4, 2015.

⁴ Mike Hayden, chief operating officer. Kentucky Communications Network Authority. Email to Gwen Pinson and Stephanie Williams. June 6, 2016.; Kentucky. Finance and Administration Cabinet. “Master Agreement Modification.” July 8, 2016.

⁵ Kentucky. Finance and Administration Cabinet. “Amended And Restated Master Agreement For Next Generation Kentucky Information Highway (NG-KIH) Initiative Concessionaire Partner.” Sept. 2, 2015.Pp. 29-30.

⁶ Kentucky. Auditor of Public Accounts. “Examination of Certain Contracts, Operations, and Activities of the Kentucky Communications Network Authority.” Pp. 40-42.

⁷ Kathy Robinson, deputy executive director. Finance and Administration Cabinet, Office of Procurement Services. Email to Kyla Satterly. Feb. 22, 2019.

⁸ Kentucky. Office of State Budget Director. “Commonwealth of Kentucky 2014-2016 Executive Budget.” Vol. II. P. 13. Web. Accessed March 29, 2019; Kentucky. Office of State Budget Director. Budget Period 2014–2016. 2014–2016 Budget Of The Commonwealth. Capital Budget—Volume II. n.d. Web. Accessed March 29, 2019. P. 13.

⁹ Lori Flanery, secretary. Finance and Administration Cabinet. Letter to Capital Projects and Bond Oversight Committee. Sept. 1, 2015.

^d The statute specifies that the report must be submitted within 3 days, but CPBOC staff reported that the time frame is seldom, if ever, met.

Chapter 3

Risks And Supervening Events

Risk Allocation Principles

Risks represent the chance that a party to a contract will be unable to fulfill its obligations. With any construction project, the parties attempt to minimize their costs, including costs associated with risks. Parties usually agree to take on risk in exchange for some increase in payment or reduction in cost.

Risks represent the chance that a party to a contract will be unable to fulfill its obligations. With any construction project, the parties attempt to minimize their costs, including costs associated with risks. The contractor wants to make a profit and looks for ways to avoid being responsible for some risks such as delays due to bad weather or increased costs of labor during the project. The purchasing party wants to pay as little as possible but may also want some confidence about the final price and completion date, and tries to shift risks to the contractor. Parties usually agree to take on risk in exchange for some increase in payment or reduction in cost.

Public-private partnerships may be used for complicated construction projects, but while some risks associated with a project are reduced, many of the risks can increase or become more complex. A P3 project is usually designed to transfer more of the risk to the contractor, but in balance all the private sector parties—the contractor, subcontractors, and lenders—must accept the risk in order to complete a P3.¹

The contractor typically retains the risks related to the design, construction, procurement of materials and equipment, and obtaining all construction permitting. The contractor may also retain the risk for cost overruns on construction and costs associated with long-term operations and maintenance. The government customarily retains the risks of acquiring land and rights-of-way, force majeure, initial planning, regulatory, and long lead time permits.^{a 2}

Availability Payments And Demand Risk

Concession P3s have two basic options for repaying the financing: user fees or availability payments. Revenue forecasts for P3s have historically been overly optimistic and resulted in the failure of some user-fee P3s.

In a concession P3 such as KentuckyWired, the private partner typically designs, finances, builds, operates, and maintains the infrastructure. There are two basic options for repaying the financing. The private partner may be compensated through user

^a From Schedule 1 of the KentuckyWired project agreement, force majeure events include “war, civil war, armed conflict or terrorism; nuclear, radioactive, chemical, biological contamination”

fees or availability payments. Historically, the private partner received user fees such as tolls or rents from operating the completed project. While there is potential for a lucrative return for investors if project revenues exceed forecasts, revenue forecasts for P3s have historically been overly optimistic and resulted in the failure of some toll road P3s.³

Availability payments made by the state to the private party cover all expected costs of the project and normally begin when construction is complete. The state is responsible for finding the funds to cover these payments.

In the past several years, availability payment models have become more frequent. With availability payments, the government agrees to make direct payments to the private partner that are calculated to cover the costs of construction, debt service, and operation, and the state makes the availability payments using the revenue that it has—general funds, user fees, or rents. Availability payments are so named because they generally do not become due until the infrastructure asset is available for use and meets the performance standards specified in the contract. KentuckyWired was financed using availability payments.

The selection of a payment mechanism is crucial because it assigns demand risk, or the risk that the infrastructure will not generate enough revenue to pay for itself. Lenders prefer investing in P3s with availability payments.

The selection of a payment mechanism is crucial because it assigns demand risk, which is the risk that the infrastructure will not generate enough revenue to pay for itself. Lenders prefer investing in P3s with availability payments because their returns depend mostly on revenues paid by the creditworthy government partner. Lenders are likely to be paid back as long as the private partner is able to operate and maintain the asset using its portion of the availability payments without defaulting. Unlike user-fee based P3s, which are exposed to cash flow shortages as a result of faulty projections or fluctuations in the economy, availability-based P3s are relatively predictable and, thus, have a lower default rate. This can result in a lower cost of borrowing, but the government must make the payments regardless of its income from the infrastructure.⁴

Macquarie took the risk that the state would make availability payments that would cover all costs of construction and operation. The state took the risk that existing spending would increase and cover those payments.

With an availability-payment P3, Macquarie took risk by assuming that the payments from the state would cover all costs of construction and operation of KentuckyWired. The state took risk by assuming that the availability payments would be covered by the amount state agencies were paying and will pay for broadband access and that the market value of those services would go up as expected.

Supervening Events

The legal doctrine of impracticability may allow a contractor to be excused from its contractual obligations if unforeseen events occur that are not the contractor's fault. Contracts include supervening

event (SE) clauses to prevent this by specifying additional time, payment, or penalties for a list of pre-determined circumstances that might otherwise excuse a party's failure to perform.⁵

The government usually accepts the risks for many supervening events (SE) of a P3 project.

The government usually accepts the risks for many SEs of a P3 project. The government takes responsibility because it has some control over the event or it has the resources to manage the event. The allocation of risks may vary from project to project.⁶

KentuckyWired Risk Allocation

The construction schedule was tight, and many matters were undecided when the contract was awarded. The state seems to have accepted additional risk during negotiations in order to obtain a lower fixed price, but this led to significant additional costs from SE claims.

The schedule agreed at financial close was 35 months from that point, which rating agencies considered achievable with some concerns about delays related to permits.⁷ This was shorter than the 37 months that Columbia recommended but considered aggressive.⁸ However, it was much longer than the time frame specified in the RFP, which was 21 months after the RFP was issued and 15 months after the contract award. Both RFP respondents indicated that the requested time frame was too short.

At the time the contract was awarded, many matters remained to be decided, including the construction schedule, how much of the fiber would be on poles versus underground, obtaining rights-of-way and easements, pole access and preparation, network technical performance standards, the exact route and mileage of fiber, the exact number and location of nodes, and many other areas of risk.

This section describes the largest contributors to KentuckyWired cost increases: pole attachments, highway rights-of-way, and easements. The KentuckyWired RFP stated, "Access to right of way, easements, conduit access, pole attachments and regulatory compliance shall be the responsibility of the vendor."⁹ Macquarie instead proposed to negotiate some of these provisions, and the state agreed. During the negotiations, the state seems to have accepted additional risks in order to obtain a lower fixed price, but this resulted in significant additional costs from SE claims.¹⁰

The KentuckyWired contract's SE clause identified more than 50 events that could potentially trigger a claim for relief from the state.

The KentuckyWired contract's SE clause addressed both the risks allocated to the state and the risks shared, by assignment, with Design-Builder and Service Provider. The clause divided them into five categories.¹¹ The shared risks fell into two categories: Force majeure and eligible change in law, which cover extreme events such as war and biological contamination.¹² The other three groups were risks belonging only to the state: compensation, excusing, and relief.¹³ These covered a broad range of circumstances

including permit delays, hurricanes, discovery of hazardous substances, strikes, and cyber-attacks.¹⁴ Together, the contract identified more than 50 events that, upon occurrence, potentially entitled the contractor to file a claim for compensation or schedule relief from the state.¹⁵

Pole Attachments

A new provider must contact the owner of each utility pole it intends to use and negotiate a pole attachment agreement. This agreement sets the rates for attaching to the pole and any additional costs.

A telecommunications company that wants to use another utility's poles for its wires or cables must go through a complex process. The new provider must contact the owner of each utility pole it intends to use and negotiate a pole attachment agreement. This agreement sets the rates for attaching to the pole and any additional costs. Then the pole owner must determine what changes might be needed in order to make the new attachments, after which all affected existing line owners, perhaps including the pole owner, must move existing lines or make other necessary changes. After all the changes are completed, the new company can attach its wire.¹⁶

The KentuckyWired contracts included two SEs related to pole attachments. One involved obtaining the agreements and the other involved completing the make-ready work prior to attaching the wire.¹⁷

The pole attachment process is time consuming and recognized for its frequent, lengthy delays. Many pole owners expressed concern about getting the poles ready more quickly than usual.

Pole Attachment Delays. In Kentucky, the rules for pole attachments are the responsibility of the Public Service Commission (807 KAR 5:006(22)). However, the commission has not set a time frame for pole attachment applications, so pole owners set their own time frames and rates. These utility companies almost never provide this information to the commission, making it difficult to discover.

Even under ideal circumstances, the entire process can be time consuming and the pole attachment process is recognized for its frequent, lengthy delays.¹⁸ Sometimes, a pole or line owner might delay make-ready work out of competitive motives.¹⁹

Columbia concluded that access to poles would be one of the most significant risk areas associated with the project.²⁰ Stakeholders pointed out make-ready work and pole attachment fees as areas of critical risk.²¹ Columbia suggested that at the beginning of the project, 3 months minimum would be needed for in-depth discussions with pole owners and an additional 6 months should be scheduled for obtaining the pole attachment agreements at each stage of the project.²²

Many pole owners expressed concern to Columbia about performing the make-ready work in a shorter period of time than normal.²³ Columbia was unable to obtain timelines from pole owners because they said they would need specific routes to be able to make these estimates.²⁴ The request for exact routes is a common practice in the industry.²⁵

Macquarie's technical advisor and both Moody's and Fitch ratings agencies noted the potential for delay of the project due to issues with the pole attachments in August 2015.

Macquarie's technical advisor and Moody's, a rating agency, expressed concerns about pole attachments and their possible effect on the project schedule. Moody's especially noted the number of agreements that were on the critical path and might delay project completion.^{b 26} Fitch noted similar concerns but allayed them because the state was responsible for "unreasonable delays."²⁷

The negotiated KentuckyWired contracts defined simple and complex pole attachment agreements. Simple agreements were those that did not require negotiation and only minor changes in the utility's standard contracts. The only obligation of the state was to execute each agreement within 3 days of receipt. Design-Builder became responsible for simple agreements during the construction phase of the project, and Service Company became responsible for maintaining those agreements. All other pole attachment agreements were defined as complex and were the responsibility of the state.²⁸

The definition of simple and complex pole attachment agreements opened the state to additional risk because it allowed Design-Builder to shift difficult agreements to the state for resolution.

This definition left the state open to additional risk because anything beyond a minor modification to the pole attachment application was no longer classified as a simple pole attachment agreement. Any delay resulting from the negotiation and acquisition of complex pole attachment agreements entitled Design-Builder to file an SE claim. This was more risk than originally expected.

Several of the pole attachment agreements took a considerable amount of time to negotiate. The most significant challenges were in obtaining agreements with AT&T, Windstream, and the city of Glasgow.

Thousands of poles across all sections of the network were affected by the delays in obtaining the AT&T and Windstream agreements. The state incurred significant costs for delays in construction.

Thousands of poles across all sections of the network were affected by the delays in obtaining the AT&T and Windstream agreements.²⁹ While neither the state nor Design-Builder could control the pole owners' actions, it was the state that incurred significant costs for delays in construction. However, the state had known of this risk as noted above.

^b Critical path is a set of events that have to occur one after the other before the project is complete. Delays in events on the critical path hold up completion.

The Auditor of Public Accounts reported that Design-Builder had informed the state on August 21, 2015, that the state needed to form an entity with status as a competitive local exchange carrier (CLEC) in order to negotiate with AT&T and Windstream.³⁰ An alternative plan to contract with Cincinnati Bell to obtain the agreements fell through. It was not until November 6 that KCNA applied for and received CLEC status and formal negotiations could begin. In the meantime, Design-Builder filed its first SE notices on September 23 and 25, related to the AT&T and Windstream agreements.³¹

Another delay in obtaining pole attachment easements resulted from negotiations with Glasgow, which required an entity to obtain a franchise to be able to gain access the poles.³² Glasgow's standard pole attachment agreement did not work for a state government entity and required significant modifications.³³ The agreement with Glasgow was completed on January 4, 2018.³⁴

Some sections of the network are built by other companies that also faced delays with pole attachment agreements.

Some sections of KentuckyWired are being built by companies outside the Macquarie consortium under separate agreements with the state. In some places, these companies needed pole attachment agreements and faced delays. Bluegrass Network was unable to build the network in Nelson County until April 2018 because the county had to create a telecommunications franchise agreement first, and this required extensive information gathering before the fiscal court finally agreed.³⁵

Despite repeated warnings, the state assumed the risks for pole preparation and incurred more costs and delays from the related SE claims.

Pole Make-Ready Delays. The make-ready process is subject to lengthy delays as noted above. For example, the state expected make-ready work to be completed in 5 to 12 weeks but in some instances was outstanding for more than a year.³⁶ Despite repeated warnings of the high potential for make-ready delays, the state assumed the risks and incurred more costs and delays from the related SE claims.

Easements

Kentucky law does not guarantee that a utility may share its pole access easement with a third party such as KentuckyWired.

An easement is the legal right to enter the land owned by another person. An easement on private property is obtained through negotiation or eminent domain. In order to work on poles that are on private property, the contractor has to obtain or use an easement. The utility pole owner should have an easement allowing it to come onto the property to maintain its poles, but Kentucky law does not guarantee that the utility is allowed to share

its easement with a third party such as KentuckyWired. That would depend on how the easement was written.^c

To obtain the easement through negotiation, the party seeking the easement would contact the landowner. Once they reach an agreement as to the boundary, use, and price of the easement, the easement needs to be recorded at the county clerk's office. In addition to any payment to the landowner, there might be costs for a survey and appraisal.

Eminent domain is a process by which a government takes privately owned property for a public purpose and fairly compensates the property owner. It would apply if the landowner refused to grant an easement at a fair price. The government must first obtain a survey of the property, which can cost approximately \$3,000 in Kentucky.³⁷

Columbia included easements in its list of problem areas related to pole attachments for which the state should prepare.

Columbia included easements in its list of problem areas related to pole attachments for which the state should prepare.³⁸ As the project proceeded, according to testimony to the 2018 Regular Session Budget Free Conference Committee, approximately 20,000 easements were encountered.³⁹ In most cases, landowners made no objection to Design-Builder's accessing the poles on their land. In many cases, negotiation and payment were required, and in a few cases eminent domain was used.

The contract made Design-Builder responsible for obtaining easements and covering all related costs until they exceeded \$200,000 in total. The company filed notice in April 2016 for an ongoing SE related to easements. KCNA argued that related costs would be only the funds paid to landowners in exchange for the easement, but Design-Builder included surveys, legal assistance, and other costs.⁴⁰ The issue followed dispute resolution procedures, and the independent referee ultimately found in favor of KCNA.⁴¹ Nevertheless, this SE remained a point of contention until the settlement agreement in December 2018. The agreement settled the claim of \$24.3 million for \$5 million and implemented a process to expedite acquiring the remaining easements.⁴²

^c 2018 RS SB 223 would have amended KRS Chapter 279 to permit a utility to grant other utilities use of its easements unless specifically denied by the easement itself.

Rights-Of-Way

A key scheduling risk to KentuckyWired was the time to obtain permits to work on highway rights-of-way from the Transportation Cabinet. Columbia recommended additional consultation with the cabinet, but it seems that it was not done.

A right-of-way is a type of easement commonly granted to a government to put a road or highway in place and accommodate work on either side of it on what was otherwise private property. Many of the poles KentuckyWired needed to use were located on highway rights-of-way. KRS 177.106 states that before a person is allowed to intrude on the right-of-way of a state highway or road, a party must obtain an encroachment permit from the Department of Highways in the Transportation Cabinet. A key scheduling risk was the time to obtain permits to work on highway rights-of-way.⁴³

Columbia met with cabinet officials on April 1, 2014, to learn about the permitting process.⁴⁴ Due to the possible impact on construction, Columbia recommended the project team work with and pursue further consultation with the cabinet.⁴⁵ It does not appear that the project team followed this advice, based on the following.

Initially, only 55 state permits were thought to be needed for KentuckyWired.⁴⁶ It is unknown how that number was determined, but it was far lower than the actual number. As of March 2019, state permits totaled nearly 500.⁴⁷

The permitting manual gives no time frames for issuing permits.⁴⁸ The Transportation Cabinet has 12 districts, each of which processes the permit requests for its own territory. The issuance of the permits is left to the discretion of the district offices.⁴⁹ Design-Builder, however, requested all applications be processed through a central location.⁵⁰

The project agreement stated that highway right-of-way permits would be processed within 60 days. Cabinet officials said they would have recommended 120 days.

The project agreement stated that highway right-of-way permits should be processed within 60 days, which was the average of what the district offices told Design-Builder was a normal time for permitting.⁵¹ The 60-day average was then designated as the maximum time. Using an average of typical times guaranteed that the wait for many permits would exceed the time limit. Also, Design-Builder assumed 60 calendar days; the cabinet would have preferred 60 business days. Cabinet officials told Program Review staff that they would have recommended 120 days.⁵² KCNA mentioned that the time frame was chosen in order to meet the aggressive construction schedule for the project.⁵³

There were two memoranda of agreement between FAC and the Transportation Cabinet regarding permits, one in October 2015 and one in October 2016. Neither agreement mentioned the 60-day

time frame. The second agreement streamlined the process by removing some items from the application for permits related to the FAC sections of the network.

Transportation Cabinet officials stated that the central office was unaware that exceeding the contractual time frames resulted in SEs.

Transportation Cabinet officials stated there were complaints about permit turnaround time, but at that time they were not aware that exceeding the 60-day period resulted in SE claims. When they learned about the claims, they requested a weekly prioritized list in order to work more efficiently. This meant that lower priority permits sometimes extended past the 60-day window, still causing supervening events. They stated that often they would return an application to Design-Builder for corrections, and Design-Builder would return it after the 60-day limit had passed, claiming an SE.⁵⁴

Since January 2017, more than 140 SE claims have been filed for delays in acquiring permits.⁵⁵ The cabinet has worked to expedite the process, and permit-related claims have significantly decreased.⁵⁶ The recent settlement agreement also extends all of the permitting time frames, further reducing the chance of such claims in the future.⁵⁷

Early Termination Provisions

The original agreement allowed the state to terminate the project at certain agreed-upon points during negotiations in exchange for reimbursing the vendor an agreed amount. After financial close, the state was committed to much more expense to terminate.

The original agreement allowed the state to terminate the project at certain agreed-upon points during negotiations and reimburse the vendor an agreed amount.⁵⁸ The maximum amounts the state would have paid to terminate the contract at each point through financial close were:⁵⁹

- At guaranteed maximum pricing \$690,000
- At interim milestone \$3,791,000
- After interim and before financial close \$6,812,000
- After financial close More than \$305,175,110

After financial close, the state was committed to much more expensive termination provisions, largely because the bonds would have to be repaid. If there had been doubt about the feasibility or advisability of the project, state officials could have terminated it at a much lower cost before committing to the debt.

- ¹ Ross J. Altman. "Public-Private Partnerships in Construction." Aug. 2012. Web. March 15, 2019. Section VIII.A. N.p.
- ² Chasity H. O'Steen, John R. Jenkins. "Local Government Law Symposium: Article: We Built It, and They Came! Now What? Public-Private Partnerships in the Replacement Era." Stetson Law Review. 2012. Web. March 15, 2019. P. 276; Catherine Deluz. "Construction Risk in Privately-Financed Public Infrastructure (PFI/PPP/P3) Projects." July 29, 2016. Web. Mar. 12, 2019. P.9.
- ³ Moody's. "Public-Private Partnerships: Frequently Asked Questions." Sept. 21, 2015; Aon Infrastructure Solutions. "Payment Mechanism: The First Form Of Risk Transfer In Public-Private Partnerships." Sept. 2014.
- ⁴ Aon Infrastructure Solutions. "Payment Mechanism: The First Form Of Risk Transfer In Public-Private Partnerships." Sept. 2014.
- ⁵ United States. Dept. of Transportation. Federal Highway Administration. Office of Innovative Program Delivery. *Public-Private Partnership Availability Payment Concessions Model Contract Guide*. December 2016. Sect. 8-1.
- ⁶ Kristin E. Schultz. "Public Private Partnerships: Structuring the Revival of Fiscally Distressed Municipalities." New York City: NYU Journal of Law & Business. 2018. Web. March 15, 2019. P. 199; Michael Dew. "Risks flow downhill? Managing risks in P3 projects." Legal Tree Law Corporation. Jun. 21, 2005. Web. Mar. 11, 2019; Ross J. Altman. "Public-Private Partnerships in Construction." Aug. 2012. Web. March 15, 2019.
- ⁷ John Medina. "KentuckyWired Infrastructure Company Inc." Moody's Investor Service. Aug. 19, 2015; Fitch Ratings. "KentuckyWired Infrastructure Company, Inc. Next Generation Kentucky Information Highway Presale Report." Aug. 18, 2015.
- ⁸ Columbia Telecommunications Corporation. *The Next Generation Kentucky Information Highway: Building Fiber Optic Infrastructure*. Kensington, MD. July 2014. Pp. 94-96.
- ⁹ Kentucky. Finance and Administration Cabinet. "Commonwealth of Kentucky Request for Proposal (RFP) for Next Generation Kentucky Information Highway (NG-KIH) Initiative Finance/Concessionaire Partner RFP 758 1500000003 Attachment A." July 11, 2014. P. 30.
- ¹⁰ Kentucky. Kentucky Educational Television. Video of Free Conference Committee on HB 200. March 26, 2018. Testimony of Scott Brinkman, secretary. Executive Cabinet. 00:17:00. Web. Accessed Jan. 14, 2019.
- ¹¹ Kentucky. Finance and Administration Cabinet. "Project Agreement: Next Generation Kentucky Information Highway Project." Sept. 3, 2015. Sect. 8.1. P. 22.
- ¹² Ibid; Kentucky. Finance and Administration Cabinet. "Project Agreement: Next Generation Kentucky Information Highway Project." Sept. 3, 2015. Schedule 1. Pp. 13, 16.
- ¹³ Kentucky. Finance and Administration Cabinet. "Project Agreement: Next Generation Kentucky Information Highway Project." Sept. 3, 2015. Sect. 8.1, P. 22.
- ¹⁴ Kentucky. Finance and Administration Cabinet. "Project Agreement: Next Generation Kentucky Information Highway Project." Sept. 3, 2015. Schedule 1. Pp. 4-8, 13-15, 30-31.
- ¹⁵ Ibid.
- ¹⁶ Next Century Cities. "Next Century Cities' Guide to Pole Attachments." Washington D.C.: Next Century Cities. Feb. 1, 2017. Web. March 5, 2019.
- ¹⁷ Kentucky. Finance and Administration Cabinet. "Project Agreement: Next Generation Kentucky Information Highway Project." Sept. 3, 2015. Schedule 1. Pp. 4-8.
- ¹⁸ Federal Communications Commission. Broadband Development Advisory Committee. Competitive Access to Broadband Infrastructure Working Group Final Report. Nov. 9, 2017. P. 21; Katharine Saunders. Verizon. "One-touch make-ready: Taking the pole position". June 15, 2017.
- ¹⁹ Fiber to the Home (FTTH) Council White Paper "Role of State and Local Governments in Simplifying the Make Ready Process for Pole Attachments." Nov. 2015. P.7; FCC 2011 Pole Attachment Order, Section 60; Next Century Cities. "Next Century Cities' Guide to Pole Attachments." Feb. 1, 2017. Web. Mar. 5, 2019; Jon Brodtkin. "FCC sides with Google Fiber over Comcast with new pro-competition rule." Arstechnica. Aug. 2, 2018. Web. Mar. 6, 2019.
- ²⁰ Joanne S. Hovis, president. CTC Technology & Energy. "Answers to LRC's Questions regarding Kentucky Wired." Letter to Susannah Stitzer. March 5, 2019.
- ²¹ Columbia Telecommunications Corporation. "Next-Generation Kentucky Information Highway." May 22, 2014. Pp. 10-12.
- ²² Joanne S. Hovis, president. CTC Technology & Energy. "Answers to LRC's Questions regarding Kentucky Wired." Letter to Susannah Stitzer. March 5, 2019.

²³ Ibid.

²⁴ Ibid.

²⁵ Ibid.

²⁶ John Medina. “KentuckyWired Infrastructure Company Inc.” Moody’s Investor Service. Aug. 19, 2015. Pp. 12-13.

²⁷ Arup North America Ltd. *Next Generation Kentucky Information Highway Project Technical Due Diligence Report*. Aug. 17, 2015. P. 9.

²⁸ Kentucky. Finance and Administration Cabinet. “Project Agreement Next Generation Kentucky Information Highway.” Sept. 3, 2015. Schedule 1. P. 35.

²⁹ Arup North America LTD. *Next Generation Kentucky Information Highway Project LTA Monthly Progress Report AP 33, Requisition No 098*. July 31, 2018. Pp. 7-8.

³⁰ Kentucky. Auditor of Public Accounts. Mike Harmon. *Examination Of Certain Contracts, Operations, And Activities Of The Kentucky Communications Network Authority*. Sept. 18, 2018. Pp. 61-62.

³¹ Arup North America LTD. *Next Generation Kentucky Information Highway Project LTA Monthly Progress Report AP 33, Requisition No 098*. July 31, 2018. P. 23.

³² Melinda J. Overstreet. “Glasgow, Ky. Nears End of Negotiations to Install Broadband via Kentucky Wired.” Folsom: Government Technology. Jan. 2, 2018. Web. March 11, 2019.

³³ Ibid.

³⁴ Kentucky. Electric Plant Board of the City of Glasgow. “Joint Use Agreement.” Jan. 4, 2018. P. 1.

³⁵ Jim Brooks. “Fiscal Court delays action on telecom franchise for Kentucky Wired.” Cox’s Creek: Nelson County Gazette/ WBRT Radio. Oct. 3, 2017. Web. March 11, 2019; Randy Patrick. “Fiscal Court approves Kentucky Wired project.” Bardstown: The Kentucky Standard. April 17, 2018. Web. March 21, 2019.

³⁶ Phillip K. Brown. Testimony. Meeting of Program Review and Investigations Committee. Frankfort, July 12, 2018; Kentucky. Finance and Administration Cabinet. “Project Agreement Next Generation Kentucky Information Highway.” Sept. 3, 2015. Schedule 1. P.8.

³⁷ Phillip Brown, executive director, et al. Kentucky Communications Network Authority. Interview. Jan. 8, 2019.

³⁸ Columbia Telecommunications Corporation. *The Next Generation Kentucky Information Highway: Building Fiber Optic Infrastructure*. Kensington, MD. July 2014. P. 18.

³⁹ Kentucky. Kentucky Educational Television. Video of Free Conference Committee on HB 200. March 26, 2018. Testimony of Scott Brinkman, secretary. Executive Cabinet. 00:12:10. Web. Accessed Jan. 14, 2019.

⁴⁰ Kentucky. Auditor of Public Accounts. Mike Harmon. *Examination Of Certain Contracts, Operations, And Activities Of The Kentucky Communications Network Authority*. Sept. 18, 2018. P. 66.

⁴¹ Kentucky. Auditor of Public Accounts. Mike Harmon. *Examination Of Certain Contracts, Operations, And Activities Of The Kentucky Communications Network Authority*. Sept. 18, 2018. P. 69.

⁴² Kentucky. Finance and Administration Cabinet. “Settlement and Release Agreement.” December 14, 2018. P. 6.

⁴³ Arup North America Ltd. *Next Generation Kentucky Information Highway Project Technical Due Diligence Report*. Aug. 17, 2015. P. 83.

⁴⁴ Joanne S. Hovis, president. CTC Technology & Energy. “Answers to LRC’s Questions regarding Kentucky Wired.” Letter to Susannah Stitzer. March 5, 2019.

⁴⁵ Ibid; Columbia Telecommunications Corporation. *The Next Generation Kentucky Information Highway: Building Fiber Optic Infrastructure*. Kensington, MD. July 2014. Pp. 20, 89.

⁴⁶ Arup North America Ltd. *Next Generation Kentucky Information Highway Project Technical Due Diligence Report*. Aug. 17, 2015. P. 88.

⁴⁷ Arup North America Ltd. *Next Generation Kentucky Information Highway Project LTA Monthly Progress Report AP 41, Requisition No 116*. March 8, 2019. P. 11.

⁴⁸ Commonwealth of Kentucky Transportation Cabinet. *Permits Guidance Manual*. July 2013. Web. Mar. 11, 2019.

⁴⁹ Ibid. P. 13.

⁵⁰ Kentucky Communications Network Authority. “Kentucky Communications Network Authority’s initial response to the Auditor of Public Account’s Special Examination.” Nov. 26, 2018. P. 6.

⁵¹ Kentucky. Finance and Administration Cabinet. “Project Agreement Next Generation Kentucky Information Highway.” Sept. 3, 2015. Schedule 2. Appendix 2E. P. 1; Mike Harmon. *Examination of Certain Contracts, Operations, and Activities of the Kentucky Communications Network Authority*. Sept. 27, 2018. P. 64.

⁵² Jon Wilcoxson, et al. Kentucky Transportation Cabinet. Interview. July 25, 2019.

⁵³ Phillip Brown et al. Kentucky Communications Network Authority. Interview. Jan. 8, 2019.

⁵⁴ Jon Wilcoxson, et al. Kentucky Transportation Cabinet. Interview. July 25, 2019; Jon Wilcoxson, assistant state highway engineer. Kentucky Transportation Cabinet. Email to Samantha Davis, copied to Van Knowles. Nov. 15, 2015.

⁵⁵ Arup North America LTD. *Next Generation Kentucky Information Highway Project LTA Monthly Progress Report AP 33, Requisition No 098*. July 31, 2018. Pp. 23-26.

⁵⁶ Phillip K. Brown, et al. Kentucky Communications Network Authority. Interview. January 8, 2019.

⁵⁷ Kentucky. Finance and Administration Cabinet. "Amended and Restated Project Agreement: Next Generation Kentucky Information Highway Project." February 28, 2019. Schedule 2, Appendix 2D.

⁵⁸ Kentucky. Finance and Administration Cabinet. "Master Agreement for Next Generation Kentucky Information Highway (NG-KIH) Initiative Concessionaire Partner." Pp. 16-17.

⁵⁹ Kentucky. Finance and Administration Cabinet. "Amended and Restated Master Agreement: Next Generation Kentucky Information Highway (NG-KIH) Initiative Concessionaire Partner." Sept. 2, 2015. Attachment C, pp. 36-38; Kentucky. Kentucky Economic Development Financing Authority. "KEDFA Bond Information Report (Final)." [This was attached to a letter incorrectly dated Aug. 7 that was actually sent Oct. 7, 2014.]

Chapter 4

Financial Structure

Debt service and operational costs for the KentuckyWired project are included in the availability payments. The state's availability payment obligations are expected to be somewhere between \$1.15 and \$1.21 billion over the contract term.

Construction of KentuckyWired is funded primarily with a mixture of tax-exempt and taxable revenue bonds, private equity, state bonds, a federally-funded milestone payment, and a portion of the availability payments received prior to system completion. Ongoing operational cost for the network is included with debt repayment (debt service) in the availability payments.¹

The portion of the availability payments committed to debt service increases annually at a fixed rate. The rest of the availability payment increases based on factors that may vary annually, so calculating the state's exact obligation is impossible.² Various models have projected the state's total of availability payments as \$1.15 to \$1.21 billion over the contract term.³ Numbers in this report are usually calculated through September 2045, the end of the term, and are adjusted as needed to account for actual delays in the project. Recent changes such as the SE settlement and CRD agreement are mentioned.

Financing Overview

The original plan was to use state agency spending on internet service to pay for the project, but there were not enough funds unless the parties assumed that spending would increase.

The original plan was to divert what state agencies were spending on internet service in order to pay for the project. This included executive branch agencies, the courts, KDE's K-12 network, and higher education.⁴ This amount served as a cap on planning the budget for KentuckyWired.⁵

State spending at the time was not enough to pay debt service on what KentuckyWired would need to borrow for construction plus the network's operating costs, spread evenly for 30 years. It was necessary to structure the financing so the debt service payments would start out smaller and grow over time. The parties then assumed that state spending would increase some amount each year so that the spending would always cover the payments.⁶

Spending had to match payments and cover all the costs. An increase of 2.5 percent achieved the match, but it was questionable to assume agency appropriations for internet service would go up that much.

The payments and spending had to match over the 30-year period, and a 2.5 percent increase for each year made it work. This percentage increase was used for almost all cost and income projections for the project. The model works only as long as the combination of market price for broadband services and the demand of state agencies for higher broadband speeds and new services increases at least 2.5 percent per year. This assumption is questionable.

The model also assumes that without KentuckyWired, the General Assembly **would have budgeted** such an increase instead of asking agencies to get by with stable or marginally increased budgets. The promise to make availability payments that increase over time commits the General Assembly to appropriating those funds or finding some other source of repayment. This assumption is also questionable.

Most of the payment amount is committed to debt service and must go up by 2.5 percent per year. The remainder is subject to limited adjustments.

More than 60 percent of the availability payments is committed to pay back the bonds and invested equity. This portion must go up by 2.5 percent per year. The rest includes some of the costs of operating and maintaining the system and allows limited routine adjustments that might increase or decrease the payments, such as changes in utility pole attachment fees.⁷

The SE settlement is likely to increase total availability payments by approximately \$15 million. This report uses this total for all related numbers.

Program Review staff estimate that the 2018 SE settlement will increase the total availability payments by approximately \$15 million, assuming the same 2.5 percent per year increase used in the other models and subject to the same uncertainty. The availability payment amounts shown in this report are based on this estimate.

There are extra expenses and shortfalls to consider toward the total cost of the project.

The project agreement provides the option of increasing availability payments during certain years in order to replace obsolete network equipment (system refresh).⁸ This is a significant extra cost that redirected state spending could not cover, so this report treats it as an additional cost. Several other additional costs will have to be paid. The largest is the settlement for SEs that, with repayment of debt, will be more than \$200 million.⁹

There are also shortfalls in the state agency broadband spending that was intended to be used for the network. The largest shortfall comes from the inability of KDE to use KentuckyWired for its statewide K-12 network. This is related to a federal rebate program called E-rate that is explained below. Another shortfall occurred because SEs caused delays that were the state's responsibility. The network was not available as scheduled, so no agencies were contributing funds, but the availability payments still had to be paid.

Table 4.1 lists many of the expenses associated with the construction and operation of KentuckyWired, but it is not complete. The numbers are adjusted to include only the costs from 2015 through September 2045, except for the settlement bonds that extend to 2050. The second system refresh has been increased by 2.5 percent per year because the financial and wholesale models

assumed that rate of increase for other items. The costs of several items are not known well enough to estimate.

Table 4.1
Estimated Expenses Of KentuckyWired
Through September 2045
(In Millions Of Dollars)

Expenses	Estimated Cost	% Of Total
Availability payments*	\$1,207.7	72.43%
KCNA operating expenses**	108.1	6.48
Settlement bonds***	201.4	12.08
System refreshes†	96.6	5.79
Milestone payment	23.5	1.41
Repay state bond principal	30.0	1.80
Total of known amounts	\$1,667.3	100.00%
Repay state bond interest	Unknown	
CRD Rent up to \$50	Unknown net cost	
Purchase value of CRD section	Unknown	
Construction by other companies	Up to \$47	
Hut maintenance	Unknown	
Future supervening events	Unknown	

Note: Percentages shown do not add to 100.00 because of rounding.

*Based on the revised schedule from the settlement.

**Based on current personnel expense increasing 0.5 percent per year.

***Repayment total through 2050.

†Second refresh increased 2.5 percent per year over the first refresh.

Source: Program Review staff analysis of KentuckyWired financial model, wholesale model, and contracts.

This report is based on a spending model from 2015 that closely matched the availability payments. The K-12 portion was 43 percent. The model has been adjusted to account for the loss of K-12 funding and delays in construction.

Program Review staff examined several models of state agency spending from 2015 and selected the one developed near financial close that showed how agency spending and some savings could match the availability payment model. In the selected model, the K-12 contribution was partly direct spending and partly savings on future internet costs. K-12 spending and savings together accounted for 43.4 percent of all agency contributions.¹⁰

In this report, agency spending estimates are based on the selected model shifted to begin in FY 2020 rather than FY 2016 to reflect actual delays, less 43.4 percent to adjust for the loss of the K-12 contribution, and increased 2.5 percent annually to match the availability payment model.

Wholesale marketing of extra fiber was proposed as a way to cover shortfalls. The projected revenues are questionable. This report conservatively uses half the original projection and adjusts the amount to account for delays.

Another part of the plan is wholesale leasing of fiber to other interested parties. The wholesale business projections suggested a large additional income that could be used to cover any shortfalls in state agency spending. These expectations are questionable, so this revenue might not cover all the outstanding costs.

A KCNA official stated that half the projected wholesale revenue would be a more conservative expectation, so wholesale projections in this report are presented as half the original estimate.¹¹ Additionally, they are adjusted to begin in FY 2022 instead of FY 2018 to reflect actual delays and stop at September 2045 to match expenses and other income. For these reasons, the wholesale total will not match previous reports.

There is a likely shortfall of almost 38 percent of costs, but all projections in this report are speculative and incomplete.

Table 4.2 shows the estimated sources of funds through September 2045 and compares them with expenses. This model shows a significant shortfall of almost 38 percent of costs. As explained earlier, these numbers are **speculative** and should be treated as educated guesses. In addition, the table does not include some funds—such as interest earned on investment of bond proceeds, debt service reserves, availability payment surpluses, and other sources—that were used to cover previous expenses.

Table 4.2
Estimated Sources Of KentuckyWired Funds
Compared With Costs Through September 2045
(In Millions Of Dollars)

KCNA Income	Amount
Estimated state agency spending*	\$643.4
Wholesale revenue	341.2
Construction proceeds from settlement	17.0
Reduced construction cost (settlement)	24.4
Total	\$1,026.0
Less estimated costs	1,667.3
Deficit	(\$641.3)
Federal grants of \$43.6**	Unknown net value

Note: Estimated income values are not reliable but are presented simply for comparison with expenses that were calculated using similar assumptions.

*Agency spending numbers are based on assumed income of all connecting sites as of financial close, less 43.4 percent to account for loss of K-12 values, shifted to begin in FY 2020, and increasing 2.5 percent annually.

**Federal grants might be partially offset, so they are not included in the total.

Source: Program Review staff analysis of KentuckyWired financial model, wholesale model, KCNA spreadsheet, settlement statement, and contracts.

Early Development Phase

Kentucky Wired was introduced as a P3 with a proposed cost of \$100 million. A P3 should allow the state to pay for the network with existing funds. Additionally, a P3 would allow the state to benefit from private expertise and funding.

The KentuckyWired project was introduced in the Governor's 2014-2016 Executive Budget Recommendation as a public-private partnership among the state, federal, and local governments and the private sector. The proposed cost was \$100 million.¹² The project was authorized for \$70 million in the 2014 budget bill with \$30 million in state bond debt and \$20 million each from federal and other/private funds (2014 RS HB 235).¹³

The state elected to use a P3 model for the KentuckyWired project rather than a traditional procurement model because a P3 should allow the state to

- benefit from private expertise;
- access private funding;
- use existing funds to pay for the network;
- transfer construction, schedule, and performance risks to the private partner;
- complete the project without deferring other state projects; and
- seek revenue production and sharing with the private sector partner.¹⁴

The Columbia in July 2014 estimated that construction would cost \$410 million. Columbia recommended a concession P3 in which a private partner assumes the design, build, finance, and operations and maintenance functions.

The Columbia report released in July 2014 estimated construction of KentuckyWired would cost approximately \$410 million, far exceeding the \$100 million cost estimate that was still being used by project officials as late as August 2014.¹⁵ Columbia recommended that the state use a concession P3 model in which a private partner, or concessionaire, takes on all design, build, finance, operations, and maintenance functions over an extended term.¹⁶ The state issued an RFP for the procurement of a private partner to finance, design, construct, operate, and maintain the network on July 11, 2014.¹⁷

Financial Aspects Of Macquarie Proposal

Macquarie emphasized that the project structure would dictate financing. Macquarie recommended an availability payment model in order to lower the perceived risk of the project and decrease financing costs.

Macquarie's financing strategy was consistent throughout the procurement phase and emphasized that the project's financing would be dictated by the project structure, particularly the payment mechanism.¹⁸ Macquarie noted that no P3 had been used to build and operate broadband infrastructure.¹⁹ This meant that the perceived safety of the project's bonds—resulting in lower interest rates—would be improved by lowering the perceived risk. To minimize risk, Macquarie recommended a P3 with an availability payment model as described in Chapter 3 of this report.²⁰

Private Non-Recourse Debt

Macquarie proposed a financing strategy of using private, non-recourse debt that was not taxpayer-supported.²¹ Non-recourse debt means that if the bonds are not repaid, the lenders may seize only the collateral, which in the case of KentuckyWired is availability payments. This differs from recourse debt where the borrower(s) are personally liable for debt.²² Non-recourse debt in this case only refers to the borrower, Project Company, whose members would not be held liable in the event of a default.

Macquarie proposed private non-recourse debt, saying taxpayers would not be liable for the debt. However, the state is obligated to appropriate funds for the availability payments to pay the debt service.

However, calling the debt non-recourse is a legal fiction. Although the lenders have no right to sue the state directly for the availability payments, the state has a contractual obligation to make availability payments as Project Company's revenues, and those payments are taxpayer supported. Furthermore, the state has a practical obligation to ensure that the bonds are repaid. Failing to cover bond payments would cause rating agencies to reduce the state's credit rating and make it much more expensive for the state to borrow for any purpose in the future.²³

Negotiation Of Financing

During negotiations in 2015, Macquarie proposed a plan to include all project costs in the availability payments. The repayment term was extended from 20 to 30 years in order to decrease the monthly cost. Other methods were used to lower the cost.

The state entered into a master agreement with Macquarie Infrastructure Developments on December 22, 2014. The purpose was "to engage Contractor to explore the feasibility of the finance, design, construction, operation, maintenance, and refreshing of the [KentuckyWired] initiative."²⁴ Negotiations between the state and the Macquarie-led consortium progressed through August 2015.²⁵

With Macquarie's plan, debt service and all other project costs would be included in the availability payments. Macquarie recommended extending repayment from 20 to 30 years in order to decrease the monthly availability payments, and the parties eventually negotiated the plan to increase payments by 2.5 percent per year.²⁶

The RFP had mentioned a possible milestone payment that the state would contribute after progress had reached a certain point.²⁷ Macquarie noted that a milestone payment would reduce the availability payments because it would decrease the amount of borrowing.²⁸ A milestone payment of \$23.5 million, funded with federal grants, was included in the final agreement.²⁹

To further lower private borrowing, the state contributed \$30 million in state bond funds that still have to be repaid with interest.³⁰ The state also accepted certain risks, as described in Chapter 3, in order to reduce the contract price and the amount of financing, but they were effectively offset by the cost of SE claims.

Tax-Exempt Financing

A mix of tax-exempt and taxable financing was used to lower costs. Project Company was formed as a nonprofit for the sole purpose of financing the project. Regardless of the borrower, the state would have to make availability payments to repay the debt.

In order to lower costs, tax-exempt financing could take advantage of lower interest rates.³¹ On May 22, 2015, the FAC secretary sent KEDFA board members a letter requesting \$400 million in bonds to finance the construction of the KentuckyWired network. The letter estimated construction costs of \$350 million to \$450 million and requested the majority of the issuance to be in the form of tax-exempt bonds, up to 75 percent of the total debt. A nonprofit corporation would have to be formed that would be legally distinct from the state and would be assigned to implement the project. All development responsibility other than financing would be assigned to the Macquarie-led consortium. The letter stated that availability payments funded by existing internet costs was “one main option.”³²

KentuckyWired Infrastructure Company (Project Company) was formed on June 24, 2015, as a nonprofit (501(c)(4)) for the benefit of the state solely to finance the KentuckyWired project.³³ The next day, KEDFA approved issuance of the bonds not to exceed \$375 million to Project Company.³⁴ The only purpose Project Company served was to provide tax-exempt status to the bonds. Note that the state would have remained responsible for availability payments and in turn responsible for repaying the debt, taxable or tax-exempt, whether Project Company, Operations Company, or any other entity had acted as borrower.³⁵

Some of the bonds had to be taxable because a portion of the project revenues were expected to come from private use through wholesale revenues. The status of the tax-exempt bonds depends on the amount of public money spent on paying the debt service.³⁶

The difference between interest rates on taxable and tax-exempt bonds can result in significant savings. For example, at the time KEDFA submitted its bond request, the anticipated interest rates were 5.41 percent for the taxable bonds and 4.41 percent for the tax-exempt bonds.³⁷

Bond Issuance And Financial Close

Bond proceeds totaled \$313.5 million, with \$240.3 million being regular tax-exempt and \$15 million being subordinate tax-exempt. The remaining \$58 million was taxable.

Financial close occurred on September 3, 2015. The bonds were issued in several series as shown in Table 4.3. All of the 2015A and a portion of the 2015B bonds were released for use at that time. The Series 2015C (subordinate) bonds were not scheduled to be drawn upon until 2018. Of the nearly \$260 million in bond funds distributed at financial close, \$61.4 million was immediately withdrawn and distributed for construction mobilization and payment of project development costs. The remainder was to be disbursed as needed to cover construction costs.³⁸

Table 4.3
Bond Proceeds And Amounts Released
(In Millions Of Dollars)

Bonds	Total Net Proceeds	Distributed At Close
Series 2015A Tax-Exempt Bonds*	\$238.81	\$238.81
Series 2015B1 Taxable Bonds**	57.36	19.37
2015C Tax-Exempt (Subordinate)	15.23	
Total	\$311.40	\$258.18

*Includes any bond premiums, discounts, fees, and expenses related to issuance.

**Taxable bond series 2015B1 and 2015B2 were reported together. Includes any bond premiums, discounts, and expenses related to issuance.

Sources: Kentucky. Kentucky Economic Development Finance Authority. *Official Statement*. Sept. 1, 2015.; Katie Smith, executive director. Cabinet for Economic Development. Office of Financial Services. Letter to co-chairs of the Interim Joint Committee on Appropriations and Revenue. Oct. 7, 2015.

Direct Equity Investment

Private partners typically invest 8 to 10 percent of their own funds, called equity, which is the last debt to be repaid. In exchange for this risk, investors require a larger return. The project equity was \$6.5 million with an expected total return of \$120 million. Even with the subordinate bonds, the equity contribution was lower than a typical P3, reducing the overall project cost. The return was typical of similar P3 projects.

In an availability-payment P3, private partners usually invest their own funds, called equity, of approximately 8 to 10 percent of the total project cost.³⁹ Their investment is the last to be paid if the project has financial problems. Lenders are more likely to purchase bonds if the private partner risks its equity on the success of the project. However, in exchange for the uncertainty of being paid last, equity investors often require a larger return.⁴⁰

For KentuckyWired, the consortium contributed just over 2 percent direct equity, but Moody's considered the subordinate debt, purchased by the consortium, to be a type of equity contribution, bringing the total equity to 7 percent.⁴¹ This amount is lower than a typical P3, but when a project is supported by state appropriations through availability payments, the risk to the lenders is lower, and not as much equity is required.⁴² Because equity requires a high rate of return, a lower equity investment benefitted the state.

The members of Holding Company pledged equity of \$6.5 million.^{a 43} Operations Company will use the funds for construction and other costs prior to system completion.⁴⁴ Over the course of the project, the return on the equity investment will be paid to Holding Company through Operations Company from a portion of the availability payments.⁴⁵ The return, which occurs only after operations and maintenance costs and other debt service are covered, will exceed \$120 million over the course of the project.⁴⁶ The subordinate debt will also be repaid through availability payments after other expenses.⁴⁷

The internal rate of return is another measure of investment quality. The return is 12 percent on the combined KentuckyWired equity investment.⁴⁸ Table 4.4 shows that the return for KentuckyWired is within the range of other P3s. Only one of the five availability-payment-based P3s had a return of less than 11 percent.⁴⁹

Table 4.4
Comparative Internal Rates Of Return Of P3 Projects

Project	P3 Type		Targeted Return
	Availability Payment	Toll	
Ohio River Bridges East End Crossing (Louisville)	●		7.00%
Port of Miami Tunnel (Florida)	●		11.33
I-595 (Florida)	●		11.50
KentuckyWired	●		12.00
Midtown Tunnel (Virginia)		●	12.00
State Hwy 130 Segment V-VI (Texas)		●	12.00
I-95 High Occupancy Toll Lanes (Virginia)		●	12.50
North Tarrant Express (Texas)		●	12.58
I-495 High Occupancy Toll Lanes (Virginia)		●	13.00
Presidio Parkway (California)	●		16.00
LBJ-635 Corridor (Texas)		●	17.60

Sources: United States. Federal Highway Administration. *Guidebook On Financing Of Highway Public-Private Partnership Projects*. Dec. 2016. P. 3-14; Program Review staff calculation of KentuckyWired internal rate of return.

^a The capital contribution agreement among Operations Company, Holding Company, its members, and the collateral agent detailed the capital contribution requirements of each member.

Availability Payments And Adjustments

Availability payments were to begin as network sites were connected during construction. Payments after construction would consist of the contractual availability payment less any performance-related deductions.

As noted above, the state determined its budget for availability payments based on the amount spent at the time by state agencies and higher education for broadband services.⁵⁰ The availability payments were to begin as customer sites were connected to the network during the construction period. The amounts at that time would be calculated based on the relative network utilization of the sites using the network each month. Following construction, the monthly payment would consist of the contractual availability payment less any performance-related deductions.⁵¹

Breakdown Of State Agency Spending

The agency spending model assumed \$2.39 million per month including some savings.

Schedule 8 of the project agreement gives the baseline monthly availability payment as \$2.38 million.⁵² The redirected net spending from sites connecting to the network, based on the model used in this report, was expected to be approximately \$2.39 million each month, slightly more than the agreed availability payment.⁵³ Table 4.5 details the amounts expected at that time.

Table 4.5
Projected KentuckyWired Monthly Customer Spending
September 3, 2015

Source	Monthly Spending (In Millions)	% Of Total
K-12 spending and savings*	\$1.04	43.44%
State agencies	0.72	30.17
Universities/KCTCS	0.39	16.29
Judicial branch	0.16	6.89
Bulk internet savings*	0.05	2.05
Other savings	0.03	1.15
Total	\$2.39	100.00%

Note: Percentages shown do not add to 100.00 because of rounding.

*Bulk internet savings attributed to KDE were added to the K-12 line and removed from the bulk internet savings line.

Source: Program Review staff analysis of spreadsheet from Office of State Budget Director staff.

Additional Savings And Other Funds

Some savings have come from the settlement and additional federal grants.

The settlement resulted in a reduction in construction costs of \$24.4 million that should be applicable to other costs. The settlement also reduced the state's bond obligation for equipment purchases by \$2.7 million, allowing that amount of bonds to be left unsold or applied to other costs.⁵⁴

An increase of \$20.1 million in federal grant funding was provided through the 2019 CRD agreement. This funding should be available to cover any KentuckyWired expenses allowed by the grant provisions.⁵⁵

Funding Shortfalls

Availability payments will exceed state agency spending, and there are further expenses not included in the availability payments.

There are several funding shortfalls in two broad categories: availability payments exceeding state agency network spending and expenses not covered by availability payments. Wholesale revenues have been cited from the beginning as reducing and perhaps eliminating shortfalls. However, it is impossible to predict wholesale revenues and, depending on the amount, the state might share wholesale revenues with CRD, leaving less to cover shortfalls.

Shortfalls In Meeting Availability Payments

The K-12 educational network receives a federal rebate from the E-rate program. State officials mistakenly assumed that the K-12 network could receive the rebate with KentuckyWired. In the end, 43.4 percent of expected agency funding was unavailable.

K-12 Spending And E-rate. KDE pays for and oversees an educational network that connects every K-12 school district to the internet using optical fiber. AT&T furnishes the service through the existing KIH3 contract with the state. KDE officials stated that each district has made its own arrangements to obtain optical fiber connections from the district office to each school. The result is that every school had a fiber connection to the internet by 2015.⁵⁶

The Federal Communications Commission (FCC) provides a rebate program for schools and libraries called "E-rate." It provides schools with rebates of up to 90 percent, depending on the percentage of students receiving subsidized lunches. An FCC contractor, the Universal Service Administrative Company, administers the E-rate program. In FY 2016, the state, through KDE, paid approximately \$13 million for broadband services to the school districts and received approximately \$11 million, a rebate of 85 percent.

KDE uses the rebate for a matching technology grant program to school districts. Districts combine the state grants with their own funds and are able to purchase technology equipment and services, some of which are eligible for another E-rate rebate at the district level. This flow of funds, which depends on maintaining E-rate eligibility, represents a large federal contribution to Kentucky's K-12 technology spending.

Federal rules for eligibility require that the services be procured by a competitive solicitation in which cost is the primary factor. There was never a guarantee that KentuckyWired would win such a solicitation, so the availability of K-12 network spending should have been in question from the beginning.

As early as January 2014, KDE officials began to discuss E-rate issues with KentuckyWired project leaders. Program Review staff saw numerous emails from KDE to KentuckyWired leaders sent in 2014 to 2015 about the requirements for the E-rate program. In July 2014, the state's consultant, Columbia, also described options for KentuckyWired to provide services to the K-12 schools.

The KentuckyWired RFP was worded so that it sounded as if the resulting award would be E-rate eligible. However, the contract was not eligible. KDE provided an email from the Universal Service Administrative Company confirming this, citing the following deficiencies.

- The required federal Form 470 was not filed prior to the award of the contract.
- The RFP did not include a schedule of E-rate services to show that cost was the primary factor in evaluating bids.
- The chosen vendor was not an eligible E-rate provider and had no service provider identification number.⁵⁷

There were questions about whether a state agency could bid for the K-12 broadband services and be E-rate eligible. One of the reasons that KCNA was created in the Office of the Governor was to distance it from FAC, which would oversee any K-12 procurement.⁵⁸ To the extent that this separation assured fairness in bidding, a similar situation in Iowa established that a state agency could qualify as a carrier and provide services eligible for E-rate. This was the outcome of several appeals within FCC and the courts, culminating in *United States Telecom Association v. FCC*.

In 2015, after determining that the KentuckyWired contract was not eligible for E-rate, FAC leadership decided to issue an RFP to replace the KIH3 contract, even though KIH3 was scheduled to run

until February 20, 2019.^b Commonly called KIH4, this RFP was intended to result in an E-rate-eligible contract. It was issued on October 12, 2015. KCNA was in the process of preparing a proposal for submission when AT&T, the existing provider, filed a protest. FAC eventually canceled the solicitation on November 30 without providing a reason.

The significant result of not serving the K-12 network is that existing state agency broadband spending will not meet KentuckyWired's availability payment obligations. As shown earlier, the shortfall in the financial model is over 43 percent.

KDE officials have stated that they would consider a bid from KCNA on a future RFP for K-12 broadband services, as long as KentuckyWired was operational and had demonstrated adequate reliability. However, KCNA officials said that they do not plan to bid on any future K-12 RFP, deferring that responsibility to OpenFiber, the wholesaler. KCNA officials also said that in the absence of a direct bid, OpenFiber could explore leasing fiber infrastructure to other entities that might want to bid for the K-12 service.

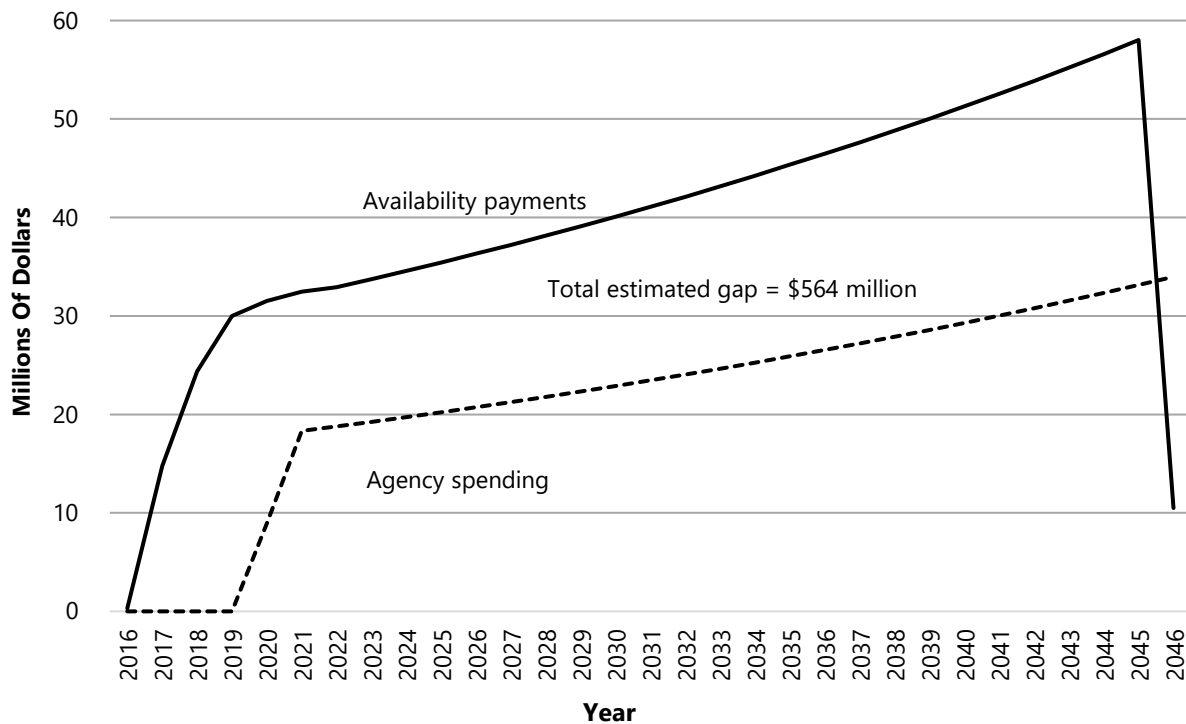
Because OpenFiber would keep a share of revenues, such a plan would necessarily bring in less money than a contract between KCNA and KDE. In any case, another vendor might have a better proposal and win the contract, leaving the state with no K-12 spending to apply toward KentuckyWired.

The total shortfall related to K-12 is projected to be \$564 million.

Figure 4.A shows that without K-12, the anticipated spending from the remaining agencies would be far below the amount needed for availability payments. The total deficit is projected to be approximately \$564 million. This assumes that K-12 revenues would have made up 43.4 percent of anticipated agency spending.

^b This was the original termination date. In May 2017 and June 2018, FAC exercised four optional 1-year renewals to extend the contract to 2023.

Figure 4.A
Gap In Availability Payments Without K-12 Revenue Assuming
2.5 Percent Annual Increase In KentuckyWired Customer Spending
(In Millions Of Dollars)



Note: Availability payments are based on the revised schedule from the settlement.

Sources: Program Review staff analysis of amended project agreement, KCNA spreadsheet, and financial model.

The financial model was based on an expected increase in spending of 2.5 percent per year. This assumption is questionable based on trends in broadband prices, even with increased agency demand, given realities of the state budget.

Market Price Projections. As discussed earlier, the entire financial model depends on spending by KentuckyWired customers increasing by 2.5 percent per year for 30 years. Because state officials said the private financing would be covered entirely by existing state agency and higher education spending on broadband, the market price of broadband plus increased customer demand would have to increase enough to cover that spending. In other words, the KentuckyWired customers should not have to spend more than they would on the open market for the same services.

As applied to debt service payments, 2.5 percent was close to the historical Consumer Price Index, commonly used for inflation adjustments. The index increased 2.3 percent per year from 1995 to 2015. That part of the increase was consistent with previous inflation, but it did not take into account the fact that the funds to pay the debt also had to increase at that rate.

The operations and maintenance component makes up nearly 40 percent of the availability payment with a portion adjusted by the Labor Inflation Index and a portion adjusted by the Materials Inflation Index.⁵⁹ In recent years, these indexes have been close to 2.5 percent. As with the financing, assuming this rate will continue does not take into account that funding has to increase as well. The operations and maintenance component, unlike the debt service, is subject to periodic review and adjustment up or down, depending on actual costs. However, the underlying labor and material costs are more likely to go up than are broadband market prices.

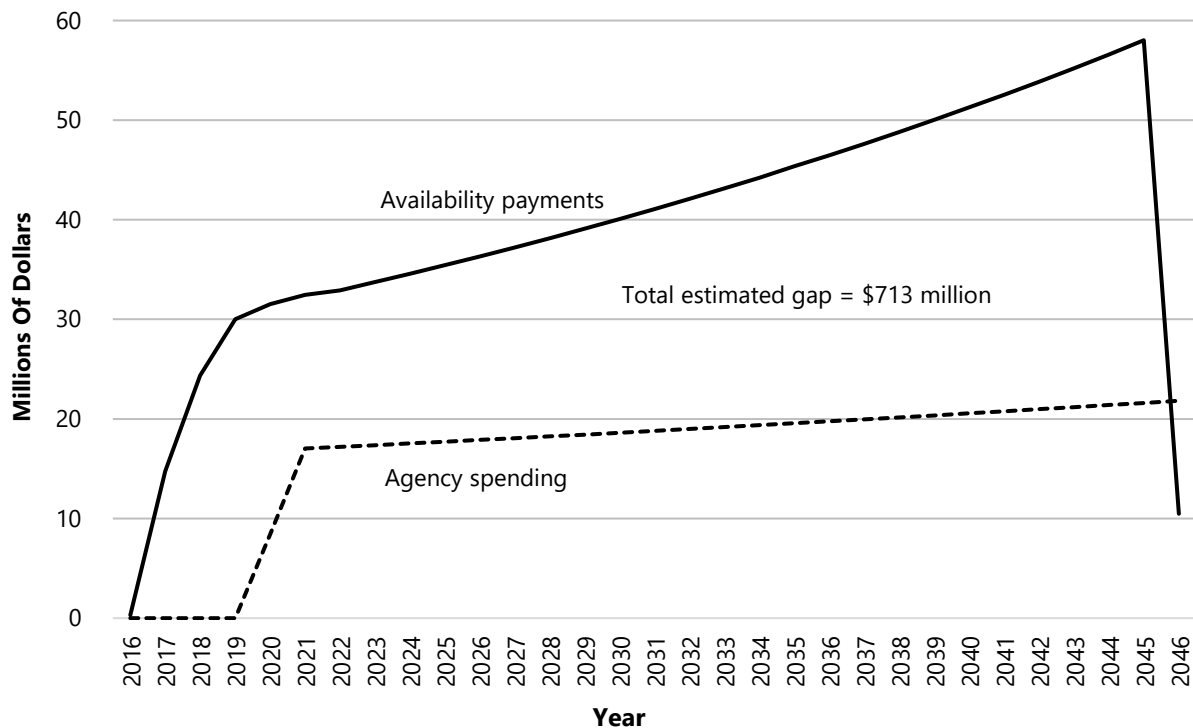
Macquarie and the state assumed that the market value of the broadband services to agencies using KentuckyWired would keep pace with the availability payments. While that might have been reasonable in the past, broadband price competition was one of the objectives of KentuckyWired. KCNA officials said broadband market prices in Kentucky had *decreased* by 40 percent since the beginning of KentuckyWired.⁶⁰

If KentuckyWired customers could obtain equivalent services on the open market for a lower price, they might justify using their current spending to purchase higher speed services from KentuckyWired. But the spending cannot remain the same; it must increase by 2.5 percent per year. Even the market value of much higher speeds might not cover the necessary spending. No one can predict whether the need for and market value of higher speeds will keep pace with the escalating availability payments. If it does not, additional state funds will be needed to cover the difference.

An optimistic spending increase of 1 percent per year, along with the K-12 shortfall, predicts a gap of \$713 million.

The most recent consumer cost data from the Bureau of Labor Statistics shows that internet and information service prices nationally increased just 0.1 percent from September 2018 to September 2019.⁶¹ Producer prices for wired communication services increased only 5 percent in the past 20 years, roughly 0.4 percent per year.⁶² These trends do not take into account Kentucky's recent price declines. Figure 4.B, therefore, estimates what state agency spending would look like with an optimistic net increase of 1 percent per year, which is greater than recent national increases but less than the increase from the financial model. Even a 1 percent increase assumes KentuckyWired customers will request more expensive services despite the likelihood of lower market prices. This scenario would result in an estimated additional \$148 million gap, for a \$713 million total deficit in availability payment funding across the period.

Figure 4.B
Gap In Availability Payments Without K-12 Revenue Assuming
1 Percent Annual Increase In KentuckyWired Customer Spending
(In Millions Of Dollars)



Note: Availability payments are based on the revised schedule from the settlement.

Sources: Program Review staff analysis of amended project agreement, KCNA spreadsheet, and financial model.

Costs Other Than Availability Payments

Several major costs other than availability payments will make the shortfall greater. These include system refresh costs, the settlement and its bond repayment, KCNA operating expenses, rent and purchase value of CRD's section, state bonds, sections built by other telecoms, and more.

Several major costs have to be added to the availability payments, making the shortfall greater.

System Refresh. Equipment needed to operate the network has to be replaced from time to time to keep up with changes in technology. The project agreement specifies replacement, or refresh, at years 11 and 21 of the contract period.⁶³ The financial model estimated that refresh costs would total \$87.4 million.⁶⁴ The project agreement requires the state to pay for system refreshes either with supplemental availability payments or other means.⁶⁵

Multiple sources have expressed the opinion that some equipment will have to be replaced more frequently than every 10 years. Depending on the type of equipment, obsolescence may occur at 5 or 7 years in addition to the 10-year equipment. Program Review staff could not determine how much KentuckyWired equipment might fall into these categories.

Considering only the equipment with a 10-year refresh cycle, Program Review staff used the original estimate for the first refresh but increased those amounts by 2.5 percent per year to be consistent with the other modeled costs. This resulted in a total for the two refreshes of \$96.64 million.

If the network continues to operate after September 2045, another refresh will be required immediately. Its projected cost of \$67.71 million was not included in this report's shortfall calculations.

Supervening Events And Settlement. Chapter 3 describes some of the SEs in detail. Claims for SEs were estimated to be more than \$191 million of additional expense to the state. These were negotiated down to \$101 million in the settlement, and a new completion date of October 2020 was set.

According to third-party assessments, the settlement agreement, including payments and amendments to the schedule, was a reasonable solution to the parties' disputes over SE claims. The amendments clarified terms and responsibilities and gave the state a reasonable opportunity to assist in minimizing future supervening events. Although the agreement reduced the risk of additional SEs, there could be more SE claims before completion of the project. It is impossible to determine how much these might cost.

Of the \$101 million owed for SE claims, approximately \$35 million was paid prior to the settlement agreement. A portion of the remaining \$66 million will be paid monthly through system completion. The monthly settlement payments are calculated based on the percentage completed.⁶⁶

In August, 2019, KCNA borrowed \$102.1 million through a bond issue and received net proceeds of \$118 million that will be used to reimburse the general fund for settlement payments through the date of bond issuance and to pay the remaining settlement payments.^c The remaining \$17 million of bond funds will be used to fund other project costs. The total debt service due through final maturity in June 2050 is \$201.39 million.⁶⁷

^c Although the statutory authorization was \$110 million, KCNA was able to receive a premium because the bonds offered interest higher than the market rate, bringing the net proceeds to \$118 million

KCNA Operating Expense. Since its creation in 2015, KCNA has received general fund resources to fund both its operations and the availability payments. The agency's primary ongoing expense is personnel. The 2018-2020 budget allocated approximately \$3.5 million annually for KCNA personnel expenses.⁶⁸ Assuming a minimal 0.5 percent annual increase of personnel costs at the current staffing level, KCNA operating expenses could total nearly \$110 million through September 2045.

Rent And Purchase Value Of CRD Section. The 2019 agreement with CRD requires a fixed rent guarantee of \$2 million per year and a percentage rent based on net wholesale revenues. The fixed rent through September 2045 will amount to approximately \$50 million that will not be paid from the availability payments.^d

Unlike the 2015 agreement, the new one gives CRD permanent ownership of the rental portion of the network. The state has the option to purchase this section at the end of each lease period. The fair market value of this infrastructure represents a possible future cost to be balanced against continued rent and wholesale revenue share.

State Bonds And Designated Equipment Purchase. The 2014-2016 budget bill authorized \$30 million from state bonds. Notations in the Budget of the Commonwealth stated that the debt would be covered by existing internet spending.⁶⁹ These agency funds have since been rededicated to covering availability payments, so funds to pay the state bonds have to come from somewhere else. FAC repays such state bonds from its debt service fund.

The state planned to use the state bond funds to purchase and arrange delivery of fiber and other equipment to Project Company in order to achieve sales tax savings. The equipment was estimated to cost \$30 million. In the settlement agreement, the equipment cost was lowered to \$25.86 million plus a one-time payment of \$1.35 million at system completion.⁷⁰ This leaves \$2.8 million either as an avoided cost or for other uses.

Sections Built By Other Telecoms. Six agreements were entered into with other telecoms in order to build some sections of the network. The cost of construction and lease of these sections was not included in the availability payments, but it did lower Macquarie's construction price. In part because of difficulty with some of the third-party construction, two contract awards were

^d Rent for FY 2020 has not been finalized.

made in 2019 to Fishel and Quanta to complete this work.^e Program Review staff do not know the full cost of third-party construction. The prices mentioned in the first six agreements were more than \$30 million, but some of those prices were upper limits while others did not count optional work. The new awards were for a total of \$17.4 million.

Hut Maintenance Contract. A contract was awarded to Bowlin Group to maintain network equipment huts that the state agreed to build and maintain instead of Macquarie.^f The contract does not provide a total cost but lists prices for various items and services.

Requests For Service Improvement. Rating agencies pointed out that the service level guaranteed in the KentuckyWired contracts was lower than industry standards, which was a positive consideration because it would lower operations and maintenance costs.⁷¹ There are no penalties until service reliability falls below 99.9 percent for nodes and high-priority sites and 99.0 percent for all other sites. Some types of customers, such as public safety, emergency response, and medical facilities, usually expect greater reliability.

If customers of KentuckyWired or OpenFiber require higher service guarantees than Service Company has promised, it would probably result in a change order leading to higher payments. The increases could be significant because they would require Service Company to deploy more service personnel and vehicles from more locations in order to reach and repair outages more quickly. Program Review staff do not know whether any state agencies would have such requirements nor how OpenFiber would handle such requests from its customers.

Damage In Excess Of Insurance. Project Company maintains insurance to cover damage to the network infrastructure during construction. If there is massive damage or destruction whose repair exceeds the amount paid by insurance, the state and Project Company would have to pay the difference or terminate the contract.^g Because Project Company has no assets or revenues other than the state's availability payments, these costs would probably fall to the state.

^e MA 785 1900000903 (Fishel) and MA 785 1900000902 (Quanta)

^f MA 785 1900000015

^g Insurance coverage will vary by the cause of the damage. For some causes, there might be no coverage, and the parties would be responsible for the full cost.

Wholesale Revenue

Wholesale revenue was offered as a way to cover shortfalls, but revenue expectations are questionable, and the shortfalls probably exceed wholesale revenue.

Macquarie's wholesaler partner predicted total revenues of \$1.9 billion over the course of the contract, of which the state was estimated to receive \$1.1 billion.⁷² These projections are highly speculative; in fact, the wholesale revenue model assumed that market prices would rise 2.5 percent per year just as the financial models did.

This report also shifts the projection so it starts in FY 2022 instead of FY 2018 because of construction delays, but only counts it until September 2045 to match the debt service and other items. For that period, the shifted wholesale projection is \$682.5 million, and this report uses half of that, \$341 million, for most purposes. Any chosen number is likely to be incorrect because it is difficult, probably impossible, to predict the market price of broadband technology over a 30-year period.

The assumed \$341 million of wholesale revenue does not even cover the K-12 gap of more than \$564 million, leaving nothing to cover other expenses. With the settlement repayments totaling \$171 million through September 2045 and system refreshes costing more than \$96 million, these costs exceed even the full \$682.5 million of projected wholesale revenues.

If the wholesale business did generate significant revenues, it would probably continue past 2047 when the OpenFiber contract ends, but that would have to be negotiated. To the extent that the original projections are meaningful, when shifted 4 years they indicate additional revenue totaling \$209 million after 2045, again using half the original projection.

Wholesale Revenue Sharing

Depending on the costs above the availability payments, the state might have to share wholesale revenue with CRD. An agreement in 2019 replaced an agreement from 2015.

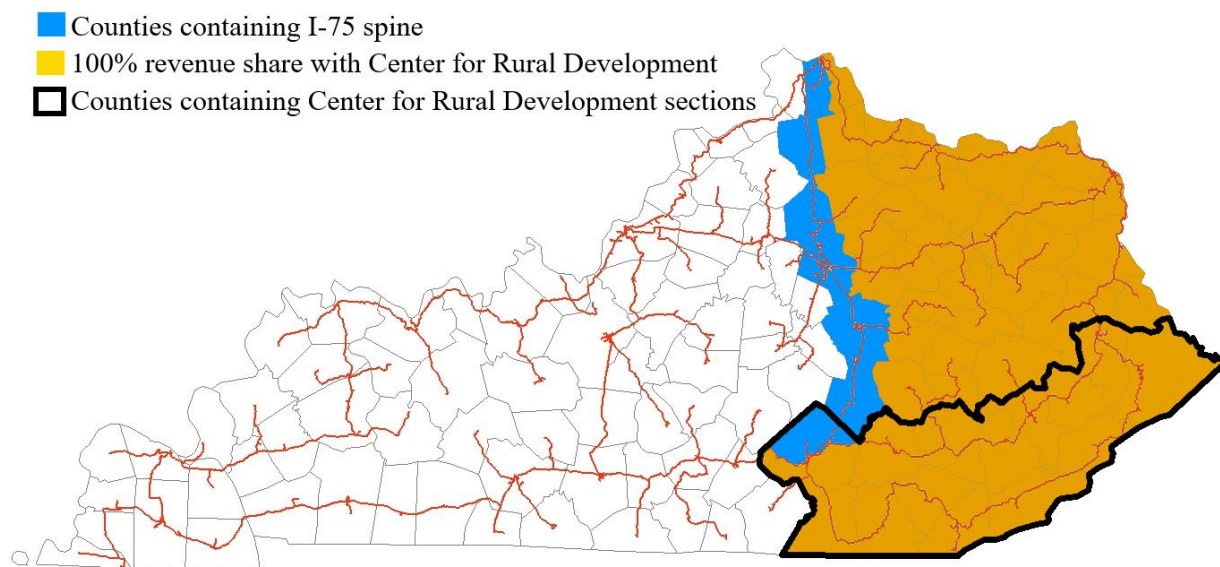
Because of the revenue sharing agreement with CRD, some of the wholesale revenues might not come to the state. The recent agreement in 2019 superseded a previous agreement from 2015.

On June 25, 2015, FAC entered into a memorandum of agreement with CRD. In the agreement, CRD proposed to obtain federal grants totaling \$23.5 million from the Appalachian Regional Commission toward construction of the fiber network in eastern Kentucky. The state promised to spend \$10 million of its own funds toward the same sections. CRD would own the eastern Kentucky portion of KentuckyWired and lease it to the state for 30

years, when the CRD portion would become the property of the state. No lease terms were given.⁷³

KCNA provided a document titled as an addendum to the agreement, but there was no indication that it was executed. It outlined a plan to share net wholesale revenues between the state and CRD. The definition of net revenues was vague, so it is not possible to know what expenses would have been paid prior to determining the CRD share. The plan gave CRD all net wholesale revenues east of I-75 and half the revenues from the network sections along I-75, called the spine. The remainder would have gone to the state.⁷⁴ Figure 4.C illustrates this division. The counties shown as “I-75 spine” are the ones through which the spine sections run.

Figure 4.C
2015 Revenue Share With Center For Rural Development



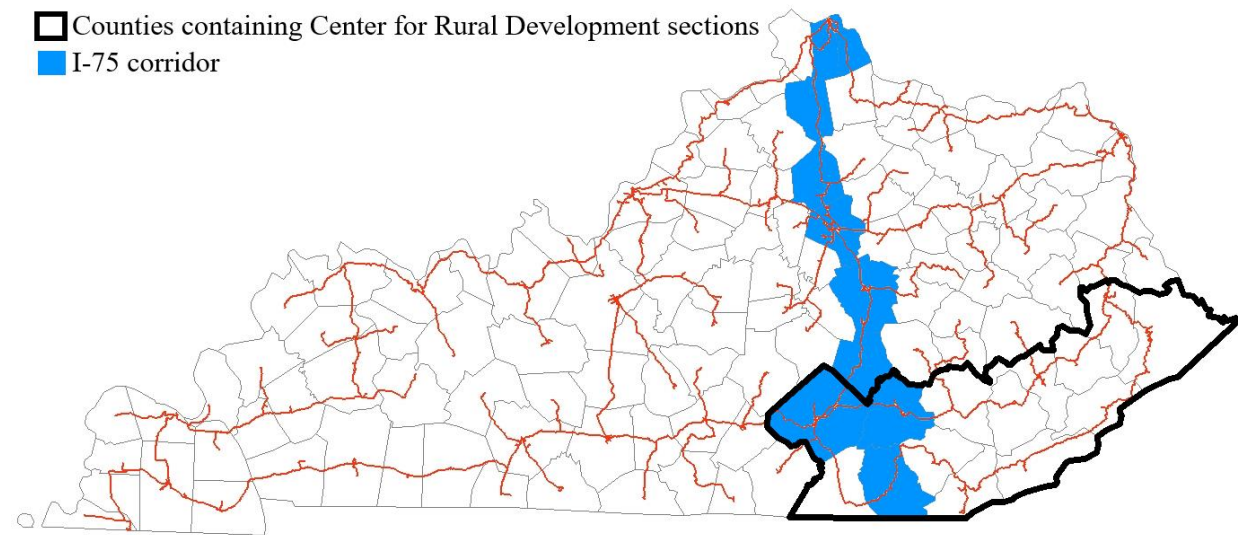
Note: The agreement is not clear about the definition of CRD sections, so Program Review staff assumed that everything east of I-75 was a CRD section, including laterals directly off the I-75 sections of the network.
Source: Program Review staff reconstruction of information from KCNA and the 2015 CRD addendum.

On August 19, 2019, FAC and CRD executed a lease agreement that replaced the 2015 agreement. Under the new agreement, CRD will provide a total of \$43.6 million in federal grant money in exchange for permanent ownership of the same section of the network in southeastern Kentucky. CRD will lease its section to the state for just under \$2 million annually until September 2045.

At that time, the state could renew the lease for another 5 years or purchase CRD's infrastructure.^{h 75}

The 2019 agreement also shares wholesale revenue between the state and CRD. The agreement lists 10 counties that constitute the I-75 corridor.ⁱ Any wholesale revenues related to an OpenFiber customer located in those counties would be subject to sharing after deductions to obtain a net revenue amount. Figure 4.D shows the I-75 corridor and the network section owned by CRD.

Figure 4.D
2019 Revenue Share With Center For Rural Development



Note: CRD section includes only the ring sections, not the laterals.

Source: Source: Program Review staff reconstruction of information from KCNA and the 2019 CRD agreement.

The deductions in the 2019 agreement are more clearly defined and appear to cover most of the state's extra expenses other than the availability payments. However, they do not deduct the shortfall in agency spending toward availability payments, which is probably the largest unmet expense.

^h The lease may be renewed or purchase option exercised every 5 years indefinitely. The state may also terminate without purchasing.

ⁱ The 10 counties are Campbell, Fayette, Grant, Kenton, Laurel, Madison, Pulaski, Rockcastle, Scott, and Whitley

Termination Scenarios

Senior debt means the bonds sold in 2015 except for the subordinate debt. Senior lenders hold the senior bonds. Early termination is complex, involving many parties and fees.

In the following discussion, senior debt refers to the bonds sold in 2015 except for the subordinate debt mentioned earlier. Senior lenders are the holders of the senior bonds.

Early termination of a P3 contract is complex, involving multiple parties and complicated financial analysis.⁷⁶ Termination payments in P3s are generally structured so they are sufficient to cover all principal, interest, and other amounts to make senior lenders whole. Additionally, the termination payment typically includes contractor breakage fees, employee payments, and payments to equity investors.⁷⁷

As with most P3 contracts, the state is required to make a termination payment to Project Company. The amount owed by the state will depend on the timing and type of the termination. The KentuckyWired project agreement addresses four termination scenarios: Project Company default, no-fault termination, state default, and termination by the state for convenience.⁷⁸ The project agreement does not address the state's ability to terminate by failing to appropriate funds, called funding out.

Contractor Default

If the contractor defaults, the state must repay 80 percent of the senior debt, which is an incentive for bondholders to step in and correct the problem.

If the contractor defaults, the state must still pay 80 percent of the senior debt as of the termination date.⁷⁹ However, the collateral agent, acting on behalf of the bondholders, may step in and replace Operations Company, keeping the project going, preventing termination, and protecting the full extent of their investment.⁸⁰ The prospect of a partial payment provides an incentive for the bondholders to ensure completion of the project and removes some risk from the state. In all other scenarios, the state must make full payment of the senior debt as of the termination date.⁸¹

The State As A Contracting Entity

The state waived its immunity, and contractors may sue for damages. All contracts with the state are subject to statute even if not specifically mentioned.

Under the Kentucky Constitution, the state has sovereign immunity, preventing it from being sued except with its consent.⁸² Recognizing that the contractors may need to seek legal recourse against the state, the General Assembly waived immunity when entering contracts. KRS 45A.245 allows parties having a valid contract with the state to seek damages but limits awards to an amount equal to twice the amount of the original contract.

The original KentuckyWired master agreement expressly stated that the state's "procurement statutes, regulations and policies" were incorporated into the contract and that any contract claims

would be governed by KRS 45A.245 to 45A.290.⁸³ Included among the related regulations is 200 KAR 5:312, which establishes the requirements for terminating contracts for convenience and by funding out. The rewritten contracts did not specifically mention those statutes, but the statutes and regulations apply regardless.

Termination For Convenience

Termination for convenience would follow the procedures given in the contract. The cost would include \$363 million for senior debt service, \$21 million for equity and subordinate debt service, and unknown additional amounts for contractor costs.

Termination for convenience is explicitly described in the project agreement.⁸⁴ As defined by 200 KAR 5:312, the state has the option, upon determining that the contract is not in the best interest of the state, to terminate it with 30 days written notice to the contractor, who then must establish the amount owed. In this case, the termination amount is detailed in the project agreement.⁸⁵ The calculation is the same for both termination for convenience and termination due to state default. Should the state terminate for convenience, the termination payment would account for

- the senior debt as of the termination date;
- employee payments (the amounts still owed to employees under their employee agreements) and contractor breakage costs (costs incurred as a direct result of termination including cancellation fees, restocking costs, and demobilization costs);
- amounts accrued but unpaid and owed to Project Company;
- any insurance receivables (amounts owed under the terms of the insurance policy) assigned to the state; and
- the aggregate amount for which shares in Operations Company and amounts outstanding under the subordinate debt could have been sold for fair market value.

If the state chose to terminate the KentuckyWired contract for convenience, the state would have to make significant payments. However, the terms of the contract would be satisfied, limiting the negative perception by future contracting parties, and bondholders would be made whole, protecting the state's credit rating.

Estimated Cost. In a termination for convenience, the state would be, at a minimum, obligated to make a termination payment equal to the outstanding senior debt, the fair market value of Operations Company shares and subordinate debt, Holding Company equity, and any employee payments and contractor breakage fees.⁸⁶ KCNA indicated that simply paying the outstanding principal and interest accrued through the termination date would not satisfy creditors who anticipate a return on their investment at least

through the call date.^j In order to satisfy investors and rating agencies, it might be necessary for the state to pay bondholders at least a portion of the interest anticipated through the July 2025 call date.⁸⁷

If the project were to be terminated as of January 1, 2020, the remaining balance on the senior debt would total \$288 million. The interest payments from then through the call date of July 1, 2025, would be nearly \$75 million for a total of \$363 million.⁸⁸

The state would also be required to reimburse Holding Company's members for the equity and the fair market value of the Operations Company shares and outstanding subordinate debt. The reimbursement would be based on the values at which the Operations Company shares and subordinate debt could have been sold immediately before the termination date.⁸⁹ Estimating the value of these assets is difficult given that the fair market value of these assets would likely rise or fall based on the project's condition leading up to the termination. Conservatively, the state could expect that it would be required to reimburse Holding Company for at least the equity and subordinate debt contributed to the project, or approximately \$21 million.

Termination By Funding Out

Funding out is a statutory option if the General Assembly stops appropriating funds. The state would suffer serious consequences, primarily from the effect on its credit rating, making it much more expensive to borrow in the future.

Because the contract is governed by Kentucky statutes and regulations, the funding out process mentioned in 200 KAR 5:312 is pertinent. Funding out means that the General Assembly ceases to appropriate funds for the contract or new borrowing is needed that the General Assembly has not authorized.⁹⁰ In this case, the state would not be responsible for any additional payments after termination.

Termination by funding out would have serious consequences. Ending the contract without satisfying the contract's conditions would likely lead to legal action against the state. Even if the legal action failed, termination in this manner would negatively affect the state's credit rating, making future state borrowing much more expensive.⁹¹

^j A call date for bonds is the date on which bonds can be redeemed prior to their maturity.

Termination Of Wholesaler Agreement

Terminating the wholesaler agreement would also be necessary, probably requiring the state to purchase the wholesaler's assets.

The wholesaler agreement also needs to be terminated separately if the network is not completed or is not operational. Under the wholesaler agreement, the state must purchase the wholesaler's assets for fair market value if requested by the wholesaler. The agreement does not allow indirect losses unless specifically listed in the terms of the contract, which limits the ability of the wholesaler to pursue the state for any loss of profits or loss of business opportunity.⁹²

-
- ¹ Kentucky. Kentucky Economic Development Finance Authority. *Official Statement*. Sept. 1, 2015. Pp. 4, 17.
- ² Kentucky. Finance and Administration Cabinet. “Project Agreement: Next Generation Kentucky Information Highway Project.” Sept. 3, 2015. Schedule 8. P. 6; Steve Murphy, chief financial officer; Mike Hayden, chief operating officer; Stewart Hendrix, general counsel; Corey Krill, program director; and Bernard Decker, interim executive director. Kentucky Communications Network Authority; Scott Brinkman, secretary, Executive Cabinet. Interview. May 1, 2019.
- ³ Kentucky. Auditor of Public Accounts. “Examination of Certain Contracts, Operations, and Activities of the Kentucky Communications Network Authority.” Pp. 116; Kentucky. Finance and Administration Cabinet. “Project Agreement: Next Generation Kentucky Information Highway Project.” Sept. 3, 2015. Schedule 15.
- ⁴ Columbia Telecommunications Corporation. *The Next Generation Kentucky Information Highway: Building Fiber Optic Infrastructure*. Kentucky. July 2014. Pp. 21-36, 141-162.
- ⁵ Mike Hayden, chief operating officer, Doug Hendrix, general counsel, Corey Krill, program director, and Phillip Brown, executive director. Kentucky Communications Network Authority. Interview. Jan. 8, 2019.
- ⁶ Steve Murphy, chief financial officer; Mike Hayden, chief operating officer; Stewart Hendrix, general counsel; Corey Krill, program director; and Bernard Decker, interim executive director. Kentucky Communications Network Authority; Scott Brinkman, secretary, Executive Cabinet. Interview. May 1, 2019.
- ⁷ Kentucky. Finance and Administration Cabinet. “Project Agreement: Next Generation Kentucky Information Highway Project.” Sept. 3, 2015. Schedule 8. Pp. 6, 27-28.
- ⁸ Kentucky. Finance and Administration Cabinet. “Project Agreement: Next Generation Kentucky Information Highway Project.” Sept. 3, 2015. Schedule 8. P. 29.
- ⁹ Stewart D. Hendrix, general counsel. Kentucky Communications Network Authority. Letter to Co-Chairs of the Capital Projects and Bond Oversight Committee. Sept. 3, 2019. P. 4.
- ¹⁰ John Hicks. Office of State Budget Director. Email to Carla Wright. April 7, 2016. Attachment: “NG-KIH Costs covered by Availability Payment.”
- ¹¹ Philip Brown. Testimony at Senate Appropriations and Revenue meeting. Feb. 21, 2019. Time 00:43:35 in video.
- ¹² Kentucky. Office of State Budget Director. Governor’s Office for Policy and Management. *Commonwealth of Kentucky 2014-2016 Executive Budget Recommendation*. Jan. 21, 2014. P. 16.
- ¹³ H.B. 235, Gen. Assem., Reg. Sess. (Ky.2014). P. 126
- ¹⁴ Kentucky. Kentucky Communications Network Authority. KYW Fact Sheet. Web. Accessed Aug. 16, 2019.
- ¹⁵ Columbia Telecommunications Corporation. *The Next Generation Kentucky Information Highway: Building Fiber Optic Infrastructure*. Kentucky. July 2014. Pp. 36-37; Kentucky. LRC. Capital Planning Advisory Board. “Minutes.” Aug. 12, 2014.
- ¹⁶ Columbia Telecommunications Corporation. *The Next Generation Kentucky Information Highway: Building Fiber Optic Infrastructure*. Kentucky. July 2014. P. 76.
- ¹⁷ Kentucky. Finance and Administration Cabinet. “Commonwealth Of Kentucky Request for Proposal (RFP) For Next Generation Kentucky Information Highway (NG-KIH) Initiative Finance/Concessionaire Partner RFP 758 1500000003.” July 11, 2014.
- ¹⁸ Macquarie Infrastructure Developments LLC. *NG-KIH Concessionaire RFP 1500000003 Technical Proposal*. Sept. 16, 2014. P. 75.
- ¹⁹ Macquarie Capital (USA) Inc., First Solutions P3 Alliance. *Next-Generation Kentucky Information Highway (NG-KIH) Initiative Request For Information*. May 7, 2014. P. 11.
- ²⁰ Macquarie Infrastructure Developments LLC. *NG-KIH Concessionaire RFP 1500000003 Technical Proposal*. Sept. 16, 2014. P. 75.
- ²¹ Macquarie Infrastructure Developments LLC. *NG-KIH Concessionaire RFP 1500000003 Technical Proposal*. Sept. 16, 2014. P. 81.
- ²² United States. Internal Revenue Service. Recourse vs. Nonrecourse Debt. Web. Accessed Oct. 30, 2019.
- ²³ Fitch Ratings. “KentuckyWired Dispute Puts Project, Commonwealth Ratings at Risk.” April 11, 2018.
- ²⁴ Kentucky. Finance and Administration Cabinet. “Master Agreement For Next Generation Kentucky Information Highway Initiative Concessionaire Partner.” Dec. 22, 2014. P. 2.
- ²⁵ Mike Hayden, chief operating officer, Doug Hendrix, general counsel, Corey Krill, program director, and Phillip Brown, executive director. Kentucky Communications Network Authority. Interview. Jan. 8, 2019.
- ²⁶ Macquarie Infrastructure Developments LLC. *NG-KIH Concessionaire RFP 1500000003 Technical Proposal*. Sept. 16, 2014. P. 76; Macquarie Infrastructure Developments LLC. *NG-KIH Concessionaire RFP 1500000003*

Cost Proposal. Sept. 16, 2014. P. 15; Kentucky. Finance and Administration Cabinet. “Project Agreement: Next Generation Kentucky Information Highway Project.” Sept. 3, 2015. Schedule 8. P. 6.

²⁷ Kentucky. Finance and Administration Cabinet. “Commonwealth Of Kentucky Request for Proposal (RFP) For Next Generation Kentucky Information Highway (NG-KIH) Initiative Finance/Concessionaire Partner RFP 758 1500000003.” July 11, 2014. Attachment A, P. 3.

²⁸ Macquarie Infrastructure Developments LLC. *NG-KIH Concessionaire RFP 1500000003 Technical Proposal*. Sept. 16, 2014. P. 78.

²⁹ Kentucky. Kentucky Communications Network Authority. KYW Fact Sheet. Web. Accessed Aug. 16, 2019; Kentucky. Finance and Administration Cabinet. “Project Agreement: Next Generation Kentucky Information Highway Project.” Sept. 3, 2015. Schedule 8. P. 4.

³⁰ H.B. 235, Gen. Assem., Reg. Sess. (Ky.2014). P. 126

³¹ United States. Dept. of Transportation. Federal Highway Administration. Office of Innovative Program Delivery. *Guidebook on Financing of Highway Public-Private Partnership Projects*. Dec. 2016. Sect. 3-5.

³² Lori Flanery, secretary. Finance and Administration Cabinet. Letter to Kentucky Economic Development Finance Authority Board Members. May 22, 2015.

³³ KentuckyWired Infrastructure Company. Articles of Incorporation. June 24, 2015; KentuckyWired Infrastructure Company. Articles of Amendment. Aug. 21, 2015.

³⁴ Katie Smith, executive director. Cabinet for Economic Development. Office of Financial Services. Memorandum to KEDFA members. July 22, 2015. P.5.

³⁵ Kentucky. Kentucky Economic Development Finance Authority. *Official Statement*. Sept. 1, 2015. Pp. 1-2, 45.

³⁶ Ryan Barrow, executive director. Office of Financial Management; Ed Ross, state controller. Office of the Controller. Interview. June 10, 2019.

³⁷ Tammy McCall. Office of Financial Management. Email to Carla Wright. June 30, 2015.

³⁸ Katie Smith, executive director. Cabinet for Economic Development. Office of Financial Services. Letter to co-chairs of the Interim Joint Committee on Appropriations and Revenue. Oct. 7, 2015; Kentucky. Kentucky Economic Development Finance Authority. *Official Statement*. Sept. 1, 2015. Pp. 66-70.

³⁹ Gerry Stoughton. “Strategies For Successful Public Private Projects Capitalization—The Financing Structure of P3s.” Strategic Rail Finance. N.p.

⁴⁰ United States. Dept. of Transportation. Federal Highway Administration. Office of Innovative Program Delivery. *Guidebook On Financing of Highway Public-Private Partnership Projects*. Dec. 2016. Pp. 3-2, 3-10, 5-5, 5-6.

⁴¹ Moody’s Investors Service. *Pre-Sale Report. KentuckyWired Infrastructure Company, Inc.* Aug. 19, 2015. P. 10; Macquarie Capital (USA) Inc. Next Generation Kentucky Information Highway Financial Model spreadsheet. 2015.

⁴² United States. Dept. of Transportation. Federal Highway Administration. Office of Innovative Program Delivery. *Financial Structuring And Assessment For Public-Private Partnerships: A Primer*. Dec. 2013. Web. Accessed Oct. 24, 2019.

⁴³ Kentucky. Kentucky Economic Development Finance Authority. *Official Statement*. Sept. 1, 2015. P. 7.

⁴⁴ KentuckyWired Operations Holding Company, LLC. “Capital Contribution Agreement.” Sept. 3, 2015. Pp. 4-5.

⁴⁵ Kentucky. Kentucky Economic Development Finance Authority. “Tax Certificate and Agreement.” Sept. 3, 2015. P. 5.

⁴⁶ KentuckyWired Infrastructure Company, Inc. “Project Implementation Agreement.” Sept. 3, 2015; Macquarie Capital (USA) Inc. Next Generation Kentucky Information Highway Financial Model spreadsheet. 2015.

⁴⁷ Kentucky. Kentucky Economic Development Finance Authority. *Official Statement*. Sept. 1, 2015. Pp. 46-50.

⁴⁸ Macquarie Capital (USA) Inc. Next Generation Kentucky Information Highway Financial Model spreadsheet. 2015.

⁴⁹ United States. Federal Highway Administration. *Guidebook On Financing Of Highway Public-Private Partnership Projects*. Dec. 2016. P. 3-14

⁵⁰ Mike Hayden, chief operating officer, Doug Hendrix, general counsel, Corey Krill, program director, and Phillip Brown, executive director. Kentucky Communications Network Authority. Interview. Jan. 8, 2019.

⁵¹ Kentucky. Finance and Administration Cabinet. “Project Agreement: Next Generation Kentucky Information Highway Project.” Sept. 3, 2015. Schedule 8. Pp. 4-6.

⁵² Kentucky. Finance and Administration Cabinet. “Project Agreement: Next Generation Kentucky Information Highway Project.” Sept. 3, 2015. Schedule 8. P. 5.

⁵³ John Hicks. Office of State Budget Director. Email to Carla Wright. April 7, 2016. Attachment: “NG-KIH Costs covered by Availability Payment.”

⁵⁴ Kentucky. Finance and Administration Cabinet. “Amended and Restated Project Agreement: Next Generation Kentucky Information Highway Project.” March 13, 2019. Schedule 15; Arup North America Ltd. “KentuckyWired

Infrastructure Company Inc Next Generation Information Highway Project LTA Monthly Progress Report AP 40, Requisition No 114.” February 15, 2019. P. 24. Web. Accessed February 18, 2019.

⁵⁵ Kentucky. Finance and Administration Cabinet. Dark Fiber Lease Agreement. Aug. 19, 2019.

⁵⁶ David Couch. Email to Van Knowles. Oct. 8, 2019.

⁵⁷ Email exchange, Scott Kane and Mel Blackwell. March 11, 2015.

⁵⁸ HealthTech Solutions. “Summary of Engagement.” May 5, 2015.

⁵⁹ Kentucky. Finance and Administration Cabinet. “Project Agreement: Next Generation Kentucky Information Highway Project.” Sept. 3, 2015. Schedule 8. P. 6.

⁶⁰ Steve Murphy, chief financial officer; Mike Hayden, chief operating officer; Stewart Hendrix, general counsel; Corey Krill, program director; and Bernard Decker, interim executive director. Kentucky Communications Network Authority; Scott Brinkman, secretary, Executive Cabinet. Interview. May 1, 2019.

⁶¹ Consumer Price Index for All Urban Consumers, Internet Services and Electronic Information Providers.

⁶² Producer Price Index Industry Data For Wired Telecommunications Carriers.

⁶³ Kentucky. Finance and Administration Cabinet. “Project Agreement: Next Generation Kentucky Information Highway Project.” Sept. 3, 2015. Schedule 19. P. 3.

⁶⁴ Macquarie Capital (USA) Inc. Next Generation Kentucky Information Highway Financial Model spreadsheet. 2015.

⁶⁵ Kentucky. Finance and Administration Cabinet. “Project Agreement: Next Generation Kentucky Information Highway Project.” Sept. 3, 2015. Schedule 8. P. 29.

⁶⁶ Kentucky. Finance and Administration Cabinet. “Amended and Restated Project Agreement: Next Generation Kentucky Information Highway Project.” March 13, 2019. Schedule 9.

⁶⁷ Stewart D. Hendrix, general counsel. Kentucky Communications Network Authority. Letter to co-chairs of the Capital Projects and Bond Oversight Committee. Sept. 3, 2019.

⁶⁸ Kentucky. Office of State Budget Director. *Budget Period 2018-2020. 2018-2020 Budget Of The Commonwealth. Operating Budget—Volume I (Part A)*. n.d. Web. Accessed Oct. 30, 2019. P. 53.

⁶⁹ Kentucky. Office of State Budget Director. *Budget Period 2014-2016. 2014-2016 Budget Of The Commonwealth. Capital Budget—Volume II*. n.d. Web. Accessed Oct. 24, 2019. P. 13.

⁷⁰ Kentucky. Finance and Administration Cabinet. “Amended and Restated Project Agreement: Next Generation Kentucky Information Highway Project.” February 28, 2019. P. 8.

⁷¹ Fitch Ratings. *KentuckyWired Infrastructure Company, Inc. Next Generation Kentucky Information Highway. Presale Report*. Aug. 18, 2015. P. 7; Moody’s Investors Service. *Pre-Sale Report. KentuckyWired Infrastructure Company, Inc.* Aug. 19, 2015. P. 6.

⁷² Steve Murphy, chief financial officer. Kentucky Communications Network Authority. Email to Mike Hayden, chief operating officer. Kentucky Communications Network Authority. April 4, 2017.

⁷³ Kentucky. Finance and Administration Cabinet. Memorandum of Agreement with Center for Rural Development. June 25, 2015.

⁷⁴ Kentucky. Finance and Administration Cabinet. Addendum to Memorandum Of Agreement with Center for Rural Development. June 25, 2015.

⁷⁵ Kentucky. Finance and Administration Cabinet. Dark Fiber Lease Agreement. Aug. 19, 2019.

⁷⁶ Patrick Miller. “P3 Contracting And Risk: An Introduction To Public-Private Partnerships For U.S. Transactions.” Sept. 26, 2017.

⁷⁷ Julie Han, Timothy John Murphy, and Candy L. Saga. “Canada: Inconvenient Termination: The Financial Impact Of Terminating Public-Private Partnership (“P3”) Projects.” June 14, 2018.

⁷⁸ Kentucky. Finance and Administration Cabinet. “Project Agreement: Next Generation Kentucky Information Highway Project.” Sept. 3, 2015. Schedule 9.

⁷⁹ Kentucky. Finance and Administration Cabinet. “Project Agreement: Next Generation Kentucky Information Highway Project.” Sept. 3, 2015. Schedule 9. P.4.

⁸⁰ Kentucky. Finance and Administration Cabinet. “Lenders’ Remedies Agreement Next Generation Kentucky Information Highway Project.” Sept. 3, 2015. P.10.

⁸¹ Kentucky. Finance and Administration Cabinet. “Project Agreement: Next Generation Kentucky Information Highway Project.” Sept. 3, 2015. Schedule 9. P.4.

⁸² Ky. Const. §231.

⁸³ Kentucky. Finance and Administration Cabinet. “Master Agreement: Next Generation Kentucky Information Highway (NG-KIH) Initiative Concessionaire Partner.” Dec. 22, 2014. Version1, p.3 (II A) and Sect. 13, p. 13.

⁸⁴ Kentucky. Finance and Administration Cabinet. “Project Agreement: Next Generation Kentucky Information Highway Project.” Sept. 3, 2015. Sect. 2.1 P.2.

⁸⁵ Kentucky. Finance and Administration Cabinet. “Project Agreement: Next Generation Kentucky Information Highway Project.” Sept. 3, 2015. Schedule 9. P.2.

⁸⁶ Kentucky. Finance and Administration Cabinet. “Project Agreement: Next Generation Kentucky Information Highway Project.” Sept. 3, 2015. Schedule 9. P. 2.

⁸⁷ Steve Murphy, chief financial officer; Mike Hayden, chief operating officer; Stewart Hendrix, general counsel; Corey Krill, program director; and Bernard Decker, interim executive director. Kentucky Communications Network Authority; Scott Brinkman, secretary, Executive Cabinet. Interview. May 1, 2019.

⁸⁸ Kentucky. Kentucky Economic Development Finance Authority. *Official Statement*. Sept. 1, 2015. P. 72.

⁸⁹ Kentucky. Finance and Administration Cabinet. “Project Agreement: Next Generation Kentucky Information Highway Project.” Sept. 3, 2015. Schedule 9. P. 2.

⁹⁰ 200 KAR 5:312, sec. 4.

⁹¹ Fitch Ratings. “Fitch: Kentucky Wired Dispute Puts Project, Commonwealth Ratings At Risk.” April 11, 2018. P. 2.

⁹² Kentucky. Finance and Administration Cabinet. “Wholesaler Agreement Next Generation Kentucky Information Highway.” Oct. 13, 2017. Pp.7, 32, 36.

Appendix

Open Questions About KentuckyWired

The topics outlined below remain unresolved. In some cases, their resolution depends on having access to confidential or proprietary information. In other cases, they require additional research, perhaps including an extended search for documents and individuals who can provide information. Searching documents is especially difficult because in response to just the first few document requests, FAC provided nearly 406,000 candidate documents taking up 101.6 gigabytes. There is an unknown number of additional documents, but some relevant documents might have been deleted in the normal course of record retention.

Some of the following topics might overlap.

Oversight

Representations Affecting Authorization Of Bonds And Fund Transfer

Program Review staff found no documentation that the availability payment model and associated commitment of state appropriations was explained to the General Assembly before enactment of the 2014-2016 budget or before the bonds were issued. The main question for research is what the General Assembly and its interim committees knew from 2014 through 2015 about the “Third Party Financing,” the obligation for the state to repay the private borrowing, and the use of state agency internet spending to cover the availability payments. Additional time would be needed for an extensive review of audio recordings and documents.

Details Of Negotiations And Decision Making

What were the details of the negotiations that led to the final set of contracts and the decisions regarding the K-12 RFP known as KIH4? What advice were state officials given, what was known, and who knew it? Who made the key decisions and why? What role did Columbia, contract attorneys, HealthTech Solutions, and other consultants play? Answering these questions would require staff to review additional confidential and perhaps privileged communications among the people involved.

Processing Through Procurement Services Instead Of Engineering And Contract Administration

Capital project procurements are usually processed through the Division of Engineering and Contract Administration rather than the Office of Procurement Services, but the KentuckyWired procurement was not. The procurement type in eMARS was not construction but was standard services on the requisition and computer equipment or software on the RFP. So far, the reason is not known.

Extent Of Failure To Involve Procurement Services

Most potential violations of policy were technically legal because they were tacitly approved by the FAC secretary's office. It would require a thorough review of hundreds of documents to determine the extent of violations of procurement policy, particularly whether auxiliary agreements should have been handled through the Office of Procurement Services and entered separately into eMARS, the statewide accounting system. The 2015 and 2019 CRD agreements are probably the most significant. Also not in eMARS are six contracts with local telecoms to build sections of the network that require payment from the state. Another question is how payments will be processed and monitored if the contracts are not in eMARS.

Status Of Pole Attachment Agreements

These agreements were technically made between the state and the utility companies and require payment of attachment fees. They were not entered as separate agreements in eMARS, perhaps because the payments are actually being made by Design-Builder. Should these agreements be established in eMARS, even if the state is not making the payments?

Legal And Procedural Analysis Of Contracting, Fund Transfers, And Appropriations

This report narrowly covered debt issuance and appropriation of funds for capital projects during legislative interims as of 2015. It might be worthwhile to conduct a thorough analysis of current statutes related to capital projects and debt. Are there still ways that an agency could commit the state to sizable payments without legislative authorization? For instance, should contingencies related to federal grants be considered when transferring funds to a capital project? There are also numerous statutes and procedures related to other needs arising in legislative interims, such as entering into contracts generally, moving funds among accounts, incorporating new funds into the budget, and beginning new programs. Are all these statutes and procedures consistent and appropriate?

Costs And Funding

Actual Value Of Risk Tradeoffs

It is clear that the state accepted certain risks at unrealistic levels—for example, the short time frames for right-of-way permits. However, staff were unable to evaluate claims made by state officials that the fixed construction cost in the final contract was about \$100 million lower than it would have been without those risks.

Total Life Cycle Cost

What is the likely total cost, accounting for availability payments and all costs external to those payments? For example, did the six sections constructed by utilities directly for the state actually save money? Will the agreement with the Center for Rural Development be a net benefit to the

state? What will the costs be related to hut maintenance and internet connectivity? What other external costs are there?

Financing Costs

How much extra did it cost the state to defer interest payments to later years in order to make earlier payments match existing broadband spending? How much did the state actually save by using tax-exempt bonds and by using draw-down bonds for part of the financing? How much will it cost to repay the state bonds? How does repayment of the settlement borrowing work?

Financing Alternatives

There is reason to believe that the state would usually pay less in the long term if it financed construction itself through state bonds and used traditional contracting methods. What are the tradeoffs in cost, quality, and schedule for different project delivery and financing methods?

Equitable Returns

Considering that the availability payments are supported by state appropriations, the risk to Holding Company that its equity would not be repaid is low as long as the network is completed and operating. Also, the Macquarie consortium received an \$8.25 million “development fee” at financial close in addition to payment for all of their costs to that point. This fee in exchange for no specific work was greater than their equity commitment of \$6.5 million. Was the development fee reasonable, and was the state’s agreement to a 12 percent internal rate of return on the equity investment and subordinate debt reasonable?

Service Levels

There might be potential KentuckyWired users who need a guarantee of a higher level of service than Service Company committed to. The contract with Service Company implies that such a guarantee would require a change order, and a change order would probably result in an increase in the amount of availability payments. KCNA has indicated that such customers are most likely to come through the wholesaler, OpenFiber. It remains to be seen how OpenFiber could arrange that guarantee or how the additional cost would be paid.

Future Issues

Termination Options

Are there any termination options, particularly after completion of the entire network, that would cost the state less than continuing under the existing contract? For example, would it be less expensive to terminate; repay the bonds and other termination fees by issuing state bonds; and then sell or lease the infrastructure, operate it through a state agency, or hire another service company?

Assessment Of Agreement With Center For Rural Development

What is a reasonable assessment of the benefits and costs of this agreement, particularly accounting for the state contribution, CRD's ownership of network sections and their fair market value, the rent required, the federal grants provided, and the wholesale revenue share?

Status In 2045 And Beyond

What might happen in 2045, when the agreements with the Macquarie consortium expire? This includes questions about the remaining debt from the settlement, continuing lease and other agreements made through OpenFiber, and the status of sections of the network not owned by the state (CRD and the six agreements with local telecoms). Would the network be self-sustaining from that point forward? Could it generate enough revenue to pay back some or all of the shortfalls from the first 30 years?

Wholesaler Services

Will OpenFiber maximize opportunities for economic development, broadband competition, and generating revenue for the state? How do OpenFiber's interests coincide with or diverge from the state's interests? Are there ways that OpenFiber might compete with private sector telecoms?

Tax-Exempt Bond Status

It is possible that payments toward debt service using public funds will not be enough to maintain the tax status of the bonds. At this time, Program Review staff do not have enough information to evaluate this possibility or its cost.