

**In the Matter of Rainbow Telecommunications)
Association, Inc., for an Increase in its Cost-Based) DOCKET No.
Kansas Universal Fund Support.) 17-RNBT-555-KSF**

**DIRECT TESTIMONY
OF
ADAM H. GATEWOOD
ON BEHALF OF
THE KANSAS CORPORATION COMMISSION
OF THE STATE OF KANSAS**

1 **Q. Please state your name and business address.**

2 A. Adam H. Gatewood, 1500 Arrowhead Road, Topeka, Kansas 66604.

3 **Q. Who is your employer and what is your title?**

4 A. I am the Managing Financial Analyst for the Kansas Corporation Commission
5 (Commission).

6 **Q. What is your educational and professional background?**

7 A. I graduated from Washburn University with a B.A. in Economics in 1987 and a
8 Masters of Business Administration in 1996. I have filed testimony on cost of
9 capital, capital structure, and related issues before the Commission in more than
10 120 proceedings. I have also filed cost of capital testimony before the Federal
11 Energy Regulatory Commission in natural gas pipeline and electric transmission
12 revenue requirement dockets.

13 **Q. What is the purpose of your testimony?**

14 A. The purpose of my testimony is to provide the Commission with an estimate of
15 Rainbow Telecommunications Association, Inc.'s (Rainbow) cost of capital - also
16 known as the required rate of return (ROR). The ROR will be used in Staff
17 Schedules to calculate Rainbow's revenue requirement and ultimately determines
18 its annual draw from the Kansas Universal Service Fund (KUSF). To do so, I
19 reviewed Rainbow's Application, the Direct Testimony of Daniel Meszler,
20 Rainbow's Audited Financial Reports, and numerous sources of data from the
21 capital markets.

1 **Q. Please summarize your recommendation?**

2 A. I recommend that the Commission adopt an allowed return of 7.85% for the
3 purpose of setting Rainbow's KUSF revenue requirement. My recommendation
4 incorporates a different return on equity (ROE) and capital structure than what was
5 requested by Rainbow; an ROE of 9.75% and a capital structure using less equity
6 than Rainbow's actual capitalization. Both of these recommendations are
7 consistent with Staff's recommendations in past KUSF dockets and they have been
8 adopted by the Commission in recent KUSF dockets. A 7.85% rate of return
9 results in an interest coverage ratio of 4.96 (see Staff Schedule D-1) thus providing
10 Rainbow a reasonable return and level of financial health.

Staff Recommended Rate of Return Rainbow Telephone Association			
	Weight	Cost	Weighted Avg Cost
Equity	60.00%	9.75%	5.85%
Debt	40.00%	5.00%	2.00%
			7.85%

11

12 Public utilities like Rainbow that are organized as cooperative associations are
13 different from investor-owned public utilities; cooperative associations' not-for-
14 profit status is the underlying difference between the two. Cooperatives are set up
15 for the sole purpose of serving the needs of its members who are its only customers
16 and its only investors. The cooperative's members provide it with equity capital to
17 finance plant and equipment just as investors provide investor-owned utilities with
18 equity capital. The key difference between the two types of organizations lies in

the investors' reason for providing equity capital. Common stock holders of investor-owned utilities make the investment because they expect to share in the company's profits. A cooperative's members/customers must provide equity capital to their cooperative associations to finance the plant and equipment that provides them with telephony services. Staff's methodology which uses competitive, market-based financial estimates to determine the cost of equity in KUSF support calculations is reasonable, even though Rainbow is organized as a cooperative. Staff's method balances the competing interests of setting the KUSF support at a level that provides affordable services to rural customers, while not burdening the KUSF.

Q. Please summarize Rainbow's rate of return request.

A. The following table provides the components of Rainbow's 10.75% ROR requested in its Application filed on April 15, 2015.

Rate of Return Requested By Rainbow Telephone Association			
	Weight	Cost	Weighted Avg Cost
Equity	99.46%	*	*
Debt	0.54%	5.00%	0.03%
			10.75%
Source: Section 7; Schedule 1 of Application			

Rainbow is requesting the Commission grant it an ROR equal to that authorized by the Federal Communications Commission (FCC) to calculate federal high-cost

1 support.¹ The 10.75% ROR Rainbow requests does not differentiate between costs
2 of debt and equity capital that is employed by Rainbow, thus it completely ignores
3 the issue of capitalization. Additionally, we cannot be certain that this requested
4 ROR reflects the current cost of capital. A review of the FCC's Order indicates
5 that the 10.75% ROR set by the FCC incorporates an ROE greater than the cost of
6 equity set by this Commission (and virtually all regulatory bodies) since the early
7 2000s.

Median Return on Equity (%)		
Date	Electric	Natural Gas
2016	9.75	9.50
2015	9.65	9.68
2014	9.78	9.78
2013	9.95	9.72
2012	10.08	10.00
2011	10.17	10.03
2010	10.30	10.10
2009	10.50	10.26
2008	10.30	10.45
2007	10.20	10.20
2006	10.23	10.50
2005	10.35	10.40
2004	10.70	10.50
2003	10.75	11.00
2002	11.28	11.00
2001	11.00	11.00
2000	11.50	11.16

Source: SNL/RRA

8
9 By some measures, the FCC's allowed ROR would result in an ROE in excess of
10 14.00%.² Because of these problems, Rainbow's request fails to conform to the

¹ Connect America Fund, WC Docket No. 10-90, Rate of Return Order. March 23, 2016.

² Report and Order, Order and Order on Reconsideration, and Further Notice of Proposed Rulemaking In the Matter of Connect America Fund ETC Annual Reports and Certifications Developing a Unified Intercarrier Compensation Regime (WC Docket No. 10-90; WC Docket No. 14-58; and CC Docket No. 01-92) Released March 30, 2016. See paragraph 322.

1 basic principles set out in the Hope and Bluefield decisions, therefore it must be
2 rejected by the Commission.³

3 **Q. Did Rainbow provide an analysis that supports the 10.75% ROR?**

4 A. No. It is merely a request to be granted a rate of return equal to that allowed by the
5 FCC, there is no analysis provided by Rainbow.

6 **Cost of Debt**

7 **Q. Please discuss your review of Rainbow's cost of debt?**

8 A. I agree with the 5.00% cost of debt cited in Section 7 of Rainbow's Application. I
9 verified that the cost of debt is traceable back to Rainbow's financial statements
10 and reflects its borrowing costs. Rainbow obtains its debt financing from Rural

322. We note that the WACC is supposed to compensate equity holders and debtholders who provide the funds used to finance the firm's assets. Given a rate of return set equal to 9.75 percent, an average capital structure based on our estimates of 54.34 percent debt, and a cost of debt based on our estimates of 5.87 percent, the implied cost of equity is 14.37percent. We find that not only is the WACC of 9.75 percent high enough adequately to compensate the firm's debtholders, but the implied rate of return on equity also provides equity holders with the opportunity to earn a reasonable rate of return on their investment. As support for our finding that a 9.75 percent rate of return is reasonable, we examine some benchmarks.

³ Bluefield Water Works & Improvement Company v. Public Service Commission of West Virginia, 262 U.S. 679, 692-3 (1923).

Federal Power Commission v. Hope Natural Gas Company, 320 U.S. 591, 603 (1944). *603 [8] [9] The rate-making process under the Act, i.e., the fixing of 'just and reasonable' rates, involves a balancing of the investor and the consumer interests. Thus, we stated in the Natural Gas Pipeline Co. case that 'regulation does not insure that the business shall produce net revenues.' But such considerations aside, the investor interest has a legitimate concern with the financial integrity of the company whose rates are being regulated. From the investor or company point of view, it is important that there be enough revenue not only for operating expenses but also for the capital costs of the business. These include service on the debt and dividends on the stock. By that standard, the return to the equity owner should be commensurate with returns on investments in other enterprises having corresponding risks. That return, moreover, should be sufficient to assure confidence in the financial integrity of the enterprise, so as to maintain its credit and to attract capital. The conditions under which more or less might be allowed are not important here. Nor is it important to this case to determine the various permissible ways in which any rate base on which the return is computed might be arrived at. For we are of the view that the end result in this case cannot be condemned under the Act as unjust and unreasonable from the investor or company viewpoint.

Utilities Services of the United States Department of Agriculture. All of Rainbow's debts shown in its 2015 and 2016 KCC Annual Report bear an annual interest rate of 5.00%. My ROR recommendation incorporates that 5.00% cost of debt.

Capital Structure

Q. Please describe Rainbow's capital structure presented in Section 7 of its Application.

A. Rainbow reports a capital structure of 99.46% equity. As you can see in the following table in both 2015 and 2016, debt capital was a very small portion of Rainbow's capitalization. I verified that the 99.46% equity ratio in Section 7 accurately depicts Rainbow's actual capitalization.

Rainbow Telephone Association Capitalization Reported in KCC Annual Reports				
	2016		2015	
Equity	\$ 40,070,788	99.5%	\$ 40,381,077	95.9%
Debt	\$ 218,151	0.5%	\$ 1,745,580	4.1%
	\$ 40,288,939		\$ 42,126,657	

Source: KCC Annual Reports

Q. Did you use Rainbow's 99.46% equity ratio to calculate the ROR?

A. No, I did not because it is not a cost effective capital structure. Instead, I recommend that the Commission rely on a hypothetical capital structure that contains 40% debt capital and 60% equity capital to calculate the ROR.

1 **Q. Why are you recommending something other than Rainbow's actual capital**
2 **structure?**

3 A. Because Staff's hypothetical capital structure balances the interests of the RLEC
4 and Kansas telecommunications consumers. Rainbow, like most Kansas RLECs,
5 has access to relatively low cost debt capital. The KUSF subsidy should recognize
6 that RLECs can employ a lower cost capital structure than one that is nearly all
7 equity. Establishing a subsidy payment out of the KUSF must balance the interests
8 of the RLECs that receive the subsidy and Kansas telephony consumers who fund
9 the subsidy. That balancing act requires that the revenue requirement be estimated
10 using reasonable and cost-effective inputs. There is no evidence that a 100% equity
11 capital structure is cost-effective for an RLEC, thus it should not be used in the
12 KUSF calculations.

13 **Q. Did Rainbow provide evidence that its capital structure is cost-effective?**

14 A. No, it did not.

15 **Q. Is Staff recommending that Rainbow management change its equity ratio?**

16 A. No. My recommendation pertains only to the capital structure used to calculate the
17 KUSF subsidy. Staff is not requesting that Rainbow change its equity ratio. Staff
18 leaves capitalization decisions to management.

19 **Q. How did you conclude that a hypothetical capital structure with 60% equity is**
20 **reasonable?**

1 A. Over the course of performing KUSF audits during the past decade, I have found
2 that an equity ratio of 60% has been the high-end of the range observed for publicly
3 traded telecommunications companies. These are the publicly traded companies
4 that create the proxy group for Staff's analysis. Thus, it is a capital structure that
5 has been tested in the capital markets by successful companies in this industry. The
6 60% equity level is the upper end of what is observed and, as you will see, there are
7 some observation much lower than 60%. This, coupled with the fact that Kansas
8 RLECs have access to debt capital at reasonable interest rates, lead me to conclude
9 that a balanced capital structure for Kansas RLECs should include a significant
10 portion of debt. Staff believes the 60% equity ratio provides RLECs with a
11 reasonable return and a reasonable cost structure for the KUSF subsidy.

12 **Q. What are the capital structures of publicly traded telecommunications**
13 **companies today?**

14 A. The following table shows the equity ratios of the proxy group. The equity ratios
15 of the proxy group have declined over the decade due, at least in part, to debt
16 financed merger and acquisition activity. As you can see, there is a considerable
17 spread across companies in this industry with the average of only 35% equity.

Proxy Group Capital Structures		
Rainbow Telephone Association		99.6%
Proxy Group		Equity Ratio
AT&T	T	51.5%
Century Link	CTL	42.5%
Consolidated Communications Holdings	CNSL	10.0%
Shenandoah Telecommunications Co	SHEN	27.0%
Telephone & Data Systems	TDS	57.0%
Verizon	VZ	17.0%
Average		34.2%
Sources: Value-Line Investment Survey; June 2017.		

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2 Staff has used the 60% equity benchmark since beginning the KUSF reviews and
3 we have consistently applied it when a hypothetical capital structure is warranted. I
4 believe we should continue to use it as it strikes a balance between shareholders (or
5 cooperative members) and Kansas consumers.

6 **Cost of Equity**

7 **Q. Please provide a summary of your cost of equity analysis for Rainbow.**

8 A. In summary, I recommend Rainbow's KUSF support calculation incorporate an
9 ROE of 9.75%; consistent with the ROEs incorporated in KUSF dockets since
10 2013. There have been five KUSF dockets since 2013 in which I have
11 recommended an ROE in the vicinity of 9.75%. I am not merely recommending a
12 9.75% ROE because it was adopted in previous dockets, financial analyses
13 demonstrate that it continues to be a reasonable return for investors in the current
14 capital markets.

1 Q. Why is 9.75% a reasonable ROE for Rainbow?

2 A. It is reasonable now because the underlying economic conditions that influence
3 returns available in the capital markets are similar to that observed during those
4 recent KUSF dockets (see table below). Most notable is that, throughout the time
5 period from the Great Recession to the present, the U.S. economy has consistently
6 exhibited slow economic growth, low inflation, and low interest rates. Each of
7 these factors constrain the returns available on equity investments. Of course
8 Staff's position in this Docket should not be taken to mean that a 9.75% ROE is
9 appropriate for all RLECs in future KUSF dockets. The cost of equity capital
10 changes with the economy, thus, an ROE of 9.75% that has been appropriate in the
11 past and that is appropriate at this juncture may not be a reasonable return in the
12 future. The key decisions on rate of return issued by the U.S. Supreme Court
13 emphasize this very point.⁴

Staff Positions in Recent KUSF Dockets				
Docket	Testimony Date	Company	Equity Ratio	Staff ROE
12-GRHT-633-KSF	10/18/2012	Gorham Telephone Company	29.69%	10.50%
12-LHPT-875-AUD	12/19/2012	LaHarpe Telephone Company	90.00%	10.00%
13-CRKT-268-KSF	3/13/2013	Craw-Kan Telephone Cooperative, Inc.	60.00%	10.00%
13-ZENT-065-AUD	5/17/2013	Zenda Telephone Company, Inc.	Confidential	10.00%
13-JBNT-437-KSF	5/23/2013	J.B.N. Telephone Company, Inc.	46.50%	9.75%
13-PLTT-678-KSF	9/24/2013	Peoples Telecommunications, LLC	55.83%	9.75%
14-WTCT-142-KSF	2/5/2014	Wamego Telecommunications Co.	61.43%	9.60%
14-S&TT-525-KSF	9/25/2014	S&T Telephone Cooperative, Inc.	54.86%	9.75%
15-MRGT-097-KSF	1/20/2015	Moundridge Telephone Co.	Confidential	9.75%
15-TWVT-213-AUD	9/4/2015	Twin Valley Telephone Co.	47.81%	9.75%

⁴Bluefield Water Works & Improvement Company v. Public Service Commission of West Virginia, 262 U.S. 679, 692-3 (1923). Federal Power Commission v. Hope Natural Gas Company, 320 U.S. 591, 603 (1944).

1 **Q. Why do you believe that 9.75% continues to be a reasonable ROE?**

2 A. I reviewed the capital markets from several perspectives to ascertain whether there
3 has been a measurable change in investors' required return. I reviewed the cost of
4 equity of a proxy group of telecommunications companies using discounted cash
5 flow (DCF) models, capital asset pricing models (CAPM), and risk-premium
6 analyses. The results of these methodologies, taken as a whole, indicated that
7 9.75% is a reasonable cost of equity in the current economy.

Summary of Cost of Staff's Equity Studies Rainbow Telephone Association			
DCF:	Average	Min	Max
Value-Line EPS Growth	11.93%	7.93%	20.28%
Value-Line DPS Growth	8.97%	6.15%	11.14%
YahooFinance EPS Growth	11.60%	10.43%	14.99%
nGDP Growth Rate	9.05%		
CAPM:			
Historic Market Returns	10.51%		
Forecasted Market Returns	8.91%		
Risk Premium:			
KUSF Docket Risk Premium	9.82%		
Electric/Gas Docket Risk Premium	9.19%		

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9 In addition, for the time period of 2013 through the present, the time during which
10 Staff has used the 9.75% ROE for KUSF dockets, I reviewed the trends in interest
11 rates on public utility bonds, the forecasted returns published by asset management
12 firms, and the returns set by public utility commissions. Each of these three
13 benchmarks of capital costs support the use of a 9.75% ROE.

14 **Q. How did you select a proxy group for your analysis?**

1 A. I began with the FCC proxy group⁵ and eliminated companies: 1) that do not pay a
2 dividend; 2) that are not followed by Value Line Investment; and 3) that do not
3 have growth rate estimates reported by YahooFinance. These screens ensured that
4 the analysis is performed on a group of companies in the relevant industry with
5 publicly available financial data and growth forecasts.

FCC Proxy Group

Alaska Communications Systems Group	ACS
Alteva	ALTV
AT&T	T
Century Link	CTL
Cincinnati Bell	CBB
Consolidated Communications Holdings	CNSL
FairPoint	FRP
Frontier Communications Corp	FTR
Hawaiian Telecom	HCOM
Hickory Tech Corp	HTCO
Lumos	LMOS
New Ulm	NULM
Shenandoah Telecommunications Co	SHEN
Telephone & Data Systems	TDS
Verizon	VZ
Windstream	WIN

Source:
Connect America Fund, WC Docket No. 10-90,
Report and Order, May 16, 2013; Appendix I3

KCC Staff Proxy Group

AT&T	T
Century Link	CTL
Consolidated Communications Holdings	CNSL
Shenandoah Telecommunications Co	SHEN
Telephone & Data Systems	TDS
Verizon	VZ

⁵ Prescribing the Authorized Rate of Return; Analysis of Methods for Establishing Just and Reasonable Rates for Local Exchange Carriers; Wireline Competition Bureau, Staff Report; WC Docket No. 10-90; May 16, 2013. Appendix I3.

1 **Q. Please discuss the DCF analysis that you performed.**

2 A. The DCF model is one of the most important and frequently cited tools of
3 regulatory agencies for setting allowed returns because typically the publicly traded
4 regulated utilities exhibit stable forecasted growth rates. Unfortunately, that is not
5 the case for the telecommunications industry. Unlike the electric and natural gas
6 distribution industries, the telecommunications growth rates vary widely across
7 companies, as well as time, from quarter to quarter. The calculations of the DCF
8 model along with the proxy-company growth forecasts appear in Schedule AHG -
9 1. The stock prices used in the calculation of the dividend yield appear in Schedule
10 AHG - 2.

11 It is a well-accepted rule of the DCF model that the growth must be a long-run
12 view and that, in the long-run, any particular company or industry cannot grow at a
13 rate greater than the broad economy. As you can see in the following table, the
14 three to five year earnings growth forecasts vary widely, some far above that of the
15 U.S. economy.

16 Because of that variability, it is important to perform a DCF calculation using the
17 nominal long-run (10 to 15 year) forecasted growth rate for the U.S. economy
18 which is 4.00% for a long-run view. This view of nominal GDP growth is the
19 absolute highest growth that investors can expect of this industry. Therefore, I
20 place the most weight on this growth estimate because it is a longer term view of
21 growth than the three to five year earnings growth estimates reported for each
22 company by Value-Line Investment Survey and YahooFinance. Using a 4.00%

1 growth rate of nGDP and the average dividend yield of the proxy group results in a
2 9.05% required return. Relying on the forecasted earnings growth rates and
3 eliminating the negative growth rates from that group results in a required return of
4 close to 11.00%, with a range from 6.15% to 20.28%.

5 **Q. Please discuss the CAPM analysis.**

6 A. I performed a CAPM analyses on the proxy group from two distinct view points;
7 using historic returns data from the capital markets and using forecasted returns
8 data. The proxy group is relevant for the CAPM in that the proxy group provides a
9 measure of risk and required return for the telecommunications industry relative to
10 the returns expected in the broad market often measured by an index like the S&P
11 500. The measure of relative risk is the beta coefficient. The two CAPMs
12 incorporate the average beta coefficient of the proxy group which is 0.95, meaning
13 the proxy group has a required return that is 95% of the return of the broad market
14 indexes. In other words, the proxy group is just slightly less risky than the market
15 as a whole. Unlike the DCF model, the CAPM is not relying on analysts' growth
16 forecasts for each company.

17 Based on historic market returns of common stocks and government bonds, the
18 proxy group has a required return of 10.51%. This view of the capital markets
19 assumes that the historic market returns are representative of future market returns.
20 That assumption is widely debated particularly with the observations of slower
21 economic growth for the future compared with that experienced in the past 80
22 years. This view of the capital costs provides the upper end of the range.

**Capital Asset Pricing Model -- Historic Risk Premium
Based on Historic Risk Premiums from 1926 to 2015**

1) Total Return on Common Stocks		12.10%
2) Total Return on Government Bonds	-	6.40%
3) Resulting Risk Premium		5.70%
4) Beta Coefficient	x	0.95
5) Risk Premium Based on Beta Coef		5.42%
6) Historic Yield on Government Bonds	+	5.09%
7) Forecasted Cost of Equity Based on Historic Returns		10.51%

- 1) Historic returns on common stocks 1926-2015
- 2) Historic returns on Long-term Government Bonds 1926-2015
- 3) Resulting risk premium (row 1 - row 2)
- 4) Beta coefficient of the Proxy Group Reported by Value-Line
- 5) row 3 x row 4 = asset specific risk premium
- 6) Historic Yield on Long-term Government Bonds 1926-2015
- 7) Forecasted Cost of Equity Capital row 5 + row 6

Sources:

Ibbotson SBBI: 2015 Classic Yearbook
Value-Line Investment Survey

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2 The second CAPM analysis incorporates forecasted returns on equity and debt.
3 The forecasted returns are from J.P. Morgan Asset Management (JPMAM) and
4 incorporate its expectations for lower economic growth and lower inflation over the
5 next 10 to 15 years than what has been experienced over the past 80 years. Thus,
6 the difference between JPMAM expected returns and the historic returns shown in
7 the previous CAPM. The 8.91% from the forecasted CAPM provides the lower
8 bounds of the range for required returns.

**Capital Asset Pricing Model -- Forecasted Risk Premium
Using Forecasted Market Returns & Treasury Bond Yields**

1) Forecasted Returns on Common Stocks	8.03%
2) Forecasted Total Return on 10 Year T-Bonds	- 2.44%
3) Resulting Risk Premium	5.59%
4) Beta Coefficient	x 0.95
5) Risk Premium	5.31%
6) Forecasted Yield on 10 Year T-Bonds	+ 3.60%
7) For Cost of Equity	8.91%

- 1) Forecasted 10 to 15 Year Annual Return Arithmetic return on stocks for mid-sized companies by J.P. Morgan Asset Management 2017 Edition.
- 2) Forecasted 10 to 15 Year Annual Return Arithmetic return on intermediate term U.S. Bonds by J.P. Morgan Asset Management 2017 Edition
- 3) Forecasted Risk Premium (row 1 - row 2)
- 4) Beta coefficient of Proxy Group Reported by Value-Line
- 5) row 3 x row 4 = asset specific risk premium
- 6) Forecasted Yield on 10 Year U.S. Treasury Bonds Forecasted by Survey of Professional Forecasters, 3rd Quarter 2017
- 7) Forecasted Cost of Equity Capital row 5 + row 6

Sources:

J.P. Morgan Asset Management, Long-term Capital Market Return Assumptions, 2017 Edition; J.P. Morgan Asset Management. (published October of 2016)

Federal Reserve Bank of Philadelphia, Survey of Professional Forecasters; 3rd Quarter 2017.

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2 **Q. Did you determine whether a 9.75% ROE is adequate in the current capital**
3 **markets?**

4 A. Yes, the following table calculates the difference between the 9.75% allowed return
5 for Rainbow and the return available on less risky fixed income investments. The
6 basics of capital markets theory is that riskier investments such as equity demand a
7 higher return than less risky fixed income investments such as bonds. This is
8 known as a risk-premium. A positive risk premium is necessary to induce investors
9 to take the additional risk of an equity investment over the safety of a bond that
10 offers a regular interest payment. The following table shows the risk premium

1 offered using a 9.75% ROE; a 5.35% premium over the return available on
2 investment grade public utility bonds, a 6.84% premium over the returns available
3 on 30-Year U.S. Treasury Bonds, and a 7.45% premium over the returns available
4 on 10-Year U.S. Treasury Bonds. As a historic comparison, over the past 80 years,
5 common stocks have provided a 5.70% risk premium over the returns on U.S.
6 Treasury Bonds. Thus, I conclude that using a 9.75% ROE provides a reasonable
7 level of compensation over less risky investments. The bond yield data used to
8 calculate the risk premiums appear in Schedule AHG – 3.

Staff's Equity Risk Premium Over Fixed Income Yields

Monthly Averages	10-Year T-Bond Yield ¹	30-Year T-Bond Yield ²	BBB/Baa Utility Bond Yield ³
March, 2017	2.48	3.08	4.63%
April, 2017	2.29	2.94	4.51%
May, 2017	2.30	2.96	4.48%
June, 2017	2.19	2.80	4.28%
July, 2017	2.31	2.89	4.31%
August, 2017	2.22	2.80	4.21%
Six Month Average	2.30%	2.91%	4.40%

Staff's Equity Risk Premium Over the Six-Month Average 10-Year Treasury Bond Yield

Staff Recommended Allowed ROE	9.75%
Six Month Average 10-Year Treasury Bond Yield	2.30%
Premium Over Six-Month Average 10-Year Treasury Bond Yield	7.45%

Staff's Equity Risk Premium Over the Six-Month Average 30-Year Treasury Bond Yield

Staff Recommended Allowed ROE	9.75%
Six Month Average 30-Year Treasury Bond Yield	2.91%
Premium Over Six-Month Average 30-Year Treasury Bond Yield	6.84%

Staff's Equity Risk Premium Over the Six-Month Average BBB/Baa Utility Bond Yield

Staff Recommended Allowed ROE	9.75%
Six-Month Average BBB/Baa Utility Bond Yield	4.40%
Premium Over Six-Month Average BBB/Baa Utility Bond Yield	5.35%

Sources:

- 1) Yield on U.S. 10-Year Treasury Bond (^TYN) Reported at YahooFinance.com
- 2) Yield on U.S. 30-Year Treasury Bond (^TYX) Reported at YahooFinance.com
- 3) Yield on BBB/Baa Public Utility Bonds
Reported in Value-Line Investment Survey, Selections and Opinions

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2 **Q. How does the risk-premium shown above, calculated at this time compare to**
3 **those of past KUSF dockets?**

4 **A. The risk-premium resulting from a 9.75% allowed ROE and the interest rates in the**
5 **current fixed income market compares favorably to the risk-premiums of past**

KUSF dockets. In the following table, I compare Staff's recommendations in recent KUSF dockets to the interest rates on BBB/Baa public utility bonds. As an additional point of comparison, the risk-premium from recent electric and natural gas dockets is 4.76%. On average, the risk-premium in KUSF dockets has averaged 5.39%, with a range of 4.56% to 6.23%. In this Docket, the comparable risk-premium is 5.35%.

Staff Positions in Recent KUSF Dockets						
Docket	Testimony Date	Company	Equity Ratio	Staff ROE	Baa/BBB Yields*	Resulting Rp**
12-GRHT-633-KSF	10/18/2012	Gorham Telephone Company	29.69%	10.50%	4.27%	6.23%
12-LHPT-875-AUD	12/19/2012	LaHarpe Telephone Company	90.00%	10.00%	4.33%	5.67%
13-CRKT-268-KSF	3/13/2013	Craw-Kan Telephone Cooperative, Inc.	60.00%	10.00%	4.48%	5.52%
13-ZENT-065-AUD	5/17/2013	Zenda Telephone Company, Inc.	Confidential	10.00%	4.42%	5.58%
13-JBNT-437-KSF	5/23/2013	J.B.N. Telephone Company, Inc.	46.50%	9.75%	4.52%	5.23%
13-PLTT-678-KSF	9/24/2013	Peoples Telecommunications, LLC	55.83%	9.75%	5.19%	4.56%
14-WTCT-142-KSF	2/5/2014	Wamego Telecommunications Co.	61.43%	9.60%	4.78%	4.82%
14-S&TT-525-KSF	9/25/2014	S&T Telephone Cooperative, Inc.	54.86%	9.75%	4.45%	5.30%
15-MRGT-097-KSF	1/20/2015	Moundridge Telephone Co.	Confidential	9.75%	3.91%	5.84%
15-TWVT-213-AUD	9/4/2015	Twin Valley Telephone Co.	47.81%	9.75%	4.56%	5.19%
Average Risk Premium of Recent KUSF Dockets						5.39%
* Yield on Baa/BBB Utility Bonds reported by Value-Line Investment Survey at date of Staff's testimony						
**Risk premium of Staff's ROE Recommendation over the Baa/BBB Utility Bond Yield						

There is no definitive risk-premium to apply to assess whether an allowed return for a utility is reasonable. The tenets of the Hope and Bluefield Decisions demand that an allowed return on equity be set at a rate that reflects the risks of the investment. The risk-premium is a useful tool to measure the difference between market determined capital costs of a less risky investment in public utility debt (in this instance a BBB/Baa public utility bond) and the allowed return set for stockholders. The risk-premium of 5.35% from an allowed return on equity of 9.75% meets this threshold test of the Hope and Bluefield Decisions in that it offers a premium above lower risk investments and it is comparable to risk-premiums

1 offered in similar capital market conditions.

Risk Premium of Recent Electric and Gas Dockets						
Docket	Testimony Date	Company	Equity Ratio	Staff Recmnd	BBB/Baa Utility Bond yld.	Resulting Rp
15-KCPE-116-RTS	5/11/2015	Kansas City Power & Light	50.48%	9.25%	4.17%	5.08%
15-WSEE-115-RTS	7/9/2015	Westar Energy	53.12%	9.25%	4.35%	4.90%
16-KGSG-491-RTS	9/7/2016	Kansas Gas Service	55.00%	8.75%	4.05%	4.70%
16-ATMG-079-RTS	12/21/2016	Atmos Energy	56.12%	9.10%	4.74%	4.36%
Average Risk Premium from Recent Gas & Electric Dockets						4.76%

2

3 **Q. Please discuss your observations of interest rates on public utility debt over**
4 **the past four years?**

5 A. The average yield on public utility bonds has declined to the mid-4.00% range
6 since 2013.

Annual Average Utility Bond Yield on BBB/Baa Public Utility Bonds	
2013	4.79%
2014	4.60%
2015	4.53%
2016	4.45%
2017	4.44%
Value-Line Investment Survey, Selection & Opinion Section	

7

8 Interest rates on public utility debt and the cost of equity move in the same
9 direction, although not in lock-step with one another. Current interest rates are
10 within the range seen in past dockets, which is an indication that there has not been
11 a significant change in the cost of capital from 2013 to the present.

12 **Q. Please discuss the expected returns on common stocks as forecasted and**

1 **published by asset management companies.**

2 A. For another perspective of the capital markets, I reviewed returns expected on
3 common stocks over the next 10 to 15 years. JPMAM⁶ directly manages more
4 than one-trillion dollars of assets making their forecasts an important indicator of
5 the expectations of sophisticated, institutional investment advisors. J.P. Morgan's
6 forecast is not unique, the expectations of other money management firms are
7 similar. In the last three years, these firms maintained relatively low expected
8 returns on common stocks and corporate bonds. This information is an indication
9 that sophisticated institutional investors continue to expect low returns on
10 investments into the future, and that has been their expectation for each of the last
11 six years. The following table shows the 10 to 15 year projected returns published
12 by JPMAM for each of the previous six years; the same time period that Staff has
13 advocated the 9.75% ROE for RLECs.

⁶ Long-Term Capital Market Return Assumptions, (2015 Edition, U.S.); J.P. Morgan Asset Management; <https://am.jpmorgan.com/us/institutional/ltcmr> J.P. Morgan Asset Management provides its expected annual returns on 46 different domestic and international asset classes for the 10 to 15 year horizon. J.P. Morgan describes its LTCMRA publication with the following paragraph:

J.P. MORGAN ASSET MANAGEMENT LONG-TERM CAPITAL MARKET RETURN
ASSUMPTIONS are developed each year by our Assumptions Committee, a multi-asset class team
of senior investors from across the firm. The Committee relies on the input and expertise of a range
of portfolio managers and product specialists, striving to ensure that the analysis is consistent across
asset classes. The final step in the process is a rigorous review of the proposed assumptions and their
underlying rationale with the senior management of J.P. Morgan Asset Management.

Our capital market assumptions are used widely by institutional investors – including pension plans,
insurance companies, endowments and foundations – to ensure that investment policies and decisions
are based on real-world, consistent views and can be tested under a variety of market scenarios.

J.P. Morgan Asset Management Annual Long-Term Capital Market Assumptions Forecasted 10 to 15 Year Total Returns on Common Stocks		
	Large Companies	Mid-Size Companies
2017	7.25%	8.03%
2016	8.09%	8.54%
2015	7.60%	8.34%
2014	8.49%	9.17%
2013	8.71%	10.23%
2012	9.69%	11.35%

Source: J.P. Morgan Asset Management; LTCMA
annual publication for 2012 through 2017

1

2 **Q. Please discuss the last measure of capital costs, the returns granted by public**
3 **utility commissions?**

4 A. Last of all, we can review the actions of regulatory agencies that set allowed returns
5 for natural gas and electric utilities. There is ample information on the allowed
6 returns granted to gas and electric utilities. Unfortunately, there is virtually no
7 reporting of the returns granted to local exchange carriers across the nation. This
8 comparison to other rate-of-return regulated industries is helpful as allowed returns
9 on other rate of return regulated industries have moved in parallel with this
10 Commission's findings in KUSF dockets. The next table shows average
11 observation for returns granted from each quarter. Thus, there have been many
12 opportunities for regulatory commissions to evaluate evidence on investors'
13 required returns. From this data, it is apparent that regulatory commissions
14 concluded that capital costs have remained low; there is no sign that we have left
15 the territory of sub-10.00% returns or that required returns have dropped
16 dramatically further to the 9.00% range.

Annual Average Allowed Returns on Equity Reported by RRA/SNL		
	Electric	Natural Gas
2016	9.77	9.54
2015	9.85	9.60
2014	9.91	9.78
2013	10.03	9.68
2012	10.17	9.94
2011	10.29	9.92
2010	10.37	10.15
2009	10.52	10.22
2008	10.41	10.39
2007	10.30	10.22
2006	10.32	10.40
2005	10.51	10.41
2004	10.81	10.63
2003	10.96	10.99
2002	11.21	11.17
2001	11.07	10.96
2000	11.58	11.34

1

2 **Q. Did Staff evaluate whether a 9.75% ROE produces sufficient revenues for**
3 **Rainbow to maintain financial health?**

4 A. Yes, Staff Schedule D-1 contains a TIER calculation. TIER stands for times-
5 interest-earned-ratio which conveys sufficiency of revenues to cover interest and
6 principal payments. Staff's revenue requirement produces an interest coverage
7 ratio of 4.96; by rational standards, this is a healthy level of coverage over and
8 above its annual debt service. This coverage ratio incorporates a 9.75% ROE and
9 Staff's recommended capital structure of a 60% equity and 40% debt.

10 **Q. Does this conclude your testimony?**

11 A. Yes.

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Cost of Equity Analysis
Rainbow Telephone Association
Discounted Cash Flow Analyses

				Dividend Yield (1+g/2)y +	Growth Rates			Cost of Equity Ke
		2018 Dividends	Price		Value-Line EPS	nGDP	Average g =	
AT&T	T	\$ 2.00	\$ 39.15	5.23%	5.50%	4.00%	4.75%	9.98%
Century Link	CTL	\$ 2.16	\$ 23.86	9.36%	9.50%	4.00%	6.75%	16.11%
Consolidated Communications Holdings	CNSL	\$ 1.55	\$ 21.18	7.78%	21.00%	4.00%	12.50%	20.28%
Shenandoah Telecommunications Co	SHEN	\$ 0.27	\$ 30.79	0.91%	11.50%	4.00%	7.75%	8.66%
Telephone & Data Systems	TDS	\$ 0.65	\$ 27.49	2.43%	7.00%	4.00%	5.50%	7.93%
Verizon	VZ	\$ 2.36	\$ 47.09	5.10%	3.00%	4.00%	3.50%	8.60%
				Average	9.58%		6.79%	11.93%

				Dividend Yield (1+g/2)y +	Growth Rates			Cost of Equity Ke
		2018 Dividends	Price		Value-Line	nGDP	Average	
								DPS
AT&T	T	\$ 2.00	\$ 39.15	5.21%	4.00%	4.00%	4.00%	9.21%
Century Link	CTL	\$ 2.16	\$ 23.86	9.14%	0.00%	4.00%	2.00%	11.14%
Consolidated Communications Holdings	CNSL	\$ 1.55	\$ 21.18	7.39%	0.00%	4.00%	2.00%	9.39%
Shenandoah Telecommunications Co	SHEN	\$ 0.27	\$ 30.79	0.90%	6.50%	4.00%	5.25%	6.15%
Telephone & Data Systems	TDS	\$ 0.65	\$ 27.49	2.41%	3.50%	4.00%	3.75%	9.30%
Verizon	VZ	\$ 2.36	\$ 47.09	5.09%	2.00%	4.00%	3.00%	8.65%
				Average	2.67%		3.33%	8.97%

					Growth Rates			Cost of Equity Ke
		2018	Price	Dividend Yield (1+g/2)y +	YahooFinance	nGDP	Average	
		Dividends			EPS		g =	
AT&T	T	\$ 2.00	\$ 39.15	5.24%	6.65%	4.00%	5.33%	10.57%
Century Link	CTL	\$ 2.16	\$ 23.86	8.92%	-9.70%	4.00%	-2.85%	
Consolidated Communications Holdings	CNSL	\$ 1.55	\$ 21.18	7.43%	2.00%	4.00%	3.00%	10.43%
Shenandoah Telecommunications Co	SHEN	\$ 0.27	\$ 30.79	0.94%	24.10%	4.00%	14.05%	14.99%
Telephone & Data Systems	TDS	\$ 0.65	\$ 27.49	2.34%	-9.00%	4.00%	-2.50%	
Verizon	VZ	\$ 2.36	\$ 47.09	5.08%	1.13%	4.00%	2.57%	10.43%
Average					2.53%		3.27%	11.60%

	Dividend Yield	nGDP Growth	Ke
DCF Using Forecasted nGDP Growth Rate & Average Dividend Yield of Proxy Group	5.05%	4.00%	9.05%

5.05% is the Average Dividend Yield of the Proxy Group

4.00% nGDP Growth = U.S. Forecasted Longrun Real GDP Growth 1.75% + U.S. Forecasted Longrun Core Inflation 2.25%

Sources: YahooFinance; Value-Line Investment Survey, December 29, 2006 & January 12, 2007; and J.P. Morgan Asset Management, Long-Term Capital Market Assumptions, p. 16, Exhibit 4 Macroeconomic Assumptions.

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AT&T (T)

Date	Close	Date	Close
2/28/2017	\$ 41.79	5/31/2017	\$ 38.53
3/1/2017	\$ 42.04	6/1/2017	\$ 38.87
3/2/2017	\$ 42.07	6/2/2017	\$ 38.87
3/3/2017	\$ 42.01	6/5/2017	\$ 38.81
3/6/2017	\$ 41.96	6/6/2017	\$ 38.73
3/7/2017	\$ 41.88	6/7/2017	\$ 38.76
3/8/2017	\$ 41.77	6/8/2017	\$ 38.50
3/9/2017	\$ 41.94	6/9/2017	\$ 38.79
3/10/2017	\$ 42.35	6/12/2017	\$ 39.07
3/13/2017	\$ 42.37	6/13/2017	\$ 38.68
3/14/2017	\$ 42.09	6/14/2017	\$ 38.72
3/15/2017	\$ 42.59	6/15/2017	\$ 38.84
3/16/2017	\$ 42.44	6/16/2017	\$ 38.96
3/17/2017	\$ 42.61	6/19/2017	\$ 38.91
3/20/2017	\$ 42.42	6/20/2017	\$ 38.66
3/21/2017	\$ 42.08	6/21/2017	\$ 38.15
3/22/2017	\$ 41.65	6/22/2017	\$ 38.10
3/23/2017	\$ 41.65	6/23/2017	\$ 37.95
3/24/2017	\$ 41.68	6/26/2017	\$ 38.15
3/27/2017	\$ 41.49	6/27/2017	\$ 37.70
3/28/2017	\$ 41.56	6/28/2017	\$ 37.94
3/29/2017	\$ 41.45	6/29/2017	\$ 37.62
3/30/2017	\$ 41.76	6/30/2017	\$ 37.73
3/31/2017	\$ 41.55	7/3/2017	\$ 38.11
4/3/2017	\$ 41.57	7/5/2017	\$ 38.12
4/4/2017	\$ 41.69	7/6/2017	\$ 37.18
4/5/2017	\$ 41.51	7/7/2017	\$ 36.98
4/6/2017	\$ 40.60	7/10/2017	\$ 36.83
4/7/2017	\$ 40.59	7/11/2017	\$ 36.60
4/10/2017	\$ 40.38	7/12/2017	\$ 36.83
4/11/2017	\$ 40.31	7/13/2017	\$ 36.21
4/12/2017	\$ 40.56	7/14/2017	\$ 36.30
4/13/2017	\$ 40.28	7/17/2017	\$ 36.39
4/17/2017	\$ 40.30	7/18/2017	\$ 35.99
4/18/2017	\$ 40.25	7/19/2017	\$ 36.13
4/19/2017	\$ 40.25	7/20/2017	\$ 36.52
4/20/2017	\$ 40.36	7/21/2017	\$ 36.51
4/21/2017	\$ 39.93	7/24/2017	\$ 36.23
4/24/2017	\$ 40.02	7/25/2017	\$ 36.22
4/25/2017	\$ 39.94	7/26/2017	\$ 38.03
4/26/2017	\$ 40.44	7/27/2017	\$ 39.41
4/27/2017	\$ 39.91	7/28/2017	\$ 39.00
4/28/2017	\$ 39.63	7/31/2017	\$ 39.00
5/1/2017	\$ 39.10	8/1/2017	\$ 38.88
5/2/2017	\$ 38.95	8/2/2017	\$ 38.27
5/3/2017	\$ 38.40	8/3/2017	\$ 38.28
5/4/2017	\$ 38.01	8/4/2017	\$ 38.43
5/5/2017	\$ 38.56	8/7/2017	\$ 38.52
5/8/2017	\$ 38.57	8/8/2017	\$ 38.36
5/9/2017	\$ 38.22	8/9/2017	\$ 38.36
5/10/2017	\$ 38.45	8/10/2017	\$ 38.19
5/11/2017	\$ 38.44	8/11/2017	\$ 38.10
5/12/2017	\$ 38.49	8/14/2017	\$ 38.50
5/15/2017	\$ 38.59	8/15/2017	\$ 38.16
5/16/2017	\$ 38.19	8/16/2017	\$ 38.23
5/17/2017	\$ 37.46	8/17/2017	\$ 37.60
5/18/2017	\$ 37.95	8/18/2017	\$ 37.37
5/19/2017	\$ 38.24	8/21/2017	\$ 37.58
5/22/2017	\$ 38.25	8/22/2017	\$ 37.98
5/23/2017	\$ 38.31	8/23/2017	\$ 37.92
5/24/2017	\$ 38.15	8/24/2017	\$ 37.68
5/25/2017	\$ 38.23	8/25/2017	\$ 37.99
5/26/2017	\$ 38.12	Average:	\$ 39.15
5/30/2017	\$ 38.55	Min:	\$ 35.99
Source: YahooFinance		Max:	\$ 42.61

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CenturyLink (CTL)

Date	Close	Date	Close
2/28/2017	\$ 24.26	5/31/2017	\$ 24.95
3/1/2017	\$ 24.04	6/1/2017	\$ 25.87
3/2/2017	\$ 23.53	6/2/2017	\$ 25.87
3/3/2017	\$ 23.48	6/5/2017	\$ 25.85
3/6/2017	\$ 23.10	6/6/2017	\$ 25.84
3/7/2017	\$ 22.50	6/7/2017	\$ 25.79
3/8/2017	\$ 22.45	6/8/2017	\$ 25.98
3/9/2017	\$ 22.73	6/9/2017	\$ 26.11
3/10/2017	\$ 23.14	6/12/2017	\$ 26.60
3/13/2017	\$ 23.46	6/13/2017	\$ 27.24
3/14/2017	\$ 23.34	6/14/2017	\$ 27.31
3/15/2017	\$ 23.77	6/15/2017	\$ 26.95
3/16/2017	\$ 23.37	6/16/2017	\$ 25.72
3/17/2017	\$ 23.65	6/19/2017	\$ 25.36
3/20/2017	\$ 23.64	6/20/2017	\$ 24.70
3/21/2017	\$ 23.36	6/21/2017	\$ 24.44
3/22/2017	\$ 22.81	6/22/2017	\$ 24.35
3/23/2017	\$ 22.64	6/23/2017	\$ 24.41
3/24/2017	\$ 22.76	6/26/2017	\$ 24.55
3/27/2017	\$ 22.61	6/27/2017	\$ 24.56
3/28/2017	\$ 22.52	6/28/2017	\$ 24.86
3/29/2017	\$ 23.09	6/29/2017	\$ 24.18
3/30/2017	\$ 23.41	6/30/2017	\$ 23.88
3/31/2017	\$ 23.57	7/3/2017	\$ 23.97
4/3/2017	\$ 23.60	7/5/2017	\$ 23.74
4/4/2017	\$ 23.96	7/6/2017	\$ 23.90
4/5/2017	\$ 24.21	7/7/2017	\$ 23.60
4/6/2017	\$ 24.46	7/10/2017	\$ 23.47
4/7/2017	\$ 24.54	7/11/2017	\$ 23.25
4/10/2017	\$ 24.87	7/12/2017	\$ 22.50
4/11/2017	\$ 24.90	7/13/2017	\$ 22.78
4/12/2017	\$ 25.14	7/14/2017	\$ 22.99
4/13/2017	\$ 25.12	7/17/2017	\$ 22.88
4/17/2017	\$ 25.30	7/18/2017	\$ 22.33
4/18/2017	\$ 25.06	7/19/2017	\$ 22.68
4/19/2017	\$ 25.29	7/20/2017	\$ 23.22
4/20/2017	\$ 25.49	7/21/2017	\$ 23.37
4/21/2017	\$ 25.32	7/24/2017	\$ 22.76
4/24/2017	\$ 25.45	7/25/2017	\$ 22.96
4/25/2017	\$ 25.93	7/26/2017	\$ 22.86
4/26/2017	\$ 25.87	7/27/2017	\$ 23.60
4/27/2017	\$ 25.79	7/28/2017	\$ 23.28
4/28/2017	\$ 25.67	7/31/2017	\$ 23.27
5/1/2017	\$ 25.38	8/1/2017	\$ 23.36
5/2/2017	\$ 25.95	8/2/2017	\$ 23.74
5/3/2017	\$ 25.42	8/3/2017	\$ 22.44
5/4/2017	\$ 23.74	8/4/2017	\$ 22.47
5/5/2017	\$ 23.60	8/7/2017	\$ 22.34
5/8/2017	\$ 24.80	8/8/2017	\$ 21.87
5/9/2017	\$ 25.03	8/9/2017	\$ 21.82
5/10/2017	\$ 25.11	8/10/2017	\$ 21.68
5/11/2017	\$ 24.44	8/11/2017	\$ 21.66
5/12/2017	\$ 24.63	8/14/2017	\$ 21.96
5/15/2017	\$ 24.81	8/15/2017	\$ 20.54
5/16/2017	\$ 24.77	8/16/2017	\$ 20.89
5/17/2017	\$ 24.55	8/17/2017	\$ 19.38
5/18/2017	\$ 24.59	8/18/2017	\$ 19.16
5/19/2017	\$ 24.87	8/21/2017	\$ 19.20
5/22/2017	\$ 24.95	8/22/2017	\$ 19.90
5/23/2017	\$ 25.19	8/23/2017	\$ 20.38
5/24/2017	\$ 24.96	8/24/2017	\$ 20.06
5/25/2017	\$ 24.93	8/25/2017	\$ 20.23
5/26/2017	\$ 24.80	Average:	\$ 23.86
5/30/2017	\$ 24.98	Min:	\$ 19.16
Source: YahooFinance		Max:	\$ 27.31

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Consolidated Communications Holdings (CNSL)

Date	Close	Date	Close
2/28/2017	\$ 22.55	5/31/2017	\$ 19.92
3/1/2017	\$ 22.94	6/1/2017	\$ 19.90
3/2/2017	\$ 22.65	6/2/2017	\$ 20.11
3/3/2017	\$ 22.34	6/5/2017	\$ 19.93
3/6/2017	\$ 22.27	6/6/2017	\$ 20.03
3/7/2017	\$ 22.33	6/7/2017	\$ 20.02
3/8/2017	\$ 22.06	6/8/2017	\$ 20.40
3/9/2017	\$ 22.48	6/9/2017	\$ 20.84
3/10/2017	\$ 23.03	6/12/2017	\$ 21.23
3/13/2017	\$ 23.32	6/13/2017	\$ 21.06
3/14/2017	\$ 23.15	6/14/2017	\$ 21.45
3/15/2017	\$ 23.62	6/15/2017	\$ 21.04
3/16/2017	\$ 23.80	6/16/2017	\$ 21.47
3/17/2017	\$ 24.39	6/19/2017	\$ 20.63
3/20/2017	\$ 24.24	6/20/2017	\$ 20.24
3/21/2017	\$ 23.23	6/21/2017	\$ 20.15
3/22/2017	\$ 22.85	6/22/2017	\$ 20.23
3/23/2017	\$ 23.19	6/23/2017	\$ 20.53
3/24/2017	\$ 23.24	6/26/2017	\$ 20.57
3/27/2017	\$ 23.03	6/27/2017	\$ 20.74
3/28/2017	\$ 23.28	6/28/2017	\$ 21.27
3/29/2017	\$ 23.91	6/29/2017	\$ 21.36
3/30/2017	\$ 24.12	6/30/2017	\$ 21.47
3/31/2017	\$ 23.42	7/3/2017	\$ 21.95
4/3/2017	\$ 23.17	7/5/2017	\$ 22.04
4/4/2017	\$ 23.80	7/6/2017	\$ 21.32
4/5/2017	\$ 23.52	7/7/2017	\$ 20.71
4/6/2017	\$ 23.77	7/10/2017	\$ 20.15
4/7/2017	\$ 24.16	7/11/2017	\$ 19.33
4/10/2017	\$ 24.00	7/12/2017	\$ 18.78
4/11/2017	\$ 24.23	7/13/2017	\$ 18.42
4/12/2017	\$ 24.21	7/14/2017	\$ 17.96
4/13/2017	\$ 23.86	7/17/2017	\$ 17.97
4/17/2017	\$ 24.19	7/18/2017	\$ 17.94
4/18/2017	\$ 24.42	7/19/2017	\$ 17.92
4/19/2017	\$ 24.28	7/20/2017	\$ 18.31
4/20/2017	\$ 24.28	7/21/2017	\$ 18.50
4/21/2017	\$ 24.02	7/24/2017	\$ 18.10
4/24/2017	\$ 24.13	7/25/2017	\$ 18.15
4/25/2017	\$ 24.10	7/26/2017	\$ 18.10
4/26/2017	\$ 24.41	7/27/2017	\$ 18.41
4/27/2017	\$ 24.06	7/28/2017	\$ 18.15
4/28/2017	\$ 23.67	7/31/2017	\$ 18.00
5/1/2017	\$ 23.72	8/1/2017	\$ 18.39
5/2/2017	\$ 24.05	8/2/2017	\$ 18.45
5/3/2017	\$ 23.18	8/3/2017	\$ 18.61
5/4/2017	\$ 22.46	8/4/2017	\$ 19.63
5/5/2017	\$ 22.69	8/7/2017	\$ 19.81
5/8/2017	\$ 22.16	8/8/2017	\$ 19.38
5/9/2017	\$ 22.12	8/9/2017	\$ 19.12
5/10/2017	\$ 22.13	8/10/2017	\$ 19.05
5/11/2017	\$ 20.57	8/11/2017	\$ 19.26
5/12/2017	\$ 20.64	8/14/2017	\$ 19.66
5/15/2017	\$ 20.50	8/15/2017	\$ 19.06
5/16/2017	\$ 20.17	8/16/2017	\$ 19.28
5/17/2017	\$ 19.88	8/17/2017	\$ 18.64
5/18/2017	\$ 19.67	8/18/2017	\$ 18.68
5/19/2017	\$ 19.60	8/21/2017	\$ 18.38
5/22/2017	\$ 19.47	8/22/2017	\$ 18.66
5/23/2017	\$ 19.53	8/23/2017	\$ 19.24
5/24/2017	\$ 19.58	8/24/2017	\$ 19.04
5/25/2017	\$ 19.68	8/25/2017	\$ 18.80
5/26/2017	\$ 19.48	Average:	\$ 21.18
5/30/2017	\$ 19.82	Min:	\$ 17.92
		Max:	\$ 24.42

Source: YahooFinance

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Shenandoah Telecommunications Co (SHEN)

Date	Close	Date	Close
2/28/2017	\$ 28.10	5/31/2017	\$ 30.65
3/1/2017	\$ 28.25	6/1/2017	\$ 30.75
3/2/2017	\$ 27.45	6/2/2017	\$ 31.95
3/3/2017	\$ 26.85	6/5/2017	\$ 32.55
3/6/2017	\$ 26.55	6/6/2017	\$ 32.25
3/7/2017	\$ 25.85	6/7/2017	\$ 31.70
3/8/2017	\$ 26.00	6/8/2017	\$ 32.20
3/9/2017	\$ 25.95	6/9/2017	\$ 31.85
3/10/2017	\$ 26.15	6/12/2017	\$ 32.10
3/13/2017	\$ 26.95	6/13/2017	\$ 31.85
3/14/2017	\$ 26.65	6/14/2017	\$ 31.60
3/15/2017	\$ 27.35	6/15/2017	\$ 31.35
3/16/2017	\$ 28.05	6/16/2017	\$ 32.15
3/17/2017	\$ 27.00	6/19/2017	\$ 32.10
3/20/2017	\$ 28.25	6/20/2017	\$ 31.45
3/21/2017	\$ 27.85	6/21/2017	\$ 30.25
3/22/2017	\$ 27.65	6/22/2017	\$ 29.85
3/23/2017	\$ 28.60	6/23/2017	\$ 30.15
3/24/2017	\$ 28.85	6/26/2017	\$ 29.80
3/27/2017	\$ 27.90	6/27/2017	\$ 29.80
3/28/2017	\$ 28.03	6/28/2017	\$ 30.45
3/29/2017	\$ 28.20	6/29/2017	\$ 30.30
3/30/2017	\$ 28.40	6/30/2017	\$ 30.70
3/31/2017	\$ 28.05	7/3/2017	\$ 30.60
4/3/2017	\$ 27.40	7/5/2017	\$ 30.35
4/4/2017	\$ 28.30	7/6/2017	\$ 29.20
4/5/2017	\$ 28.85	7/7/2017	\$ 29.35
4/6/2017	\$ 28.80	7/10/2017	\$ 29.85
4/7/2017	\$ 29.20	7/11/2017	\$ 28.95
4/10/2017	\$ 29.45	7/12/2017	\$ 29.10
4/11/2017	\$ 29.25	7/13/2017	\$ 28.25
4/12/2017	\$ 31.05	7/14/2017	\$ 28.90
4/13/2017	\$ 30.05	7/17/2017	\$ 28.90
4/17/2017	\$ 30.55	7/18/2017	\$ 29.20
4/18/2017	\$ 30.65	7/19/2017	\$ 29.85
4/19/2017	\$ 30.75	7/20/2017	\$ 31.05
4/20/2017	\$ 30.60	7/21/2017	\$ 30.85
4/21/2017	\$ 30.70	7/24/2017	\$ 29.65
4/24/2017	\$ 31.00	7/25/2017	\$ 30.50
4/25/2017	\$ 31.65	7/26/2017	\$ 30.55
4/26/2017	\$ 32.70	7/27/2017	\$ 30.70
4/27/2017	\$ 32.40	7/28/2017	\$ 30.20
4/28/2017	\$ 32.00	7/31/2017	\$ 30.75
5/1/2017	\$ 32.05	8/1/2017	\$ 31.20
5/2/2017	\$ 32.60	8/2/2017	\$ 33.45
5/3/2017	\$ 31.40	8/3/2017	\$ 34.90
5/4/2017	\$ 31.15	8/4/2017	\$ 35.90
5/5/2017	\$ 31.90	8/7/2017	\$ 36.10
5/8/2017	\$ 32.45	8/8/2017	\$ 36.25
5/9/2017	\$ 32.30	8/9/2017	\$ 35.65
5/10/2017	\$ 32.10	8/10/2017	\$ 35.40
5/11/2017	\$ 31.20	8/11/2017	\$ 35.40
5/12/2017	\$ 31.53	8/14/2017	\$ 36.40
5/15/2017	\$ 31.35	8/15/2017	\$ 36.40
5/16/2017	\$ 31.35	8/16/2017	\$ 36.55
5/17/2017	\$ 30.80	8/17/2017	\$ 35.35
5/18/2017	\$ 30.90	8/18/2017	\$ 35.20
5/19/2017	\$ 31.20	8/21/2017	\$ 34.95
5/22/2017	\$ 32.25	8/22/2017	\$ 35.00
5/23/2017	\$ 31.05	8/23/2017	\$ 35.25
5/24/2017	\$ 30.35	8/24/2017	\$ 35.85
5/25/2017	\$ 30.50	8/25/2017	\$ 35.90
5/26/2017	\$ 30.48	Average:	\$ 30.79
5/30/2017	\$ 30.50	Min:	\$ 25.85
		Max:	\$ 36.55

Source: YahooFinance

Schedule AHG - 2
17-RNBT-555-KSF

Telephone & Data Systems (TDS)

Date	Close	Date	Close
2/28/2017	\$ 27.03	5/31/2017	\$ 28.53
3/1/2017	\$ 26.99	6/1/2017	\$ 29.04
3/2/2017	\$ 26.52	6/2/2017	\$ 29.10
3/3/2017	\$ 26.38	6/5/2017	\$ 29.08
3/6/2017	\$ 25.78	6/6/2017	\$ 28.61
3/7/2017	\$ 25.42	6/7/2017	\$ 28.52
3/8/2017	\$ 25.12	6/8/2017	\$ 28.54
3/9/2017	\$ 25.70	6/9/2017	\$ 28.30
3/10/2017	\$ 26.08	6/12/2017	\$ 28.68
3/13/2017	\$ 25.99	6/13/2017	\$ 28.29
3/14/2017	\$ 25.78	6/14/2017	\$ 28.21
3/15/2017	\$ 26.18	6/15/2017	\$ 27.96
3/16/2017	\$ 26.27	6/16/2017	\$ 28.07
3/17/2017	\$ 26.35	6/19/2017	\$ 28.01
3/20/2017	\$ 26.25	6/20/2017	\$ 27.74
3/21/2017	\$ 25.63	6/21/2017	\$ 27.68
3/22/2017	\$ 25.30	6/22/2017	\$ 27.57
3/23/2017	\$ 25.25	6/23/2017	\$ 27.66
3/24/2017	\$ 25.34	6/26/2017	\$ 28.04
3/27/2017	\$ 25.20	6/27/2017	\$ 28.23
3/28/2017	\$ 25.50	6/28/2017	\$ 28.46
3/29/2017	\$ 25.94	6/29/2017	\$ 27.84
3/30/2017	\$ 26.40	6/30/2017	\$ 27.75
3/31/2017	\$ 26.51	7/3/2017	\$ 28.17
4/3/2017	\$ 26.10	7/5/2017	\$ 27.92
4/4/2017	\$ 26.62	7/6/2017	\$ 27.83
4/5/2017	\$ 26.55	7/7/2017	\$ 27.66
4/6/2017	\$ 26.37	7/10/2017	\$ 27.46
4/7/2017	\$ 26.31	7/11/2017	\$ 27.56
4/10/2017	\$ 26.63	7/12/2017	\$ 27.27
4/11/2017	\$ 26.72	7/13/2017	\$ 27.23
4/12/2017	\$ 26.94	7/14/2017	\$ 27.59
4/13/2017	\$ 26.28	7/17/2017	\$ 27.83
4/17/2017	\$ 26.85	7/18/2017	\$ 27.62
4/18/2017	\$ 26.91	7/19/2017	\$ 28.02
4/19/2017	\$ 27.05	7/20/2017	\$ 28.20
4/20/2017	\$ 27.17	7/21/2017	\$ 28.40
4/21/2017	\$ 27.16	7/24/2017	\$ 28.04
4/24/2017	\$ 27.45	7/25/2017	\$ 28.85
4/25/2017	\$ 27.61	7/26/2017	\$ 28.43
4/26/2017	\$ 27.48	7/27/2017	\$ 28.68
4/27/2017	\$ 27.29	7/28/2017	\$ 28.30
4/28/2017	\$ 27.46	7/31/2017	\$ 28.43
5/1/2017	\$ 26.98	8/1/2017	\$ 28.83
5/2/2017	\$ 27.18	8/2/2017	\$ 28.67
5/3/2017	\$ 26.04	8/3/2017	\$ 28.47
5/4/2017	\$ 26.17	8/4/2017	\$ 28.81
5/5/2017	\$ 27.46	8/7/2017	\$ 29.68
5/8/2017	\$ 27.38	8/8/2017	\$ 29.26
5/9/2017	\$ 27.50	8/9/2017	\$ 28.87
5/10/2017	\$ 27.30	8/10/2017	\$ 28.51
5/11/2017	\$ 26.59	8/11/2017	\$ 28.70
5/12/2017	\$ 27.19	8/14/2017	\$ 29.36
5/15/2017	\$ 27.22	8/15/2017	\$ 28.72
5/16/2017	\$ 26.90	8/16/2017	\$ 28.97
5/17/2017	\$ 26.19	8/17/2017	\$ 28.42
5/18/2017	\$ 26.28	8/18/2017	\$ 28.57
5/19/2017	\$ 27.20	8/21/2017	\$ 28.54
5/22/2017	\$ 27.61	8/22/2017	\$ 28.98
5/23/2017	\$ 27.61	8/23/2017	\$ 29.37
5/24/2017	\$ 27.79	8/24/2017	\$ 29.31
5/25/2017	\$ 28.09	8/25/2017	\$ 29.57
5/26/2017	\$ 27.86	Average:	\$ 27.49
5/30/2017	\$ 28.00	Min:	\$ 25.12
Source: YahooFinance		Max:	\$ 29.68

Schedule AHG - 2
17-RNBT-555-KSF

Verizon (VZ)

Date	Close	Date	Close
2/28/2017	\$ 49.63	5/31/2017	\$ 46.64
3/1/2017	\$ 49.81	6/1/2017	\$ 46.51
3/2/2017	\$ 49.98	6/2/2017	\$ 46.44
3/3/2017	\$ 50.09	6/5/2017	\$ 46.37
3/6/2017	\$ 50.03	6/6/2017	\$ 46.44
3/7/2017	\$ 49.44	6/7/2017	\$ 46.50
3/8/2017	\$ 49.16	6/8/2017	\$ 46.19
3/9/2017	\$ 49.28	6/9/2017	\$ 46.72
3/10/2017	\$ 49.35	6/12/2017	\$ 47.19
3/13/2017	\$ 49.47	6/13/2017	\$ 46.46
3/14/2017	\$ 49.36	6/14/2017	\$ 46.69
3/15/2017	\$ 50.14	6/15/2017	\$ 46.64
3/16/2017	\$ 50.04	6/16/2017	\$ 46.63
3/17/2017	\$ 50.39	6/19/2017	\$ 46.57
3/20/2017	\$ 50.24	6/20/2017	\$ 45.94
3/21/2017	\$ 50.16	6/21/2017	\$ 45.41
3/22/2017	\$ 49.71	6/22/2017	\$ 45.42
3/23/2017	\$ 49.64	6/23/2017	\$ 45.39
3/24/2017	\$ 49.68	6/26/2017	\$ 45.75
3/27/2017	\$ 49.14	6/27/2017	\$ 44.84
3/28/2017	\$ 49.30	6/28/2017	\$ 44.84
3/29/2017	\$ 49.13	6/29/2017	\$ 44.41
3/30/2017	\$ 49.06	6/30/2017	\$ 44.66
3/31/2017	\$ 48.75	7/3/2017	\$ 45.00
4/3/2017	\$ 49.18	7/5/2017	\$ 44.65
4/4/2017	\$ 49.31	7/6/2017	\$ 43.52
4/5/2017	\$ 49.02	7/7/2017	\$ 43.48
4/6/2017	\$ 48.43	7/10/2017	\$ 43.20
4/7/2017	\$ 48.66	7/11/2017	\$ 42.89
4/10/2017	\$ 48.54	7/12/2017	\$ 43.22
4/11/2017	\$ 48.70	7/13/2017	\$ 43.49
4/12/2017	\$ 48.92	7/14/2017	\$ 43.56
4/13/2017	\$ 48.62	7/17/2017	\$ 43.66
4/17/2017	\$ 48.81	7/18/2017	\$ 43.36
4/18/2017	\$ 49.22	7/19/2017	\$ 43.45
4/19/2017	\$ 48.94	7/20/2017	\$ 44.22
4/20/2017	\$ 48.41	7/21/2017	\$ 44.23
4/21/2017	\$ 47.25	7/24/2017	\$ 43.71
4/24/2017	\$ 47.05	7/25/2017	\$ 43.98
4/25/2017	\$ 46.70	7/26/2017	\$ 44.40
4/26/2017	\$ 47.36	7/27/2017	\$ 47.81
4/27/2017	\$ 46.67	7/28/2017	\$ 47.94
4/28/2017	\$ 45.91	7/31/2017	\$ 48.40
5/1/2017	\$ 45.88	8/1/2017	\$ 48.89
5/2/2017	\$ 45.91	8/2/2017	\$ 48.21
5/3/2017	\$ 46.15	8/3/2017	\$ 48.61
5/4/2017	\$ 45.88	8/4/2017	\$ 48.91
5/5/2017	\$ 46.69	8/7/2017	\$ 48.86
5/8/2017	\$ 46.63	8/8/2017	\$ 48.60
5/9/2017	\$ 46.42	8/9/2017	\$ 48.22
5/10/2017	\$ 46.38	8/10/2017	\$ 48.02
5/11/2017	\$ 46.02	8/11/2017	\$ 48.06
5/12/2017	\$ 45.84	8/14/2017	\$ 48.78
5/15/2017	\$ 45.38	8/15/2017	\$ 48.48
5/16/2017	\$ 45.31	8/16/2017	\$ 48.41
5/17/2017	\$ 44.48	8/17/2017	\$ 47.89
5/18/2017	\$ 45.04	8/18/2017	\$ 47.69
5/19/2017	\$ 45.42	8/21/2017	\$ 48.14
5/22/2017	\$ 45.48	8/22/2017	\$ 48.35
5/23/2017	\$ 45.48	8/23/2017	\$ 48.28
5/24/2017	\$ 45.04	8/24/2017	\$ 48.31
5/25/2017	\$ 45.31	8/25/2017	\$ 48.68
5/26/2017	\$ 45.32	Average:	\$ 47.09
5/30/2017	\$ 46.20	Min:	\$ 42.89
Source: YahooFinance		Max:	\$ 50.39

Schedule AHG - 3
17-RNBT-555-KSF

Yield on 10 Year U.S. Treasury Bond (^TNX)

Date	Yield	Monthly Average	Date	Yield	Monthly Average
2/28/2017	2.36		6/1/2017	2.22	
3/1/2017	2.46		6/2/2017	2.16	
3/2/2017	2.49		6/5/2017	2.18	
3/3/2017	2.49		6/6/2017	2.15	
3/6/2017	2.49		6/7/2017	2.18	
3/7/2017	2.51		6/8/2017	2.19	
3/8/2017	2.55		6/9/2017	2.20	
3/9/2017	2.60		6/12/2017	2.21	
3/10/2017	2.58		6/13/2017	2.21	
3/13/2017	2.61		6/14/2017	2.14	
3/14/2017	2.60		6/15/2017	2.16	
3/15/2017	2.51		6/16/2017	2.16	
3/16/2017	2.52		6/19/2017	2.19	
3/17/2017	2.50		6/20/2017	2.15	
3/20/2017	2.47		6/21/2017	2.16	
3/21/2017	2.44		6/22/2017	2.15	
3/22/2017	2.40		6/23/2017	2.14	
3/23/2017	2.42		6/26/2017	2.14	
3/24/2017	2.40		6/27/2017	2.20	
3/27/2017	2.37		6/28/2017	2.22	
3/28/2017	2.41		6/29/2017	2.27	
3/29/2017	2.39		6/30/2017	2.30	2.19
3/30/2017	2.42		7/3/2017	2.35	
3/31/2017	2.40	2.48	7/5/2017	2.33	
4/3/2017	2.35		7/6/2017	2.37	
4/4/2017	2.35		7/7/2017	2.39	
4/5/2017	2.36		7/10/2017	2.37	
4/6/2017	2.34		7/11/2017	2.36	
4/7/2017	2.37		7/12/2017	2.33	
4/10/2017	2.36		7/13/2017	2.35	
4/11/2017	2.30		7/14/2017	2.32	
4/12/2017	2.30		7/17/2017	2.31	
4/13/2017	2.23		7/18/2017	2.26	
4/17/2017	2.25		7/19/2017	2.27	
4/18/2017	2.18		7/20/2017	2.27	
4/19/2017	2.20		7/21/2017	2.23	
4/20/2017	2.24		7/24/2017	2.25	
4/21/2017	2.24		7/25/2017	2.33	
4/24/2017	2.27		7/26/2017	2.28	
4/25/2017	2.33		7/27/2017	2.31	
4/26/2017	2.31		7/28/2017	2.29	
4/27/2017	2.30		7/31/2017	2.29	2.31
4/28/2017	2.28	2.29	8/1/2017	2.25	
5/1/2017	2.33		8/2/2017	2.26	
5/2/2017	2.30		8/3/2017	2.23	
5/3/2017	2.31		8/4/2017	2.27	
5/4/2017	2.36		8/7/2017	2.26	
5/5/2017	2.35		8/8/2017	2.28	
5/8/2017	2.38		8/9/2017	2.24	
5/9/2017	2.41		8/10/2017	2.21	
5/10/2017	2.41		8/11/2017	2.19	
5/11/2017	2.40		8/14/2017	2.22	
5/12/2017	2.34		8/15/2017	2.27	
5/15/2017	2.34		8/16/2017	2.23	
5/16/2017	2.33		8/17/2017	2.20	
5/17/2017	2.22		8/18/2017	2.19	
5/18/2017	2.23		8/21/2017	2.18	
5/19/2017	2.25		8/22/2017	2.22	
5/22/2017	2.25		8/23/2017	2.17	
5/23/2017	2.29		8/24/2017	2.19	
5/24/2017	2.27		8/25/2017	2.17	2.22
5/25/2017	2.26				
5/26/2017	2.25				
5/30/2017	2.22				
5/31/2017	2.20	2.30	Source: YahooFinance		

Schedule AHG - 3
17-RNBT-555-KSF

Yield on 10 Year U.S. Treasury Bond (^TXY)

Date	Yield	Monthly Average	Date	Yield	Monthly Average
2/28/2017	2.97		6/1/2017	2.87	
3/1/2017	3.07		6/2/2017	2.81	
3/2/2017	3.08		6/5/2017	2.84	
3/3/2017	3.08		6/6/2017	2.81	
3/6/2017	3.10		6/7/2017	2.84	
3/7/2017	3.11		6/8/2017	2.86	
3/8/2017	3.15		6/9/2017	2.85	
3/9/2017	3.18		6/12/2017	2.87	
3/10/2017	3.17		6/13/2017	2.86	
3/13/2017	3.19		6/14/2017	2.78	
3/14/2017	3.17		6/15/2017	2.79	
3/15/2017	3.11		6/16/2017	2.78	
3/16/2017	3.14		6/19/2017	2.79	
3/17/2017	3.11		6/20/2017	2.74	
3/20/2017	3.09		6/21/2017	2.72	
3/21/2017	3.05		6/22/2017	2.72	
3/22/2017	3.01		6/23/2017	2.71	
3/23/2017	3.03		6/26/2017	2.70	
3/24/2017	3.00		6/27/2017	2.74	
3/27/2017	2.98		6/28/2017	2.77	
3/28/2017	3.01		6/29/2017	2.81	
3/29/2017	2.99		6/30/2017	2.84	2.80
3/30/2017	3.03		7/3/2017	2.86	
3/31/2017	3.02	3.08	7/5/2017	2.86	
4/3/2017	2.99		7/6/2017	2.90	
4/4/2017	2.99		7/7/2017	2.94	
4/5/2017	3.01		7/10/2017	2.92	
4/6/2017	2.99		7/11/2017	2.92	
4/7/2017	3.00		7/12/2017	2.90	
4/10/2017	2.99		7/13/2017	2.92	
4/11/2017	2.93		7/14/2017	2.91	
4/12/2017	2.93		7/17/2017	2.89	
4/13/2017	2.89		7/18/2017	2.85	
4/17/2017	2.91		7/19/2017	2.85	
4/18/2017	2.84		7/20/2017	2.84	
4/19/2017	2.86		7/21/2017	2.80	
4/20/2017	2.89		7/24/2017	2.83	
4/21/2017	2.90		7/25/2017	2.91	
4/24/2017	2.93		7/26/2017	2.89	
4/25/2017	2.98		7/27/2017	2.93	
4/26/2017	2.97		7/28/2017	2.89	
4/27/2017	2.97		7/31/2017	2.90	2.89
4/28/2017	2.95	2.94	8/1/2017	2.85	
5/1/2017	3.01		8/2/2017	2.85	
5/2/2017	2.98		8/3/2017	2.81	
5/3/2017	2.96		8/4/2017	2.84	
5/4/2017	3.00		8/7/2017	2.84	
5/5/2017	2.99		8/8/2017	2.87	
5/8/2017	3.01		8/9/2017	2.82	
5/9/2017	3.04		8/10/2017	2.79	
5/10/2017	3.04		8/11/2017	2.79	
5/11/2017	3.04		8/14/2017	2.81	
5/12/2017	2.99		8/15/2017	2.84	
5/15/2017	3.01		8/16/2017	2.81	
5/16/2017	2.99		8/17/2017	2.78	
5/17/2017	2.90		8/18/2017	2.78	
5/18/2017	2.91		8/21/2017	2.76	
5/19/2017	2.91		8/22/2017	2.79	
5/22/2017	2.92		8/23/2017	2.75	
5/23/2017	2.95		8/24/2017	2.77	
5/24/2017	2.94		8/25/2017	2.75	2.80
5/25/2017	2.92				
5/26/2017	2.92				
5/30/2017	2.89				
5/31/2017	2.86	2.96	Source: YahooFinance		

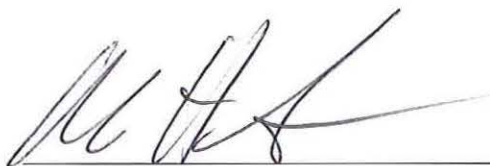
	Utility Bond BBB/Baa Yield	Monthly Average
03/01/17	4.62%	
03/08/17	4.72%	
03/15/17	4.67%	
03/22/17	4.59%	
03/29/17	4.57%	4.63%
04/06/17	4.60%	
04/13/17	4.48%	
04/19/17	4.42%	
04/26/17	4.54%	4.51%
05/03/17	4.53%	
05/10/17	4.57%	
05/17/17	4.44%	
05/24/17	4.45%	
05/31/17	4.39%	4.48%
06/07/17	4.35%	
06/14/17	4.27%	
06/21/17	4.21%	
06/28/17	4.27%	4.28%
07/05/17	4.34%	
07/12/17	4.34%	
07/19/17	4.28%	
07/26/17	4.29%	4.31%
08/02/17	4.25%	
08/09/17	4.22%	
08/16/17	4.22%	
08/23/17	4.15%	4.21%

Source: Value-Line Investment Survey, Selection
& Opinion Section

STATE OF KANSAS)
) ss.
COUNTY OF SHAWNEE)

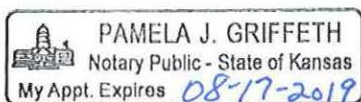
VERIFICATION

Adam Gatewood, being duly sworn upon his oath deposes and says that he is the Managing Financial Analyst for the State Corporation Commission of the State of Kansas, that he has read and is familiar with the foregoing *Direct Testimony*, and that the statements contained therein are true and correct to the best of his knowledge, information and belief.



Adam Gatewood
Managing Financial Analyst, Utilities Division
State Corporation Commission of the
State of Kansas

Subscribed and sworn to before me this 26th day of October, 2017.


Notary Public

My Appointment Expires: August 17, 2019

CERTIFICATE OF SERVICE

17-RNBT-555-KSF

I, the undersigned, certify that a true and correct copy of the above and foregoing Direct Testimony was served by electronic service on this 26th day of October, 2017, to the following:

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