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August 28, 2019

Marlene H. Dortch
Secretary
Federal Communications Commission
445 12th Street, N.W.
TW-A325
Washington, D.C. 20554

Re: NECA 2020 Modification of the Average Schedule Universal Service High Cost Loop Support Formula, WC Docket No. 05-337

Dear Ms. Dortch:

Attached is *NECA's 2020 Modification of the Average Schedule Universal Service High Cost Loop Support Formula*. This filing contains proposed modifications to the formula used to calculate interstate universal service fund high cost loop expense adjustments for average schedule companies. These average schedule modifications are scheduled to take effect on January 1, 2020 and remain in effect through December 31, 2020.

This *2020 Modification of the Average Schedule Universal Service High Cost Loop Support Formula* has been filed electronically in the above-referenced docket.

Sincerely,

A handwritten signature in blue ink, appearing to read "Robert J. Deegan", with a long horizontal flourish extending to the right.

Attachment:
2020 Modification of the Average Schedule Universal Service High Cost Loop Support Formula

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

2020

NECA  MODIFICATION OF
THE AVERAGE SCHEDULE UNIVERSAL SERVICE
HIGH COST LOOP SUPPORT FORMULA

August 28, 2019

NECA
80 South Jefferson Road
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**NECA MODIFICATION OF THE AVERAGE SCHEDULE
UNIVERSAL SERVICE HIGH COST LOOP SUPPORT FORMULA
EFFECTIVE JANUARY 1, 2020**

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**NECA MODIFICATION OF THE AVERAGE SCHEDULE
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EFFECTIVE JANUARY 1, 2020**

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**NECA MODIFICATION OF THE AVERAGE SCHEDULE
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EFFECTIVE JANUARY 1, 2020**

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Summary

In this filing, the National Exchange Carrier Association, Inc. (NECA) proposes modifications to the formula used to calculate Universal Service Fund (USF) high cost loop (HCL) expense adjustments for average schedule companies.¹ This formula and associated cost per loop values are intended to govern HCL payments to average schedule companies eligible for HCL support in the 2020 calendar year.²

This filing describes results of NECA's studies to update the HCL Cost per Loop (CPL) formula, which continues to use methods approved by the Commission for determining average schedule USF payments in 2019.³ As required by the FCC's March 30, 2016 *Rate of Return Reform Order*,⁴ NECA continues to incorporate a 25 basis point annual reduction in the rate-of-return (RoR) used to compute the formulas. The *Rate of Return Reform Order* also adopted limits on operating

¹ NECA submits proposed modifications to the average schedule HCL formula on an annual basis. See *National Exchange Carrier Association, Inc. 2005 Modification of Average Schedule Universal Service Formulas*, CC Docket No. 96-45, Order, 19 FCC Rcd. 24998 (2004).

² Section 54.1305 of the Commission's rules require all rate-of-return carriers to provide High Cost Loop Support data. Effective July 1, 2019, the Commission granted forbearance from this requirement for companies receiving model-based support and electing incentive-based regulation for BDS as of July 1, 2019 (the forbearance is effective July 1, 2020 for companies electing incentive-based regulation for BDS as of July 1, 2020). The proposed formula and the associated cost per loop values will be used to satisfy the reporting requirements for all carriers still required to submit HCL data, including average schedule companies receiving A-CAM, A-CAM II and Alaska Plan support and not eligible to receive HCL support. *Regulation of Business Data Services for Rate-of-Return Local Exchange Carriers, et al.*, WC Docket No. 17-144, *et al.*, Report and Order, 33 FCC Rcd. 10403 (2018).

³ *National Exchange Carrier Association, Inc., 2019 Modification of the Average Schedule Universal Service High Cost Loop Support Formula, High-Cost Universal Service Support*, WC Docket No. 05-337, Order, 33 FCC Rcd. 12227 (2018).

⁴ *Connect America Fund*, WC Docket No. 10-90, *ETC Annual Reports and Certifications*, WC Docket No. 14-58, *Developing a Unified Inter-carrier Compensation Regime*, CC Docket No. 01-92, Report and Order, Order and Order on Reconsideration, and Further Notice of Proposed Rulemaking, 31 FCC Rcd. 3087 (2016) (*Rate of Return Reform Order*).

expenses to be recovered through support. Under the proposed formulas, an Operating Expense (Opex) Limit Factor is accordingly applied to average schedule companies' CPL and USF payments.

A. Background

The proposed average schedule HCL formula change is needed to assure payments to average schedule companies will simulate payments received by representative cost companies, as required by section 69.606(a) of the Commission's rules.

NECA proposes herein a formula relating cost per loop data of sample companies to their loops per exchange values (see Exhibit 1) as well as an Opex limit factor to be applied to average schedule companies subject to Opex limits. NECA includes cost per loop amounts based on this formula for every average schedule study area entitled to an expense adjustment pursuant to section 54.1301, in its Annual Universal Service Fund Submission of Study Results. These cost per loop amounts, when used with the payment algorithm prescribed in section 54.1310 of the Commission's rules, will produce HCL payments to individual companies consistent with the Commission's rules.

Annual payments to average schedule companies under the proposed formula will total approximately \$3.245 million payable to 62 average schedule study areas in 2020.⁵ These payments reflect the maintenance of the cap on the overall fund size. In comparison, payments in 2019 under the current formula are expected to amount to \$2.231 million paid to 47 study areas.⁶ The proposed payments represent an increase of \$1.014 million, about 45.5%, compared to current payments. Most of this increase is attributed to the change in payment rules that took effect on July

⁵ This amount is prior to application, where applicable, of USAC adjustments for the \$2700 support limit and the overall budget control mechanism.

⁶ These numbers reflect only the average schedule population eligible to receive HCL support in 2020.

1, 2015.⁷ Under the new payment rules, the fund size is controlled with across-the-board payment cuts rather than by adjusting the NACPL to keep total payments under the cap. Under this method of controlling the fund, modest increases in CPL when the CPL is close to the payment threshold, produce significantly higher percent increases in expense adjustments per loop than the same percent increase in CPL when the CPL is further from the payment threshold. Average schedule companies are low cost companies with CPLs close to the lower 115% payment threshold, so even a small increase in CPL can produce a relatively larger percent increase in HCL payments.

It should be noted the average schedule portion of high cost loop funding is small, in part because average schedule companies generally have costs between 115% and 150% of the frozen National Average Cost per Loop (NACPL), and thus receive support compensating for only a minor portion of their loop costs. HCL funding for all rural companies eligible for HCL Support in 2020 will amount to \$401 million. If the Commission approves the Cost per Loop formula proposed herein, the \$3.245 million in HCL funding made available in 2020 to average schedule companies will represent only 0.8% of the total rural rate-of-return HCL fund. In contrast, there are 90 average schedule study areas, representing 20.5% of the 439 total rural study areas eligible to receive HCL Support.⁸

⁷ On December 18, 2014, the FCC issued Report and Order that alters the way the High Cost Loop Support expense adjustments are calculated beginning July 1, 2015. *See Connect America Fund*, WC Docket No. 10-90, *ETC Annual Reports and Certifications*, WC Docket No. 14-58, *Petition of USTelecom for Forbearance Pursuant to 47 U.S.C. § 160(c) from Obsolete ILEC Regulatory Obligations that Inhibit Deployment of Next-Generation Networks*, WC Docket No. 14-192, Report and Order, 29 FCC Rcd. 15644 (2014) ¶¶ 102-114.

⁸ A total of 458 cost companies and 195 average schedule companies, receiving ACAM and Alaska Plan support, are not eligible to receive HCL support in 2020. Out of these, 23 cost and 15 average schedule companies have elected incentive-based regulation for BDS and are no longer required to submit HCL data.

B. Procedural Aspects

In preparing proposed formula revisions, NECA receives valuable assistance from the Average Schedule Task Group. This group consists of exchange carrier representatives including members sponsored by industry associations (*e.g.* NTCA – the Rural Broadband Association, USTelecom, and the WTA – Advocates for Rural Broadband). The Task Group meets several times a year, reviews the steps taken in developing proposed average schedule formulas, advises NECA regarding the development of procedures for administration of the formulas, and assists the NECA Board of Directors in evaluating final proposed formulas. Task Group participation assures average schedule companies are able to participate fully in the development of the average schedule formulas, and also have an opportunity to provide input to NECA regarding the ways in which changes in average schedule company networks can affect settlement formulas.

As it has done in the past for each proposed average schedule modification, NECA will provide a statement to each average schedule company advising it of the impacts of these proposed modifications. This detailed, individual notification includes a brief overview of the new formula as well as the factors contributing to changes in a company's support amount (*e.g.* changes in loop counts and exchange count data). These notifications assure average schedule companies are aware of proposed changes in the support formula and the impact on their settlements to enable them to plan accordingly. NECA also provides data based on this formula to USAC for USF administration.

Exhibit 1

Proposed High Cost Loop (HCL) Formula for 2020

Average Schedule HCL Formula = Cost per Loop Formula x Opex Limit Factor

Cost per Loop Formula

If Loops per Exchange is less than 750, then:

$$\text{Cost per Loop} = \$1299.77526 - \$0.683133 \times \text{Loops per Exchange}$$

If Loops per Exchange is greater than or equal to 750 but less than 1,700, then:

$$\text{Cost per Loop} = \$885.360372 - \$0.13058 \times \text{Loops per Exchange}$$

If Loops per Exchange is greater than or equal to 1,700, then:

$$\text{Cost per Loop} = \$663.38.$$

Opex Limit Factor

If exchanges are not subject to section 54.305 rules,⁹ then:

$$\text{Opex limit factor} = 0.999934, \text{ otherwise:}$$

$$\text{Opex limit factor} = 1.$$

⁹ Per the *Rate of Return Reform Order*, the Opex limit does not apply to acquired exchanges subject to section 54.305 or to study areas entirely composed of acquired exchanges.

C. Data Used to Develop the Proposed Formula

This section describes the data underlying the proposed HCL formula. Data comes from three sources:

1. USF data submitted by the population of Subset 3 study areas settling on a cost basis.
2. Financial accounts and loop data from a sample of average schedule study areas.
3. Access line and exchange count data from the entire population of average schedule study areas.

Subset 3 cost study areas provided categorized account data used to compute cost categorization factors. These data were collected in connection with the 2018 annual USF Data Submission and are available on the compact discs included with that submission.¹⁰

Account data and loop information were collected from the average schedule study areas sampled in 2017 and 2018. The 2017 sample provided 2016 financial accounts and loop information for 2017. The 2018 sample provided 2017 financial accounts and loop information for 2018. These data were used to determine Universal Service Fund (USF) loop cost values for each company, as described in the next section.

Loop data and access line counts from the sample were used to calculate a loop count value for each sample average schedule company. In the annual collection of data from sample study areas, NECA collects the following loop information to supplement access line counts: company official lines, off-premise extensions and special access lines. NECA calculated the count of

¹⁰ See *2018 NECA Universal Service Fund Submission of 2017 Study Results*, National Exchange Carrier Association, Inc. (filed Sept. 28, 2018) (*NECA 2018 USF Data Submission*).

USF loops for each sample study area as the sum of access lines, company official lines and off-premises extensions bridged in the central office.

A loops-per-access line ratio was calculated by dividing sample total USF loops by sample total access lines. Totals used in this calculation were weighted using sample weights. Sample weights are used to expand the sample to a population estimate. A study area's sample weight is the reciprocal of the probability of it being included in the sample. The sample weight measures the count of units in the population a member of the sample represents. For example, a study area with a sample weight of three represents three study areas in the average schedule population. An unbiased estimate of the population is achieved by weighting access line data in this manner. This means an estimate developed by this method is expected to neither overestimate nor underestimate the loops-per-access line ratio.

$$2020 \text{ Fund Loops per Access Line Ratio} = 1.021542$$

Account and loop data from the sample were projected to December 2018 levels using the methods and growth models developed in NECA's 2018 study and filed in the 2019 NECA Modification of Average Schedules.¹¹

¹¹ The growth rates development method description is included in Section V.B and V.C of NECA's December 2018 settlements formula filing. *See National Exchange Carrier Association, Inc. 2019 Modification of Average Schedules*, WC Docket No. 18-373 (filed Dec. 20, 2018).

Access line¹² data and exchange counts for the population of average schedule study areas were taken from NECA's settlement system for the month of December 2018 based on the June 2019 view. For the purpose of evaluating the proposed formula on each member of the average schedule population, USF loop counts were calculated for each study area using the loops per access line ratio.

$$USF \text{ Loops} = \text{Access Lines} \times \text{Loops per Access Line Ratio}$$

USF loops and exchange counts for each average schedule study area are displayed in Appendix C.

D. HCL Cost per Loop Formula

This section describes the derivation of the average schedule Cost per Loop formula and Opex limit factor by:

- Computing categorization factors from Subset 3 cost company data;
- Determining loop costs for sample average schedule study areas using these factors and projected accounts;
- Using sample companies' loop cost and loops per exchange data to derive a statistical regression model; and
- Comparing sample companies' CPL capped by the FCC's Opex limits and actual uncapped

¹² Average schedule companies, participating in the NECA pools, are required to report access line counts to NECA each month based on their billing of End User Common Line (EUCL) charges associated with basic local exchange service. Average schedule companies that do not participate in NECA pools are not required to report monthly access line counts to NECA. Year-end access line count data from these companies is obtained using an annual line count data collection. NECA uses the December line counts to calculate USF loops for all average schedule companies. The resulting loop counts are included in the annual USF data submission filed on October 1st of each year.

CPL to derive an overall Opex limit factor.

These steps are explained in the following four subsections.

1. Calculation of Categorization Factors from Subset 3 Cost Companies

Cost companies submit categorized data to NECA pursuant to section 54.1305 of the Commission's rules.¹³ This data was used to compute average USF loop cost categorization factors. Loop cost categorization factors are the cost company fractions of accounts attributed to loop. They were developed from accounts related to Exchange Line Cable and Wire (C&WF) Facilities (Category 1) and Exchange Line Central Office Circuit equipment (Category 4.13).

For example, by computing the ratio of cost company Central Office Equipment (COE) 4.13 investment to total cost company COE investment, NECA developed average categorization factors for Category 4.13 investment. Loop cost categorization factors were developed for each of NECA's five geographical regions, to recognize categorization differences in circuit equipment and cable and wire facilities across regions.

Exhibit 2 summarizes how these categorization factors were computed from cost company data, and how they were used to allocate sample average schedule companies' projected accounts. The first column names the Algorithm line corresponding to instructions in Tab 3 of NECA's Universal Service Fund (USF) 2018 Submission of 2017 Study Results.¹⁴ Algorithm lines AL3, AL4, AL5 and AL6 are categorization factors

¹³ Data was taken from the USF Data submission filed with the Commission on September 28, 2018. *See NECA 2018 USF Data Submission.*

¹⁴ *Id.*

defined in the USF submission to apportion unseparated cost accounts to loop.

Algorithm lines 13 through 24 are the various cost components of loop cost. Line 25 is the total unseparated loop cost. Line 26 is the cost per loop. Loop cost components are named in the second column in Exhibit 2. The third column is a description of each algorithm line and the last column presents cost categorization formulas used to calculate the value for each sample average schedule company.

Algorithm Lines 23 and 24 in Exhibit 2 use Adjustment Ratios to allocate Total Accumulated Depreciation to C&W Facilities and COE Transmission. This is done to ensure the amount of reserves assigned to loop is in proportion to the amount of investment assigned to loop. The adjustment ratio is calculated as follows:

$$\text{Adjustment Ratio} = \frac{\text{Proportion Of Reserves Allocated To Loop}}{\text{Proportion Of Investment Allocated To Loop}}$$

For example, an adjustment ratio of 0.98954 for Cable & Wire Facilities means the portion of reserves allocated to Loop is 98.95% of the portion of Cable & Wire Facilities investment allocated to Loop. Exhibit 3 describes the derivation of these ratios.

In the *Rate of Return Reform Order* the Commission re-prescribed the 11.25 percent rate of return to 9.75 percent with a 25 basis points reduction per year over a six year transition period. July 1, 2016 was the effective date for the initial transitional rate of 11%. That rule was first implemented in the average schedules CPL formula by an Interim

Modification filed by NECA on May 13, 2016,¹⁵ effective July 1, 2016. The second step of the rate of return transition, to 10.75 percent, was effective July 1, 2017. The third step of the rate of return transition, to 10.50 percent was effective July 1, 2018. The fourth step of the rate of return transition, to 10.25 percent was effective July 1, 2019. The fifth step of the rate of return transition, to 10.0 percent will be effective July 1, 2020. Because the 2020 HCL support year encompasses two transitional rate of return reductions, NECA applied a blended rate of return of 10.125 percent when calculating algorithm lines 23 and 24 to estimate cost per loop. This represents a 10.25 percent rate of return in effect for the first six months of 2020 and 10 percent for the last six months of 2020.

¹⁵ *NECA 2016 Further Modification of the Average Schedule Universal Service High Cost Loop Support Formula*, WC Docket No. 05-337.

Exhibit 2

Allocation of Average Schedule Accounts to Loop Cost Categories

Algorithm Line	Loop Cost Component	Factor Description	Cost Allocation Formula
AL3		Factor A: C&WF Cat. 1/Total C&WF	Average ratio by region based on cost company data
AL4		Factor B: COE Cat. 4.13/Total COE	Average ratio by region based on cost company data
AL5		Factor C (C&WF Gross Allocator): C&WF Cat. 1/Total Plant in Service	Average ratio by region based on cost company data
AL6		Factor D (COE Gross Allocator): COE Cat. 4.13/Total Plant in Service	Average ratio by region based on cost company data
AL13	C&WF Maintenance	C&WF Maintenance Expense assigned to Cat. 1 C&WF R&B Factor = $\frac{\text{C&WF R\&B Exp.}}{\text{C&WF Expense}}$	Factor A x (1 - C&WF R&B Factor) x <u>C&WF Expense</u> ¹⁶
AL14	COE Maintenance	COE Maintenance Expense assigned to Cat. 4.13 COE R&B Factor = $\frac{\text{COE R\&B Exp.}}{\text{COE Expense}}$	Factor B x (1 - COE R&B Factor) x <u>COE Expense</u>
AL15	Network and General Support Expense	Network Support Expense plus General Support Expense assigned to C&WF Cat. 1 and to COE Cat. 4.13 Net. Spt. R&B Factor = $\frac{\text{Network Spt. R\&B Exp.}}{\text{Network Support Expense}}$ Gen. Spt. R&B Factor = $\frac{\text{General Spt. R\&B Exp.}}{\text{General Support Expense}}$	(Factor C + Factor D) x [(1 - Network Support R&B Factor) x <u>Network Support Expense</u> + (1 - General Support R&B Factor) x <u>General Support Expense</u>]

¹⁶ Amounts underlined are data or calculated values of sample average schedule study areas. Other values are cost company factors.

Exhibit 2

Allocation of Average Schedule Accounts to Loop Cost Categories

Algorithm Line	Loop Cost Component	Factor Description	Cost Allocation Formula
AL16	Network Operations Expense	Network Operations Expense assigned to C&WF Cat. 1 and to COE Category 4.13 Ntwk. Oper. R&B Factor = $\frac{\text{Ntwk. Oper. R\&B Exp.}}{\text{Ntwk. Oper. Expense}}$	(Factor C + Factor D) x (1 - Network Operations R&B Factor) x <u>Network Operations Expense</u>
AL17	C&WF Depreciation & Amortization Expense	Depreciation & Amortization Expense assigned to C&WF Category 1 Dep. Exp. C&WF Factor = $\frac{\text{Dep. \& Amort. Exp. CWF}}{\text{C\&WF}}$ Tangibles -- C&WF = $\frac{\text{Amort. Tangible Assets -- C\&WF}}{\text{Amort. Tangible Assets}}$ Depreciation--Tang. Factor = $\frac{\text{Deprec. -- Tangibles}}{\text{Tangibles}}$	Factor A x [(Depreciation Expense Factor--C&WF x $\frac{\text{C\&WF}}{\text{C\&WF}}$) + (Depreciation Expense Factor—Tangibles x <u>Tangibles</u>) + (Tangibles Factor -- C&WF x <u>Amort. Tangible Assets</u>)]

Exhibit 2

Allocation of Average Schedule Accounts to Loop Cost Categories

Algorithm Line	Loop Cost Component	Factor Description	Cost Allocation Formula
AL18	COE Depreciation & Amortization Expense	Depreciation & Amortization Expense assigned to COE Category 4.13 Dep. Exp. COE Factor = $\frac{\text{Dep. \& Amort. Exp. COE}}{\text{COE}}$ Tangibles -- COE = $\frac{\text{Amort. Tangible Assets -- COE}}{\text{Amort. Tangible Assets}}$ Depreciation--Tang. Factor = $\frac{\text{Deprec.--Tangibles}}{\text{Tangibles}}$	Factor B $\times [(\text{Depreciation Expense Factor--COE} \times \text{COE}) + (\text{Depreciation Expense Factor--Tangibles} \times \text{Tangibles}) + (\text{Tangibles Factor -- COE} \times \text{Amort. Tangible Assets})]$
AL19	Corporate Operations Expense	Corporate Operations Expense assigned to C&WF Cat. 1 and to COE Cat. 4.13, limited as per § 54.1308(a)(4) ¹⁷	(Factor C + Factor D) $\times \text{Corporate Operations Expense}$

¹⁷ For purposes of the USF Data Submission, Corporate Operations Expenses were subject to the cap imposed by the Commission in its Report and Order and Further Notice of Proposed Rulemaking released November 18, 2011. *Connect America Fund, et al.*, WC Docket No. 10-90, *et al.*, Report and Order and Further Notice of Proposed Rulemaking, 26 FCC Rcd. 17663 (2011) ¶¶ 232-233, further modified by the Commission in the March 23, 2018 Order to include consumer broadband-only lines in the calculation of the Corporate Operations Expenses limit formula. *See Connect America Fund, et al.*, WC Docket No. 10-90, *et al.*, Report and Order, Third Order on Reconsideration, and NPRM, FCC 18-29 (rel. Mar. 23, 2018) (*March 23, 2018 Order*).

Exhibit 2

Allocation of Average Schedule Accounts to Loop Cost Categories

Algorithm Line	Loop Cost Component	Factor Description	Cost Allocation Formula
AL20	Operating Taxes	Operating Taxes assigned to C&WF Cat. 1 and to COE Cat. 4.13 Operating Taxes Factor = $\frac{\text{Operating Taxes}}{\text{Total Plant in Service}}$	$(\text{Factor C} + \text{Factor D})$ $\times \text{Operating Taxes Factor}$ $\times \underline{\text{Total Plant in Service}}$
AL21 + AL22	Benefits & Rents	Benefits & Rents other than Corporate Operations Expense assigned to C&WF Cat. 1 and COE Cat. 4.13 $\text{C\&WF R\&B Factor} = \frac{\text{C\&WF R\&B Expense}}{\text{C\&WF Expense}}$ $\text{COE R\&B Factor} = \frac{\text{COE R\&B Expense}}{\text{COE Expense}}$ $\text{Net. Sup. R\&B Factor} = \frac{\text{Network Sup. R\&B Exp.}}{\text{Network Support Expense}}$ $\text{Gen. Sup. R\&B Factor} = \frac{\text{General Sup. R\&B Exp.}}{\text{General Support Expense}}$	$(\text{Factor C} + \text{Factor D})$ $\times [(\text{C\&WF R\&B Factor} \times \underline{\text{C\&WF Expenses}})$ $+ (\text{COE R\&B Factor} \times \underline{\text{COE Expenses}})$ $+ (\text{Net. Sup. R\&B Factor} \times \underline{\text{Net. Sup. Expenses}})$ $+ (\text{General Sup. R\&B Factor} \times \underline{\text{General Sup. Expenses}})$ $+ (\text{Net. Op. R\&B Factor} \times \underline{\text{Net. Op. Expenses}})]$

Exhibit 2

Allocation of Average Schedule Accounts to Loop Cost Categories

Algorithm Line	Loop Cost Component	Factor Description	Cost Allocation Formula
AL23	C&WF Return	<p>Return Component for C&WF Cat. 1</p> <p>C&WF Cat. 1 Factor = $\frac{\text{C\&WF Cat. 1}}{\text{C\&WF}}$</p> <p>Tangibles -- C&WF Factor = $\frac{\text{Tangibles --C\&WF}}{\text{Tangibles}}$</p> <p>Accum. Dep. Adj. Ratio -- C&WF (See Exhibit 3)</p>	<p>{(C&WF Cat. 1 Factor x <u>C&WF</u>)</p> <p>+ (Tangibles Factor--C&WF x <u>Tangibles</u>)</p> <p>+ (Factor C x <u>Materials & Supplies</u>)</p> <p>- Factor A x [(Accum. Dep. Adj. Ratio – C&WF</p> <p>x <u>Acc. Dep.</u> x <u>%C&WF of TPIS</u>)</p> <p>+ (Net N.C. D. OIT Factor--C&WF x <u>TPIS</u>)</p> <p>+ (Tangibles Factor--C&WF x <u>Acc. Amo.-</u> <u>Tangibles</u>)]} x 0.10125</p>
AL24	COE Return	<p>Return Component for COE Cat. 4.13</p> <p>COE Cat. 4.13 Factor = $\frac{\text{COE Cat. 4.13}}{\text{COE}}$</p> <p>Tangibles -- COE Factor = $\frac{\text{Tangibles --COE}}{\text{Tangibles}}$</p> <p>Accum. Dep. Adj Ratio -- COE. (See Exhibit 3)</p>	<p>{(COE Cat. 4.13 Factor x <u>COE</u>)</p> <p>+ (Tangibles Factor--COE x <u>Tangibles</u>)</p> <p>+ (Factor D x <u>Materials & Supplies</u>)</p> <p>- Factor B x [(Accum. Dep. Adj Ratio -- COE</p> <p>x <u>Acc. Dep</u> x <u>%COE of TPIS</u>)</p> <p>+ (Net N.C. Def. OIT Factor --COE x <u>TPIS</u>)</p> <p>+ (Tangibles Factor--COE x <u>Acc. Amo.-</u> <u>Tangibles</u>)]} x 0.10125</p>
AL25	Loop Costs	Total Unseparated Loop Cost	Sum of AL13 -- AL24
AL26	Cost Per Loop	Study Area Cost per Loop	AL25 Divided by Total Loops

Exhibit 3

Adjustment Ratios for Allocation of Total Accumulated Depreciation

Description	Calculation	Factor name
COE Transmission fraction of TPIS	Sum DL240 / Sum DL160	TPIS % 2230
C&W Facilities fraction of TPIS	Sum DL255 / Sum DL160	TPIS % 2410
COE Transmission fraction of Tot. Acc. Dep.	Sum DL270 / Sum DL190	ACCT 3100 % 2230
C&W Facilities fraction of Tot. Acc. Dep.	Sum DL280 / Sum DL190	ACCT 3100 % 2410
Adjustment Ratio for COE Transmission.	ACCT 3100 % 2230 / TPIS % 2230	Accum. Dep. Adj. Ratio - COE
Adjustment Ratio for C&W Facilities.	ACCT 3100 % 2410 / TPIS % 2410	Accum. Dep. Adj. Ratio - C&WF

DL240 = COE Transmission (Acct 2230)
 DL255 = C&WF Total (Acct 2410)
 DL160 = Total Plant in Service (TPIS)
 DL270 = Accumulated Depreciation - COE Transmission Equipment
 DL280 = Accumulated Depreciation - Cable & Wire Facilities
 DL190 = Accumulated Depreciation

Exhibit 4 displays the computed values of the loop cost categorization factors from sample cost companies, in each of NECA's five geographical regions.¹⁸

¹⁸ Regions are defined by groups of states or territories as follows:
 REGION 1 (Eastern): CT, DC, DE, MA, MD, ME, NH, NJ, NY, PA, PR, RI, VA, VI, VT, WV
 REGION 2 (Southern): AL, FL, GA, KY, LA, MS, NC, SC, TN
 REGION 3 (Southwestern): AR, HI, IL, IN, KS, MI, MO, MP, OH, OK, TX, WI
 REGION 4 (Western): AK, AS, AZ, CA, CO, GU, ID, MT, NM, NV, OR, UT, WA, WY
 REGION 5 (North Central): IA, MN, ND, NE, SD

Exhibit 4

Loop Cost Categorization Factors from Sample Cost Companies

FACTOR	REGION1	REGION2	REGION3	REGION4	REGION5
FACTOR A	0.89456	0.93469	0.86073	0.83987	0.87371
FACTOR B	0.36021	0.49238	0.49825	0.47348	0.46648
FACTOR C	0.51882	0.63698	0.58652	0.54553	0.56460
FACTOR D	0.10229	0.10453	0.10570	0.10807	0.11305
C&WF RENTS & BENEFITS	0.35401	0.32634	0.28223	0.28288	0.28919
COE RENTS & BENEFITS	0.11571	0.16355	0.17603	0.17640	0.19918
TANGIBLES - C&WF	0.00000	0.00000	0.39598	0.00000	0.52080
TANGIBLES - COE TRANSMISSION	0.00000	0.00000	0.00000	0.00000	0.32615
TANGIBLES - COE CATEGORY 4.13	0.00000	0.00000	0.00000	0.00000	0.06962
ACCUMULATED DEPRECIATION - C&WF	0.57390	0.64409	0.62068	0.59395	0.52276
ACCUMULATED DEPRECIATION - COE TRANS.	0.19791	0.21911	0.22003	0.22217	0.28980
NET NON-CURR DEF FIT-C&WF- Commercial Comp.	0.02009	0.02175	0.03570	0.02473	0.03729
NET NON-CURR DEF FIT-C&WF- Coops	0.00000	0.00000	0.00000	0.00000	0.00000
NET NON-CURR DEF FIT-COE TRANS.- Comm Comp.	0.00673	0.00607	0.00628	0.01072	0.01027
NET NON-CURR DEF FIT-COE TRANS.- Coops	0.00000	0.00000	0.00000	0.00000	0.00000
NETWORK SUPPORT RENTS & BENEFITS	0.07577	0.17862	0.14677	0.22969	0.35006
GENERAL SUPPORT RENTS & BENEFITS	0.17521	0.16224	0.23943	0.32147	0.20871
NETWORK OPERATIONS BENEFITS	0.18119	0.21915	0.24964	0.26972	0.25946
DEPRECIATION EXPENSE - C&WF	0.03588	0.03915	0.03685	0.03874	0.04109
DEPRECIATION EXPENSE -COE TRANSMISSION	0.06110	0.07216	0.06968	0.07200	0.07275
DEPRECIATION - TANGIBLES	0.00000	0.00000	0.01980	0.00000	0.00000
ACCUM. DEP. ADJ. RATIO - COE	1.02340	1.16468	1.23479	1.14927	1.36823
ACCUM. DEP. ADJ. RATIO - C&WF	0.98954	0.94511	0.91086	0.91441	0.80896
OPERATING INCOME TAX - Cooperatives	0.00458	0.00388	0.00434	0.00455	0.00296
OPERATING INCOME TAX-Commercial Companies	0.00851	0.00878	0.01274	0.01033	0.00884

2. Calculation of Loop Cost for Sample Average Schedule Companies

NECA calculated loop costs for sample average schedule companies consistent with the Part 54 rules that apply to cost companies. Accordingly, for each average schedule study area in the sample, the loop cost is the accumulation of components of accounts assigned to loop. Costs assigned to the loop include Cable & Wire Facilities investment in Category 1, COE investment in Category 4.13 and other accounts assigned proportionately based on these accounts. The portion of costs in accounts assigned to loop were determined using the allocation ratios derived from cost companies.

NECA applied the cost categorization factors shown in Exhibit 4 to uncategorized projected accounts from sample average schedule study areas to produce unseparated average schedule category-level loop costs. Section 54.1308 of the Commission's rules describes various unseparated accounts making up a study area's total unseparated loop costs. Following this method, the unseparated loop cost for each sample average schedule study area was determined by summing the following categories related to COE Category 4.13 and C&WF Category 1 plant, as follows.

$$\begin{aligned} \text{Loop Cost} = & \textit{Maintenance Expense} + \textit{Network \& General Support Expenses} \\ & + \textit{Network Operations Expense} + \textit{Depreciation \& Amortization Expense} \\ & + \textit{Corporate Operations Expense} + \textit{Operating Taxes} + \textit{Benefits Expense} \\ & + \textit{Rent Expense} + \textit{Return on Investment} \end{aligned}$$

Exhibit 5 presents the results of loop cost calculations for the average schedule sample.

Exhibit 5

Allocation of Unseparated Total Accounts to Loop Weighted Total Data from the Average Schedule Sample

HCL Algorithm Line	Cost Category	Calculation Method	Total Account Per Loop	Avg Loop %	Loop Cost Per Loop
1	C&WF Category 1	Cost Company Factor	4,644.86	0.8982	4,172.15
2	COE Category 4.13	Cost Company Factor	2,282.48	0.4729	1,079.40
3	Factor A	% C&WF Cat 1 of Total C&WF	4,644.98	0.8982	4,172.15
4	Factor B	% COE Cat 4.13 of Total COE	2,282.48	0.4729	1,079.40
5	Factor C	% C&WF Cat 1 of TPIS	8,060.82	0.5176	4,172.15
6	Factor D	% COE Cat 4.13 of TPIS	8,060.82	0.1339	1,079.40
7	Materials & Supplies for CWF Cat 1	Factor C x M&S	81.31	0.5362	43.60
8	Materials & Supplies for COE Cat 4.13	Factor D x M&S	81.31	0.1196	9.73
9	Reserves for CWF Cat 1	Factor A x Reserves	5,987.63	0.4664	2,792.81
10	Reserves for COE Cat 4.13	Factor B x Reserves	5,987.63	0.1673	1,001.86
11	Factor E	% Net C&WF Cat 1 of Net TPIS	2,161.34	0.6584	1,422.94
12	Factor F	% Net COE Cat 4.13 of Net TPIS	2,161.34	0.0404	87.27
13	Maintenance of C&WF Cat 1	Factor A x (Maintenance - R & B)	116.55	0.6188	72.13
14	Maintenance of COE Cat 4.13	Factor B x (Maintenance - R & B)	95.99	0.3676	35.29
15a	Network Support Assigned to Loop	(Fact C + Fact D) x (Net Sup Exp - R&B)	9.00	0.5039	4.53
15b	General Support Assigned to Loop	(Fact C + Fact D) x (Gen Sup Exp - R&B)	61.44	0.5143	31.60
16	Network Operations Assigned to Loop	(Fact C + Fact D) x (Net Ops Exp - R&B)	91.00	0.5021	45.69
17	Depreciation of C&WF Cat 1	C&WF Cat 1 x C&WF Deprec Rate	4,172.15	0.0391	162.98
18	Depreciation of COE Cat 4.13	COE Cat 4.13 x COE Deprec Rate	1,079.40	0.0655	70.68
19	Corporate Oper. Exp. Assigned to Loop	(Fact C + Fact D) * Corp. Oper. Exp.	232.13	0.6062	140.71
20	Operating Taxes Assigned to Loop	(Factor C + Factor D) x Oper Taxes	61.55	0.6420	39.51
21	Benefits in Oper. Exp. Assigned to Loop	(Fact C + Fact D) x (Benefits - Corp Ops)	282.98	0.2329	65.92
22	Rents in Oper Exp Assigned to Loop	(Fact C + Fact D) x (Rents - Corp Ops)	282.98	0.0410	11.59
23	Return on C&WF Cat 1	.10125 x Net CWF Cat 1	1,422.94	0.1013	144.07
24	Return on COE Cat 4.13	.10125 x Net COE Cat 4.13	87.27	0.1013	8.84
25	Total Loop Cost	Sum 13 Thru 24	7,995.37	0.1043	833.55

3. Cost per Loop Formula for 2020

This study develops a formula simulating the cost per loop data of sample companies, which is used to compute loop costs as the basis of expense adjustments for all average schedule companies. The underlying basis of the formula is the comparison of cost per loop data obtained from average schedule sample companies to their ratios of loops per exchange. Based on the relationship of these variables, a statistical model is developed and is used to compute HCL cost per loop for each member of the total population of average schedule companies.

NECA used cost per loop data of sample average schedule study areas to derive a statistical regression model. This model form was first presented in the 2002 NECA Modification of Average Schedule Universal Service Formulas, filed on October 1, 2001, and approved by the Commission in its July 30, 2002 Order.¹⁹ The model relating cost per loop to loops per exchange in this year's study produces statistically significant coefficients. NECA proposes use of this model in 2020.

In Appendix B of this filing NECA presents HCL cost per loop data for sample average schedule study areas. This section explains the use of that data to develop a statistical model for calculating CPL values for each study area in the average schedule population.

¹⁹ See *Federal-State Joint Board on Universal Service*, CC Docket No. 96-45, *National Exchange Carrier Association, Inc. Proposed 2002 Modification of Average Schedule Formulas*, Order, 17 FCC Rcd. 14236 (2002).

This model uses the outlier accommodation method for regression, first introduced in NECA's December 31, 1998 average schedule filing²⁰ and approved by the Commission.²¹ The threshold used in this calculation was equal to three standard deviations of the residuals. The outlier accommodation method uses weighted linear regression, with regression weights defined in two steps. First residuals and DFFITS values for each observation are determined by an unweighted linear regression. Then regression weights are calculated using these values.

If $\text{Abs}(\text{residual}) \leq \text{threshold}$, then regression weight_i = 1

$$\text{Else regression weight}_i = \left(\frac{C/2}{\text{DFFITS}_i} \right)^2, \text{ where } C = 2\sqrt{\frac{P+1}{N-P-1}}$$

P = number of model coefficients, N = number of observations

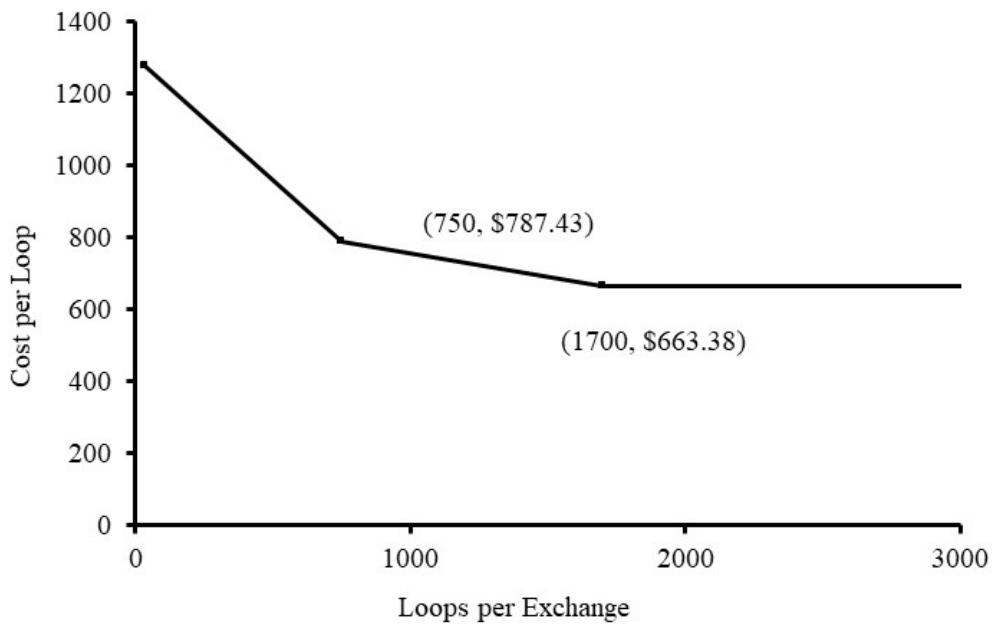
The model relates the CPL variable (the dependent variable) to the loops per exchange variable using constrained linear regression. The model reflects the CPL trend of sample companies, which show relatively higher costs associated with lower values of loops per exchange. This trend decreases at one rate for the smallest study areas, then decreases at slower rates for the group of midsize average schedule study areas, and finally levels off for the larger study areas.

²⁰ See *1999 NECA Modifications of Average Schedules*, National Exchange Carrier Association, Inc. (filed Dec. 31, 1998).

²¹ *National Exchange Carrier Association, Inc., Proposed Modifications to the 1999-2000 Interstate Average Schedule Formulas*, ASD 99-18, Order, 14 FCC Rcd. 9803 (1999).

The model consists of a set of connected lines, each corresponding to a designated range of loops per exchange. In this year's study, as in last year's study, the best fitting model supported three distinct ranges of loops per exchange values delimited by two breakpoints. NECA selected the formula breakpoints to assure support amounts would be accurately distributed across study areas in all size ranges. NECA tested sets of breakpoints and regression coefficients iteratively to determine the combination with the best fit to the data, resulting in breakpoints of 750 and 1,700 loops per exchange.

Exhibit 6
Cost per Loop Model



To fit the Cost per Loop formula to sample company data, NECA first calculated the overall average CPL of study areas with loops per exchange exceeding 1,700, using the standard weighted ratio estimation method. This method produced a formula Cost per Loop for this

group of study areas of \$663.38. This CPL is a good statistical representation of the data for these study areas, which show a consistently flat trend as relates to loops per exchange.

$$Cost\ per\ Loop\ (a_3) = \frac{\sum_{ECs > (1700\ LPE)} Sample\ Weight_i * Outlier\ Weight_i * Cost\ per\ Loop_i * Loops_i}{\sum_{ECs > (1700\ LPE)} Sample\ Weight_i * Outlier\ Weight_i * Loops_i}$$

Next, NECA used linear regression to solve for other parameters of the model. The regression model is a sequence of three connected straight lines specified as follows (CPL denotes the study area's cost per loop; LPE denotes each study area's loops per exchange, and BP denotes breakpoint).

$$CPL_i = [a_1 + b_1 LPE_i] \delta_{1i} + [a_2 + b_2 LPE_i] \delta_{2i} + a_3 \delta_{3i}$$

where: $\delta_{1i} = 1$, if $(LPE_i \leq BP_1)$, and $\delta_{1i} = 0$ otherwise.

$\delta_{2i} = 1$, if $(BP_1 < LPE_i \leq BP_2)$, and $\delta_{2i} = 0$ otherwise.

$\delta_{3i} = 1$, if $(LPE_i > BP_2)$ and $\delta_{3i} = 0$ otherwise.

The model is constrained at the breakpoints, BP_1 and BP_2 , to insure connectivity of the line segments, as follows:

$$a_1 + b_1 \cdot BP_1 = a_2 + b_2 \cdot BP_1$$

$$a_2 + b_2 \cdot BP_2 = a_3 = \$663.38.$$

The resulting coefficients are calculated using standard linear regression methods, including outlier weighting as described earlier in this section. This model fits the CPL data most accurately and reflects relationships between loop cost and loops per exchange.

4. Operating Expense Limit Factor for 2020

In the *Rate of Return Reform Order*,²² the Commission adopted limits on operating expenses (Opex)²³ to be recovered through HCL support with January 1, 2017 as effective date. Consistent with the rules, NECA developed an Opex limit factor for average schedule companies to be applied to companies' formula-estimated CPLs.

NECA calculated the Opex limit factor using accounting data of sample average schedule companies. For each sample company, the sum of company's total accounts used to determine the operating expenses eligible for support was compared to the Opex limit generated by the Commission's regression model. If the sum of actual eligible operating costs exceeded the FCC's Opex limit, operating cost was capped at the limit level, and the limit was applied proportionately to all accounts used to determine eligible operating expenses.

In 2017, the first year in which the Opex cap was to be implemented Opex amounts were limited by one-half of the required reduction.²⁴ Since 2018 the full required limit is applied to Opex amounts. In this year's study, there are two out of 180 sample average schedule companies affected by the Opex limitation.

²² *Rate of Return Reform Order* ¶¶ 95-104.

²³ The *March 23, 2018 Order* modified the Opex Limits allowing an adjustment for inflation.

²⁴ *Rate of Return Reform Order* ¶ 103.

Using the limited Opex, NECA calculated each sample company CPL and USF revenue requirement (RRQ), calculated as CPL x loops. By comparing the sample weighted USF RRQ based on limited operating expenses to the sample weighted USF RRQ based on unlimited operating expenses for companies subject to Opex limits, NECA determined the proportionate share that the effect of the Opex limits would have on the sample average schedule companies. The Opex limit factor calculation is shown below.

$$\text{Opex limit factor} = \frac{\text{Total Weighted Opex Limit Adjusted USF RRQ}}{\text{Total Weighted Actual USF RRQ}}$$

$$\text{Opex limit factor}^{25} = 0.999934$$

The proposed Cost per Loop formula and Opex limit factor are shown in Exhibit 1. Using the proposed formula, loops per exchange data, as described in Section C of this filing, and Opex limit factor, NECA determined proposed CPL values for each average schedule study area. The proposed CPL values are higher than the current formula CPL values for all study areas.

E. HCL Payments for the Population of Average Schedule Companies

In 2020, actual HCL payments will be determined using each company's proposed CPL value, the expense adjustment algorithm, the frozen NACPL value, and a pro-rata adjustment factor calculated according to the Commission's rules to meet the fund cap. Following is a discussion of the effects of these calculations.

²⁵ For companies subject to part 54.305 rules Opex limit factor = 1.

Pursuant to section 54.1310 of the Commission's rules, NECA calculates expense adjustments in two steps. First, each company's CPL is compared to the frozen NACPL of \$647.87 to calculate its expense adjustment by applying the USF payment algorithm as specified in 54.1310(a)(1) and (2). Second, if the expense adjustments for all study areas (cost and average schedules) exceed the HCL cap, each study area's expense adjustment from the first step is reduced by the ratio of the HCL support cap to the aggregate expense adjustment for all study areas. This ratio, referred to here as the pro-rata adjustment factor, is estimated to be 0.740694.²⁶

Although average schedule companies would receive \$4.38²⁷ million based on the proposed formula and the frozen NACPL payment calculation, the capping of the fund is expected to limit this payment to \$3.245 million through the application of the pro-rata adjustment factor.²⁸ Because this view does not reflect quarterly updates to HCL data submissions to be filed with the FCC after October 1 of this year, as permitted by section 54.1306 of the Commission's rules, decreases in the pro-rata adjustment factor can be expected which will produce lower payments for all rate of return companies, including average schedule companies.

Average schedule companies that are expected to receive payments in 2020 are those with loops per exchange less than 1,063. While the cost per loop for all average schedule companies will increase as a result of the proposed formula, one study area will realize total payment reductions due to lower estimated 2020 pro-rata adjustment factor.

²⁶ This is NECA's initial estimate of the pro-rata adjustment factor for 2020, based on data reported to date. This factor is subject to change based on quarterly updates and other data changes.

²⁷ Opex limitation impact on average schedule companies' total 2020 HCL support payments is reduction of 0.05% (or -\$2,159).

²⁸ See also note 5 regarding additional USAC adjustments not reflected in this calculation.

F. Effects of Changes on Average Schedule Companies

This section provides a summary comparison of proposed payments of \$3.245 million and current payments of \$2.231 million, categorized by line size group and by percent change group. Exhibit 7 summarizes changes in monthly payments by study area size.

Exhibit 7

Proposed Monthly HCL Payment Changes by Loop Size

Access Line Size Group	Count of Study Areas	2019 USF Payments (current)	2020 Proposed Payment (Fund Cap Applied)	Monthly Change per Loop	Percent Difference
0 to 500	20	\$70,204	\$83,148	\$2.27	18.44
500 to 1000	26	\$74,250	\$109,692	\$1.85	47.73
1000 to 2500	25	\$34,803	\$54,126	\$0.52	55.52
2500 to 5000	8	\$6,632	\$23,442	\$0.58	253.47
5000 to 10000	2	\$0	\$0	\$0.00	0.00
10000 to 20000	8	\$0	\$0	\$0.00	0.00
Over 20000	1	\$0	\$0	\$0.00	0.00

Exhibit 8 summarizes the monthly changes in expense adjustments by percent change bands.

Exhibit 8

Proposed Monthly HCL Payment Changes by Percent Change Bands

Percent Change Group	Count of Study Areas	2019 USF Payments (current)	2020 Proposed Payment (Fund Cap Applied)	Monthly Change per Loop
-10% to 0%	1	\$2,418	\$2,374	-\$0.38
0%	28	\$0	\$0	\$0.00
0% to 10%	4	\$16,649	\$18,035	\$1.37
10% to 20%	12	\$55,953	\$65,198	\$2.18
20% to 30%	6	\$51,886	\$64,697	\$2.24
30% to 50%	11	\$39,051	\$54,407	\$2.05
50% to 100%	3	\$6,356	\$10,639	\$2.50
100%	15	\$0	\$18,080	\$0.79
100% to 300%	6	\$11,830	\$27,997	\$2.19
Over 300%	4	\$1,746	\$8,981	\$1.33

G. Conclusion

The proposed HCL formula shown in Exhibit 1 herein conforms to FCC USF reporting rules, produces payments consistent with those experienced by similarly situated cost companies as required by the Commission's Part 69 rules, and yields reasonable changes in payments to average schedule companies. The Commission should approve this formula to go into effect on January 1, 2020.

Appendix A
 2019 Average Schedule USF Study
 Study Area Code / Study Area Name

Obs	Study Area Code	Study Area Name	Eligible for HCLS (yes=1)
1	100019	OXFORD COUNTY TEL. & TELE. CO.	1
2	100020	PINE TREE TELEPHONE LLC	
3	100022	SACO RIVER TELEPHONE LLC	
4	120042	DIXVILLE TEL. CO.	1
5	120043	DUNBARTON TEL. CO.	1
6	140053	FRANKLIN TEL. CO.-VT	1
7	140064	SHOREHAM TELEPHONE LLC	
8	150076	CASSADAGA TEL. CORP.	1
9	150125	STATE TEL. CO.	1
10	170156	THE CITIZENS TELEPHONE COMPANY OF KECKSBURG	1
11	170171	HICKORY TEL. CO.	1
12	170175	IRONTON TEL. CO.	1
13	170191	THE NORTH-EASTERN PENNSYLVANIA TELEPHONE CO.	
14	170195	ARMSTRONG TEL. CO. NORTH	1
15	170196	PALMERTON TELEPHONE COMPANY	1
16	170197	PENNSYLVANIA TEL. CO.	1
17	170200	PYMATUNING IND. TEL. CO.	
18	170205	SOUTH CANAAN TEL. CO.	1
19	170210	VENUS TEL. CORP.	
20	170277	WEST SIDE TEL. CO.-PA	
21	190220	BURKE'S GARDEN TEL. CO., INC.	1
22	190225	CITIZENS TEL. COOP.-VA	
23	190226	LUMOS TELEPHONE INC.	
24	190237	HIGHLAND TEL. COOP.-VA	
25	190238	MGW TELEPHONE COMPANY, INC.	
26	190239	NEW HOPE TELEPHONE COOPERATIVE	1
27	190243	PEMBROKE TEL. COOP.	
28	190250	SHENANDOAH TEL. CO.	1
29	197251	SHENANDOAH TELEPHONE COMPANY - NR	1
30	200258	WAR TELEPHONE LLC	
31	220324	VALLEY TELEPHONE CO., LLC	1
32	220380	PROGRESSIVE RURAL TEL. COOP., INC.	
33	220389	TRENTON TEL. CO.	1
34	230478	ELLERBE TEL. CO. dba RIVERSTREET NETWORKS	1
35	230491	NORTH STATE TEL. CO.-NC dba NORTH STATE COMM.	
36	230494	PINEVILLE TEL. CO.	1
37	230496	RANDOLPH TEL. MEMB. CORP. DBA RANDOLPH COMM.	1
38	230497	SURRY TELEPHONE MEMBERSHIP CORPORATION	1
39	230501	SKYLINE TEL. MEMB. CORP.	1
40	230503	SURRY TELEPHONE MEMBERSHIP CORPORATION	1
41	230505	WILKES TEL MEMB CORP dba RIVERSTREET NETWORKS	1
42	230511	YADKIN VALLEY TEL. MEMB. CORP.	1
43	240515	CHESNEE TEL. CO.	1
44	240516	CHESTER TEL. CO.-SC	1
45	240532	LOCKHART TEL. CO., INC.	1
46	240535	NORWAY TEL. CO., INC.	
47	240541	RIDGEWAY TEL. CO., INC.	1
48	240546	SANDHILL TEL. COOP., INC.	1

Appendix A
 2019 Average Schedule USF Study
 Study Area Code / Study Area Name

Obs	Study Area Code	Study Area Name	Eligible for HCLS (yes=1)
49	250283	BRINDLEE MOUNTAIN TELEPHONE LLC	
50	250285	CASTLEBERRY TEL. CO., INC.	1
51	250311	OAKMAN TEL. CO., INC.	
52	250312	OTELCO TELEPHONE LLC	
53	260398	BRANDENBURG TEL. CO., INC.	1
54	260408	GEARHEART COMM. DBA COALFIELDS TEL. CO.	1
55	270428	DELCAMBRE TEL. CO.	1
56	280451	DECATUR TEL. CO., INC.-MS	
57	280467	SMITHVILLE TEL. CO.	
58	290554	BLEDSON TEL. COOP.	1
59	290565	HIGHLAND TEL. COOP., INC.-TN	
60	290570	LORETTO TEL. CO., INC.	1
61	290598	WEST KENTUCKY RURAL TELEPHONE COOP. CORP.-TN	1
62	300588	AYERSVILLE TEL. CO.	1
63	300589	BASCOM MUTUAL TEL. CO.	1
64	300591	BUCKLAND TELEPHONE COMPANY	
65	300609	DOYLESTOWN TEL. CO.	1
66	300614	FORT JENNINGS TEL. CO.	1
67	300619	GLANDORF TEL. CO., INC.	1
68	300625	KALIDA TEL. CO., INC.	1
69	300639	THE NEW KNOXVILLE TEL. CO.	
70	300650	THE OTTOVILLE MUTUAL TEL. CO.	1
71	300651	PATTERSONVILLE TEL. CO.-OH	
72	300654	RIDGEVILLE TEL. CO.	
73	300656	SHERWOOD MUTUAL TEL. ASSOC.	1
74	300662	VANLUE TEL. CO.	
75	300663	VAUGHNSVILLE TEL. CO., INC.	1
76	300664	WABASH MUTUAL TEL. CO.	
77	310675	BARAGA TELEPHONE COMPANY	
78	310676	BARRY COUNTY TEL. CO.	
79	310678	BLANCHARD TELEPHONE CO.	1
80	310688	CLIMAX TEL. CO.	1
81	310694	FARMERS MUT. OF CHAPIN DBA CHAPIN TEL. CO.	
82	310703	KALEVA TEL. CO.	
83	310725	SAND CREEK TEL. CO.	
84	310735	WESTPHALIA TEL. CO.	
85	320751	CITIZENS TEL. CORP.-WARREN	1
86	320756	CRAIGVILLE TEL. CO., INC.	1
87	320771	GEETINGSVILLE TEL. CO., INC.	1
88	320792	MULBERRY COOP. TEL. CO., INC.	1
89	320816	S & W TEL. CO., INC.	
90	320826	SWAYZEE TEL. CO., INC.	1
91	320827	SWEETSER RURAL TEL. CO., INC.	1
92	320837	WEST POINT TEL. CO., INC.	
93	320839	YEOMAN TEL. CO., INC.	1
94	330842	AMERY TELCOM, INC.	
95	330843	AMHERST TEL. CO.	
96	330846	BALDWIN TELCOM., INC.	

Appendix A
 2019 Average Schedule USF Study
 Study Area Code / Study Area Name

Obs	Study Area Code	Study Area Name	Eligible for HCLS (yes=1)
97	330847	BELMONT TEL. CO.	
98	330848	BERGEN TEL. CO.	
99	330865	CLEAR LAKE TEL. CO., INC.-WI	
100	330868	COON VALLEY FARMERS TEL. CO., INC.	
101	330872	CUBA CITY TEL. EXCH. CO.	
102	330879	FARMERS IND. TEL. CO.-WI	
103	330889	HAGER TELECOM, INC.	
104	330896	LAKEFIELD TELEPHONE COMPANY	1
105	330905	MANAWA TEL. CO.	
106	330925	BAYLAND TELEPHONE, LLC	1
107	330938	NORTHEAST TEL. CO.	1
108	330946	SHARON TEL. CO.	1
109	330951	SOMERSET TEL. CO., INC.	
110	340983	CAMBRIDGE TEL. CO.-IL	
111	340990	CLARKSVILLE MUTUAL TEL. CO.	
112	340993	CROSSVILLE TEL. CO.	
113	341017	GLASFORD TEL. CO.	
114	341021	THE GRANDVIEW MUTUAL TEL. CO.	1
115	341024	HAMILTON COUNTY TELEPHONE CO-OP	
116	341041	KINSMAN MUTUAL TEL. CO.	
117	341046	LEONORE MUTUAL TEL. CO.	
118	341050	MARSEILLES TEL. CO. OF MARS.	1
119	341053	METAMORA TEL. CO.	1
120	341062	NEW WINDSOR TEL. CO.	
121	341075	REYNOLDS TEL. CO.	
122	341086	TONICA TEL. CO.	
123	341092	STELLE TEL. CO.	
124	351097	ANDREW TEL. CO., INC.	
125	351098	ARCADIA TEL. COOP.	
126	351101	ATKINS TEL. CO.	
127	351107	BALDWIN-NASHVILLE TEL. CO., INC.	
128	351108	BARNES CITY COOP. TEL. CO.	
129	351112	BREDA TEL. CORPORATION	
130	351113	BROOKLYN MUTUAL TEL. CO.	
131	351114	TITONKA TEL. CO. DBA TITONKA-BURT COMM (BURT)	
132	351119	CASEY MUTUAL TEL. CO.	
133	351121	CENTER JUNCTION TEL. CO., INC.	
134	351125	CENTRAL SCOTT TEL.	
135	351133	C-M-L TEL. COOP. ASSN.	
136	351136	SHELLSBURG CABLEVISION, INC.	
137	351137	COON VALLEY COOP. TEL. ASSN., INC.	
138	351139	COOP. TEL. CO.	
139	351141	CORN BELT TEL. CO.	
140	351146	CUMBERLAND TEL. CO.	
141	351147	DANVILLE MUT. TEL. CO.	
142	351150	DIXON ACQUISITION, LLC	
143	351153	DUNKERTON TEL. COOP., INC.	1
144	351157	ELLSWORTH COOP. TEL. ASSN.	1

Appendix A
 2019 Average Schedule USF Study
 Study Area Code / Study Area Name

Obs	Study Area Code	Study Area Name	Eligible for HCLS (yes=1)
145	351162	FARMERS COOP. TEL. CO.-DYSART	1
146	351166	FARMERS & MERCHANTS MUTUAL TEL. CO.	1
147	351171	FARMERS MUTUAL TEL. CO.-JESUP	
148	351175	FARMERS TEL. CO.-BATAVIA	1
149	351176	FARMERS TEL. CO.-ESSEX	
150	351179	FENTON COOP. TEL. CO.	
151	351189	RIVER VALLEY TELECOMMUNICATIONS COOP.	
152	351191	GRAND MOUND COOP. TEL. ASSN.	
153	351199	HAWKEYE TEL. CO.	
154	351202	HOSPERS TEL. EXCHANGE, INC.	
155	351205	HUXLEY COMMUNICATIONS COOPERATIVE	1
156	351212	JEFFERSON TEL. CO.-IA	
157	351213	JORDAN SOLDIER VALLEY TELEPHONE COMPANY	
158	351222	LA MOTTE TEL. CO.	
159	351228	LONE ROCK COOP. TEL. CO.	
160	351232	LYNNVILLE TELEPHONE COMPANY	
161	351238	MARTELLE COOP. TEL. ASSN.	
162	351239	MASSENA TEL. CO.	
163	351241	MECHANICSVILLE TEL. CO.	
164	351242	MILES COOP. TEL. ASSN.	
165	351246	MINERVA VALLEY TEL. CO., INC.	
166	351247	MODERN COOP. TEL. CO.	
167	351250	MUTUAL TEL. CO. OF MORNING SUN	
168	351257	NORTH ENGLISH COOP. TEL. CO.	
169	351260	NORTHWEST IOWA TELEPHONE, LLC	
170	351264	OLIN TEL. CO., INC.	
171	351265	ONSLow COOP. TEL. ASSN.	
172	351266	ORAN MUTUAL TEL. CO.	
173	351269	PALO COOPERATIVE TELEPHONE ASSOCIATION	1
174	351270	PALMER MUTUAL TEL. CO.	
175	351273	PEOPLES TEL. CO.-IA	
176	351275	PRAIRIEBURG TEL. CO., INC.	1
177	351278	READLYN TEL. CO.	
178	351282	ROCKWELL COOP. TEL. ASSN.	
179	351283	ROYAL TEL. CO.	1
180	351285	SAC COUNTY MUTUAL TEL. CO.	
181	351291	SCHALLER TEL. CO.	
182	351292	SEARSBORO TEL. CO.	
183	351293	SHARON TEL. CO.	1
184	351301	FMTC-I35, INC. (SWT)	1
185	351302	SPRINGVILLE COOP. TEL. ASSN.	1
186	351306	SULLY TEL. ASSOC.	
187	351307	SUPERIOR TEL. COOP.	
188	351308	TEMPLETON TEL. CO.	
189	351309	TERRIL TELEPHONE COOPERATIVE	
190	351310	TITONKA TEL. CO. DBA TITONKA-BURT COMM	
191	351319	VAN BUREN TEL. CO., INC.	
192	351320	VAN HORNE COOP. TEL. CO.	1

Appendix A
 2019 Average Schedule USF Study
 Study Area Code / Study Area Name

Obs	Study Area Code	Study Area Name	Eligible for HCLS (yes=1)
193	351322	VENTURA TEL. CO., INC.	1
194	351331	WEST IOWA TEL. CO.	
195	351335	WESTSIDE INDP. TEL. CO.	
196	351336	WILTON TEL. CO.	1
197	351342	WOOLSTOCK MUT. TEL. ASSN.	
198	351344	PRAIRIE TEL. CO., INC.	
199	351424	MABEL COOP. TEL. CO.-IA	
200	361348	WILDERNESS VALLEY TELEPHONE COMPANY, INC.	
201	361353	CITY OF BARNESVILLE TEL. CO.	1
202	361356	BENTON COOP. TEL. CO.	
203	361365	CALLAWAY TEL. CO.	
204	361372	CLEMENTS TEL. CO.	
205	361390	FEDERATED TEL. COOP.	
206	361396	GARDONVILLE COOP. TEL. ASSN.	
207	361401	HALSTAD TEL. CO.	
208	361403	FEDERATED TELEPHONE COOPERATIVE	
209	361404	HARMONY TEL. CO.	
210	361408	HOME TEL. CO.-MN	
211	361409	HUTCHINSON TELEPHONE COMPANY	
212	361413	MID STATE TEL. CO. DBA KMP TEL. CO.	
213	361423	RUNESTONE TELEPHONE ASSOCIATION	
214	361424	MABEL COOPERATIVE TELEPHONE CO.- MN	
215	361430	MELROSE TELEPHONE COMPANY	
216	361431	MIDWEST TEL. CO.	
217	361439	MINNESOTA VALLEY TEL. CO. INC.	
218	361443	LORETEL SYSTEMS, INC.	
219	361450	PARK REGION MUTUAL TEL. CO.	
220	361472	REDWOOD COUNTY TEL. CO.	
221	361474	ROTHSAY TELEPHONE COMPANY INC.	
222	361475	RUNESTONE TEL. ASSN.	
223	361479	SCOTT RICE TELEPHONE COMPANY	1
224	361495	VALLEY TEL. CO.-MN	
225	361499	TRI-CO TECHNOLOGIES, LLC DBA CROSSLAKE COMM.	1
226	361500	NORTHERN TELEPHONE COMPANY OF MN	
227	361502	WESTERN TELEPHONE COMPANY	
228	361505	WIKSTROM TELEPHONE COMPANY INC.	
229	361508	WINTHROP TEL. CO.	
230	361512	WOLVERTON TELEPHONE COMPANY	
231	361654	INTERSTATE TELECOMMUNICATIONS COOP., INC.-MN	
232	371555	HAMILTON TELEPHONE COMPANY	
233	371563	HOOPER TELEPHONE COMPANY	
234	371581	PIERCE TELEPHONE COMPANY	
235	371590	SODTOWN TEL. CO.	
236	381509	WOLVERTON TEL. CO.	
237	381601	ABSARAKA COOP TELEPHONE CO.	
238	381614	POLAR COMMUNICATIONS MUTUAL AID CORP (A)	
239	381615	GRIGGS COUNTY TELEPHONE COMPANY	
240	381622	GRIGGS COUNTY TEL. CO. (MOORE&LIBERTY)	

Appendix A
 2019 Average Schedule USF Study
 Study Area Code / Study Area Name

Obs	Study Area Code	Study Area Name	Eligible for HCLS (yes=1)
241	381638	MIDSTATE COMMUNICATIONS INC.	1
242	391640	GOLDEN WEST TELECOM COOP (ARMOUR)	
243	391649	BERESFORD MUNICIPAL TEL. CO.	1
244	391650	CITY OF BROOKINGS MUNICIPAL TEL. DEPT.	1
245	391653	CITY OF FAITH MUNICIPAL TEL CO	1
246	391664	JAMES VALLEY COOPERATIVE TELEPHONE COMPANY	
247	391682	TRIOTEL COMMUNICATIONS, INC. (TRI-COUNTY)	
248	401710	MAGAZINE TELEPHONE COMPANY	
249	401712	MOUNTAIN VIEW TELEPHONE COMPANY	
250	401722	E. RITTER TELEPHONE COMPANY	
251	421893	CHOCTAW TELEPHONE COMPANY	
252	421900	KLM TEL. CO.	
253	421932	LATHROP TELEPHONE COMPANY	
254	421936	PEACE VALLEY TELEPHONE CO.	
255	421942	ROCK PORT TEL. CO.	
256	431968	BEGGS TELEPHONE COMPANY	1
257	442043	NORTH TEXAS TELEPHONE COMPANY	
258	442107	LIVINGSTON TELEPHONE COMPANY	1
259	462198	PINE DRIVE TEL. CO.	
260	462206	STONEHAM COOPERATIVE TEL. CO.	
261	462210	WILLARD TEL. CO.	
262	472227	MUD LAKE TELEPHONE COOPERATIVE ASSN. INC.	
263	482252	RONAN TEL. CO.	
264	502279	GUNNISON TEL. CO.	
265	502282	MANTI TELEPHONE COMPANY	1
266	502283	SKYLINE TELECOM	
267	532386	CANBY TELEPHONE ASSOCIATION (MT. ANGEL)	1
268	532396	ST. PAUL COOP. TEL. ASSN.	
269	613005	CIRCLE TELEPHONE & ELECTRIC, LLC	
270	613026	NORTH COUNTRY TELEPHONE COMPANY	

Appendix B
 2019 Average Schedule USF Study
 Sample Average Schedule Study Areas
 Data Underlying Cost per Loop Formula Development

	Study Area Code	Actual USF Loop Count	Exchange Count	Sample Weight	Actual Cost per Loop
1	100015	3743	7	1.0000	623.47
2	120042	31	1	1.5000	1575.37
3	140053	757	1	1.0000	543.61
4	150076	713	1	1.0000	349.27
5	170145	1240	1	1.0000	662.72
6	170156	2765	1	1.0000	559.34
7	170191	6703	8	1.0000	605.42
8	170195	358	1	1.5000	549.30
9	170196	3806	4	1.0000	596.39
10	170200	705	1	1.0000	1135.90
11	170205	1496	2	1.0000	469.31
12	170210	990	1	1.0000	968.27
13	190238	1392	5	1.0000	946.01
14	190239	612	1	2.5000	546.43
15	190243	2068	2	1.0000	522.53
16	190250	15268	9	1.0000	549.56
17	220389	2995	3	1.0000	1063.10
18	230491	35752	3	1.0000	1044.34
19	230496	9954	8	1.0000	920.70
20	230503	9807	6	1.0000	885.02
21	230505	2306	3	2.5000	754.71
22	240516	9802	3	2.0000	645.91
23	240535	418	1	2.0000	839.51
24	240541	1573	1	2.0000	607.17
25	240546	12599	7	1.0000	596.08
26	250285	590	1	2.5000	1077.25
27	250311	1071	4	1.0000	982.87
28	260398	14285	8	1.0000	496.99
29	270428	905	1	1.0000	927.72
30	280451	1623	1	2.5000	655.45
31	290553	23882	17	1.0000	793.93
32	290554	9747	5	1.0000	776.57
33	290565	15484	10	1.0000	1019.39
34	290598	961	4	1.0000	1393.16
35	300589	411	1	2.0000	2691.03
36	300604	620	1	1.0000	815.32
37	300609	1195	1	1.0000	900.30
38	300614	581	1	2.9616	729.52
39	300625	1251	1	1.0000	701.44
40	300633	435	1	4.0405	952.86
41	300651	239	1	1.5000	953.77
42	300656	680	1	1.0000	1265.46
43	300659	4731	2	1.0000	655.17
44	300662	410	1	3.2051	810.67
45	300663	190	1	1.5000	601.60
46	310675	3348	4	1.0000	597.29

Appendix B
2019 Average Schedule USF Study
Sample Average Schedule Study Areas
Data Underlying Cost per Loop Formula Development

	Study Area Code	Actual USF Loop Count	Exchange Count	Sample Weight	Actual Cost per Loop
47	310676	5028	4	1.0000	475.37
48	310678	768	1	2.5000	517.55
49	310688	817	1	1.0000	514.92
50	310694	431	1	2.7808	897.24
51	310735	577	1	2.7948	1031.15
52	320751	1423	2	1.0000	1281.26
53	320756	551	1	2.5000	1260.72
54	320771	292	1	1.5000	1851.32
55	320792	1498	1	1.0000	1364.87
56	320816	172	1	1.5000	989.35
57	330843	4251	3	1.0000	859.28
58	330846	2733	2	1.0000	1211.90
59	330848	92	2	1.0000	3378.55
60	330865	1185	1	1.0000	417.95
61	330872	1137	1	2.5000	682.75
62	330879	1934	3	1.0000	628.05
63	330925	1229	1	1.0000	1079.04
64	330938	3494	4	1.0000	767.58
65	330946	422	2	1.5000	1619.55
66	340983	722	2	2.7908	719.35
67	340990	215	1	1.5000	396.05
68	340993	285	1	1.5000	940.71
69	341024	1553	7	1.0000	1285.12
70	341041	60	1	1.0000	720.51
71	341046	127	1	1.5000	1127.77
72	341050	1437	1	1.0000	746.11
73	341053	2207	2	1.0000	850.67
74	341086	266	1	1.5000	1412.10
75	341092	50	1	1.5000	835.79
76	350739	184	1	1.0000	1931.77
77	351097	237	1	1.5000	909.32
78	351098	246	1	1.5000	611.55
79	351101	937	1	2.5000	997.04
80	351107	200	1	1.0000	1444.12
81	351108	83	1	1.5000	1433.27
82	351112	769	3	1.5000	1326.10
83	351119	203	1	1.5000	1242.86
84	351121	81	1	1.0000	844.56
85	351125	4085	3	1.0000	417.21
86	351133	656	4	1.0000	1036.41
87	351137	450	2	1.0000	976.92
88	351139	1143	4	1.0000	698.70
89	351146	190	1	1.5000	1918.18
90	351147	613	1	1.0000	1968.97
91	351150	282	1	1.5000	900.81
92	351166	567	1	2.5495	1175.72

Appendix B
2019 Average Schedule USF Study
Sample Average Schedule Study Areas
Data Underlying Cost per Loop Formula Development

	Study Area Code	Actual USF Loop Count	Exchange Count	Sample Weight	Actual Cost per Loop
93	351175	282	1	1.5000	1001.52
94	351176	276	1	1.0000	1859.15
95	351179	253	1	1.5000	1406.15
96	351189	712	2	1.0000	800.38
97	351191	465	1	1.5000	901.14
98	351202	494	1	1.0000	957.69
99	351205	929	2	2.5000	1174.97
100	351228	219	1	1.5000	746.41
101	351239	326	2	1.5000	1188.69
102	351247	676	4	1.5000	857.62
103	351261	907	4	1.0000	914.37
104	351265	158	1	1.0000	816.73
105	351266	204	1	1.0000	2074.32
106	351269	497	1	1.5000	635.96
107	351270	229	1	1.0000	1385.91
108	351275	136	1	1.5000	1265.41
109	351283	280	1	1.0000	1169.33
110	351285	753	2	1.0000	1121.80
111	351291	1151	4	1.0000	1209.75
112	351292	179	1	1.0000	1341.07
113	351293	869	2	1.0000	838.93
114	351301	462	3	1.5000	983.69
115	351302	998	1	1.0000	710.13
116	351307	107	1	1.0000	1421.07
117	351308	331	1	1.5000	1310.32
118	351309	205	1	1.0000	2538.36
119	351319	1898	6	1.5000	1029.37
120	351320	481	1	1.5000	1041.66
121	351322	282	1	1.5000	799.78
122	351331	2967	6	1.0000	1164.59
123	351334	2831	8	1.0000	991.04
124	351335	257	1	1.5000	1502.65
125	351342	133	1	1.0000	2787.14
126	351344	339	2	1.5000	1146.09
127	361348	68	1	1.0000	951.24
128	361356	4114	5	2.0000	746.10
129	361365	199	1	1.5000	938.96
130	361372	116	1	1.5000	593.33
131	361390	1938	7	1.0000	1206.07
132	361401	1556	10	1.0000	1601.52
133	361403	703	1	1.0000	523.33
134	361404	784	2	1.5000	496.70
135	361408	1158	3	2.0000	621.92
136	361409	5273	1	1.0000	619.60
137	361413	1054	4	1.5000	632.40
138	361423	750	1	2.9336	879.36

Appendix B
 2019 Average Schedule USF Study
 Sample Average Schedule Study Areas
 Data Underlying Cost per Loop Formula Development

	Study Area Code	Actual USF Loop Count	Exchange Count	Sample Weight	Actual Cost per Loop
139	361424	661	2	1.5000	679.98
140	361430	5605	8	1.0000	763.13
141	361431	1919	4	2.5000	680.20
142	361439	484	3	1.0000	1236.52
143	361443	7067	9	1.0000	846.07
144	361472	3770	10	1.0000	576.94
145	361475	3237	9	1.0000	775.51
146	361500	29	1	1.0000	2145.29
147	361505	5364	18	1.0000	1251.02
148	361508	473	1	2.5000	1163.74
149	361512	130	1	1.0000	1300.85
150	361515	1192	1	1.0000	699.69
151	371530	1025	5	1.0000	1540.39
152	371555	4671	9	1.0000	722.31
153	371563	570	2	1.5000	1622.52
154	381509	255	2	1.0000	1229.14
155	381601	44	1	1.5000	960.42
156	381614	1548	6	1.0000	964.10
157	381615	1456	4	1.5000	1390.48
158	381622	783	2	1.0000	442.53
159	381638	859	2	1.0000	1425.61
160	391640	1296	3	1.0000	736.03
161	391649	1156	1	1.0000	478.28
162	391664	2489	14	1.0000	1255.05
163	391682	356	2	1.5000	589.03
164	401712	5200	8	1.0000	939.88
165	401722	2297	8	1.0000	932.01
166	421893	242	1	1.0000	1995.96
167	421900	812	4	1.5000	557.88
168	421942	1264	3	1.0000	705.51
169	431968	1074	1	1.0000	961.54
170	442043	316	2	1.5000	1483.88
171	462198	706	1	2.5000	1162.55
172	462210	63	1	1.0000	2206.43
173	472227	1059	5	1.0000	894.05
174	502279	1072	1	1.0000	669.11
175	502282	2302	2	1.0000	709.29
176	502283	1629	5	1.0000	811.46
177	532386	1281	1	1.0000	486.31
178	532396	528	1	1.0000	963.61
179	613005	63	1	1.5000	757.86
180	613026	153	1	1.5000	491.42

Appendix C
2019 Average Schedule USF Study
Comparison of Current and Proposed Monthly HCL Support Payments

Obs	Study Area Code	Loops	Exch	Loops per Exch	Current Payments	Proposed Cost per Loop *	Proposed Payment (Fund Cap Appl.)	Per Loop Payment Difference	Payment Percent Difference
1	100019	2,372	6	395	\$22,425	\$1,029.87	\$27,956	\$3.37	24.7%
2	120042	20	1	20	\$411	\$1,286.03	\$473	\$3.10	15.1%
3	120043	1,372	1	1,372	\$0	\$706.15	\$0	\$0.00	0.0%
4	140053	818	1	818	\$255	\$778.50	\$1,098	\$1.03	330.6%
5	150076	679	1	679	\$812	\$835.87	\$2,474	\$2.54	204.7%
6	150125	4,082	2	2,041	\$0	\$663.34	\$0	\$0.00	0.0%
7	170156	2,686	1	2,686	\$0	\$663.34	\$0	\$0.00	0.0%
8	170171	900	1	900	\$0	\$767.79	\$821	\$0.91	100.0%
9	170175	2,266	1	2,266	\$0	\$663.34	\$0	\$0.00	0.0%
10	170195	344	1	344	\$3,848	\$1,064.71	\$4,609	\$2.88	19.8%
11	170196	3,622	4	906	\$0	\$767.00	\$3,190	\$0.88	100.0%
12	170197	859	1	859	\$0	\$773.14	\$968	\$1.13	100.0%
13	170205	1,492	2	746	\$644	\$790.11	\$2,697	\$1.40	318.8%
14	190220	160	1	160	\$2,592	\$1,190.39	\$3,075	\$2.60	18.6%
15	190239	629	1	629	\$2,094	\$870.02	\$3,154	\$1.79	50.6%
16	190250	13,891	9	1,543	\$0	\$683.83	\$0	\$0.00	0.0%
17	197251	540	1	540	\$2,882	\$930.82	\$4,025	\$2.49	39.7%
18	220324	831	1	831	\$0	\$776.80	\$1,059	\$1.27	100.0%
19	220389	2,938	3	979	\$0	\$757.47	\$1,464	\$0.50	100.0%
20	230478	1,235	1	1,235	\$0	\$724.04	\$0	\$0.00	0.0%
21	230494	726	1	726	\$617	\$803.77	\$1,710	\$1.53	177.1%
22	230496	11,006	8	1,376	\$0	\$705.63	\$0	\$0.00	0.0%
23	230497	1,814	2	907	\$0	\$766.87	\$1,588	\$0.88	100.0%
24	230501	24,774	12	2,065	\$0	\$663.34	\$0	\$0.00	0.0%
25	230503	10,100	6	1,683	\$0	\$665.55	\$0	\$0.00	0.0%
26	230505	2,410	3	803	\$838	\$780.45	\$3,423	\$1.07	308.5%
27	230511	14,119	10	1,412	\$0	\$700.93	\$0	\$0.00	0.0%
28	240515	2,382	1	2,382	\$0	\$663.34	\$0	\$0.00	0.0%
29	240516	10,707	3	3,569	\$0	\$663.34	\$0	\$0.00	0.0%
30	240532	218	1	218	\$3,451	\$1,150.77	\$3,789	\$3.41	9.8%
31	240541	1,725	1	1,725	\$0	\$663.34	\$0	\$0.00	0.0%
32	240546	13,275	7	1,896	\$0	\$663.34	\$0	\$0.00	0.0%
33	250285	608	1	608	\$2,431	\$884.37	\$3,399	\$1.69	39.8%
34	260398	12,371	8	1,546	\$0	\$683.43	\$0	\$0.00	0.0%
35	260408	4,148	3	1,383	\$0	\$704.72	\$0	\$0.00	0.0%
36	270428	814	1	814	\$0	\$779.02	\$1,109	\$1.36	100.0%
37	290554	10,112	5	2,022	\$0	\$663.34	\$0	\$0.00	0.0%
38	290570	3,277	5	655	\$6,632	\$852.26	\$14,096	\$2.42	112.5%
39	290598	993	4	248	\$14,014	\$1,130.29	\$16,319	\$2.72	16.4%
40	300588	647	1	647	\$1,573	\$857.73	\$2,925	\$2.23	86.0%
41	300589	397	1	397	\$3,778	\$1,028.50	\$4,654	\$2.83	23.2%
42	300609	1,059	1	1,059	\$0	\$747.03	\$84	\$0.08	100.0%
43	300614	579	1	579	\$2,535	\$904.18	\$3,697	\$2.26	45.8%
44	300619	1,040	1	1,040	\$0	\$749.51	\$186	\$0.18	100.0%
45	300625	1,410	1	1,410	\$0	\$701.19	\$0	\$0.00	0.0%
46	300650	1,286	2	643	\$4,289	\$860.46	\$5,955	\$1.31	38.8%
47	300656	655	1	655	\$1,214	\$852.26	\$2,817	\$2.59	132.0%
48	300663	165	1	165	\$2,887	\$1,186.98	\$3,145	\$3.20	8.9%
49	310678	723	1	723	\$9	\$805.82	\$1,763	\$2.43	19488.9%
50	310688	590	1	590	\$2,624	\$896.67	\$3,589	\$1.75	36.8%
51	320751	1,436	2	718	\$1,341	\$809.24	\$3,698	\$1.67	175.8%
52	320756	516	1	516	\$3,056	\$947.22	\$4,185	\$2.67	36.9%
53	320771	284	1	284	\$3,741	\$1,105.70	\$4,344	\$2.95	16.1%

Appendix C
2019 Average Schedule USF Study
Comparison of Current and Proposed Monthly HCL Support Payments

Obs	Study Area Code	Loops	Exch	Loops per Exch	Current Payments	Proposed Cost per Loop *	Proposed Payment (Fund Cap Appl.)	Per Loop Payment Difference	Payment Percent Difference
54	320792	1,410	1	1,410	\$0	\$701.19	\$0	\$0.00	0.0%
55	320826	362	1	362	\$3,824	\$1,052.41	\$4,644	\$3.10	21.4%
56	320827	625	1	625	\$1,214	\$872.76	\$3,202	\$3.41	163.8%
57	320839	445	1	445	\$3,472	\$995.71	\$4,541	\$3.33	30.8%
58	330896	957	2	479	\$6,716	\$972.49	\$8,737	\$2.71	30.1%
59	330925	1,152	1	1,152	\$0	\$734.88	\$0	\$0.00	0.0%
60	330938	3,163	4	791	\$0	\$782.02	\$4,692	\$1.48	100.0%
61	330946	400	2	200	\$6,577	\$1,163.07	\$7,181	\$3.37	9.2%
62	341021	57	1	57	\$1,129	\$1,260.76	\$1,281	\$3.01	13.5%
63	341050	1,354	1	1,354	\$0	\$708.51	\$0	\$0.00	0.0%
64	341053	2,032	2	1,016	\$0	\$752.64	\$619	\$0.30	100.0%
65	351153	530	1	530	\$2,741	\$937.65	\$4,095	\$3.12	49.4%
66	351157	635	2	318	\$7,604	\$1,082.47	\$9,030	\$2.49	18.8%
67	351162	854	2	427	\$7,080	\$1,008.01	\$9,201	\$3.57	30.0%
68	351166	440	1	440	\$2,689	\$999.13	\$4,560	\$5.88	69.6%
69	351175	242	1	242	\$3,609	\$1,134.39	\$4,023	\$3.40	11.5%
70	351205	1,123	2	562	\$5,266	\$915.79	\$7,693	\$2.49	46.1%
71	351269	311	1	311	\$3,039	\$1,087.25	\$4,491	\$9.05	47.8%
72	351275	115	1	115	\$2,418	\$1,221.13	\$2,374	\$3.62	-1.8%
73	351283	231	1	231	\$3,734	\$1,141.89	\$3,920	\$4.56	5.0%
74	351293	832	2	416	\$7,420	\$1,015.52	\$9,253	\$2.89	24.7%
75	351301	472	3	157	\$8,008	\$1,192.44	\$9,115	\$2.87	13.8%
76	351302	1,044	1	1,044	\$0	\$748.98	\$165	\$0.16	100.0%
77	351320	485	1	485	\$3,624	\$968.40	\$4,346	\$1.33	19.9%
78	351322	275	1	275	\$3,754	\$1,111.84	\$4,285	\$3.35	14.1%
79	351336	831	1	831	\$0	\$776.80	\$1,059	\$1.27	100.0%
80	361353	1,119	1	1,119	\$0	\$739.19	\$0	\$0.00	0.0%
81	361479	6,580	3	2,193	\$0	\$663.34	\$0	\$0.00	0.0%
82	361499	1,302	1	1,302	\$0	\$715.30	\$0	\$0.00	0.0%
83	381638	912	2	456	\$7,359	\$988.20	\$8,989	\$1.85	22.1%
84	391649	845	1	845	\$0	\$774.97	\$1,014	\$1.20	100.0%
85	391650	9,825	1	9,825	\$0	\$663.34	\$0	\$0.00	0.0%
86	391653	277	1	277	\$3,619	\$1,110.48	\$4,298	\$2.36	18.8%
87	431968	1,063	1	1,063	\$0	\$746.50	\$62	\$0.06	100.0%
88	442107	4,942	1	4,942	\$0	\$663.34	\$0	\$0.00	0.0%
89	502282	1,363	1	1,363	\$0	\$707.33	\$0	\$0.00	0.0%
90	532386	1,106	1	1,106	\$0	\$740.89	\$0	\$0.00	0.0%
Total:		227,813			\$185,889		\$270,408	\$0.42	45.5%

Appendix C-1
 2019 Average Schedule USF Study
 Model Companies Proposed 2020 USF Loops and Cost per Loop

Obs	Study Area Code	Loops	Exch	Loops per Exch	Proposed Cost per Loop *
1	100020	1,811	3	604	\$887.10
2	100022	2,446	3	815	\$778.89
3	140064	2,535	6	423	\$1,010.74
4	170191	6,753	8	844	\$775.10
5	170200	600	1	600	\$889.84
6	170210	1,009	1	1,009	\$753.56
7	170277	27	1	27	\$1,281.25
8	190225	6,754	5	1,351	\$708.90
9	190226	12,728	4	3,182	\$663.34
10	190237	1,258	3	419	\$1,013.47
11	190238	1,442	5	288	\$1,102.96
12	190243	2,101	2	1,051	\$748.07
13	200258	700	1	700	\$821.53
14	220380	3,449	6	575	\$906.91
15	230491	31,331	3	10,444	\$663.34
16	240535	429	1	429	\$1,006.64
17	250283	4,471	3	1,490	\$690.75
18	250311	1,073	4	268	\$1,116.63
19	250312	3,685	1	3,685	\$663.34
20	280451	1,660	1	1,660	\$668.56
21	280467	315	1	315	\$1,084.52
22	290565	16,757	10	1,676	\$666.47
23	300591	449	1	449	\$992.98
24	300639	707	1	707	\$816.75
25	300651	221	1	221	\$1,148.72
26	300654	508	1	508	\$952.68
27	300662	374	1	374	\$1,044.21
28	300664	862	1	862	\$772.75
29	310675	3,286	4	822	\$777.97
30	310676	5,236	4	1,309	\$714.38
31	310694	452	1	452	\$990.93
32	310703	966	4	242	\$1,134.39
33	310725	633	1	633	\$867.29
34	310735	544	1	544	\$928.09
35	320816	181	1	181	\$1,176.05
36	320837	680	1	680	\$835.18
37	330842	4,188	3	1,396	\$703.02
38	330843	4,383	3	1,461	\$694.53
39	330846	2,687	2	1,344	\$709.81
40	330847	664	1	664	\$846.11
41	330848	87	2	44	\$1,269.64
42	330865	1,203	1	1,203	\$728.22
43	330868	1,699	3	566	\$913.06
44	330872	1,169	1	1,169	\$732.66
45	330879	1,949	3	650	\$855.68
46	330889	1,137	2	569	\$911.01
47	330905	1,776	2	888	\$769.36
48	330951	2,314	1	2,314	\$663.34
49	340983	552	2	341	\$1,066.76
50	340990	229	1	229	\$1,143.26
51	340993	301	1	301	\$1,094.08
52	341017	860	1	860	\$773.01
53	341024	1,346	7	192	\$1,168.53
54	341041	61	1	61	\$1,258.02

Appendix C-1
 2019 Average Schedule USF Study
 Model Companies Proposed 2020 USF Loops and Cost per Loop

Obs	Study Area Code	Loops	Exch	Loops per Exch	Proposed Cost per Loop *
55	341046	110	1	110	\$1,224.55
56	341062	468	1	468	\$980.01
57	341075	380	1	380	\$1,040.11
58	341086	242	1	242	\$1,134.39
59	341092	43	1	43	\$1,270.32
60	351097	229	1	229	\$1,143.26
61	351098	246	1	246	\$1,131.65
62	351101	752	1	752	\$787.11
63	351107	174	1	174	\$1,180.83
64	351108	81	1	81	\$1,244.36
65	351112	774	3	258	\$1,123.46
66	351113	1,267	1	1,267	\$719.87
67	351114	271	1	271	\$1,114.58
68	351119	184	1	184	\$1,174.00
69	351121	72	1	72	\$1,250.51
70	351125	4,305	3	1,435	\$697.93
71	351133	665	4	166	\$1,186.30
72	351136	286	1	286	\$1,104.33
73	351137	465	2	233	\$1,140.53
74	351139	1,036	4	259	\$1,122.77
75	351141	576	1	576	\$906.23
76	351146	274	1	274	\$1,112.53
77	351147	613	1	613	\$880.95
78	351150	262	1	262	\$1,120.72
79	351171	1,404	1	1,404	\$701.98
80	351176	265	1	265	\$1,118.68
81	351179	258	1	258	\$1,123.46
82	351189	719	2	360	\$1,053.78
83	351191	375	1	375	\$1,043.53
84	351199	371	1	371	\$1,046.26
85	351202	436	1	478	\$973.18
86	351212	2,244	1	2,244	\$663.34
87	351213	198	1	198	\$1,164.43
88	351222	512	1	512	\$949.95
89	351228	214	1	214	\$1,153.50
90	351232	504	1	504	\$955.42
91	351238	210	1	210	\$1,156.24
92	351239	313	2	157	\$1,192.44
93	351241	392	1	392	\$1,031.92
94	351242	367	1	367	\$1,049.00
95	351246	408	2	204	\$1,160.34
96	351247	710	4	178	\$1,178.10
97	351250	302	1	302	\$1,093.40
98	351257	644	1	644	\$859.78
99	351260	2,089	3	696	\$824.26
100	351264	425	2	213	\$1,154.19
101	351265	142	1	142	\$1,202.69
102	351266	196	1	196	\$1,165.80
103	351270	223	1	223	\$1,147.36
104	351273	477	1	477	\$973.86
105	351278	604	1	604	\$887.10
106	351282	894	4	224	\$1,146.67
107	351285	733	2	367	\$1,049.00
108	351291	1,094	4	274	\$1,112.53

Appendix C-1
 2019 Average Schedule USF Study
 Model Companies Proposed 2020 USF Loops and Cost per Loop

Obs	Study Area Code	Loops	Exch	Loops per Exch	Proposed Cost per Loop *
109	351292	181	1	181	\$1,176.05
110	351306	649	1	649	\$856.36
111	351307	106	1	106	\$1,227.28
112	351308	339	1	339	\$1,068.12
113	351309	185	1	185	\$1,173.32
114	351310	418	1	418	\$1,014.16
115	351319	1,952	6	325	\$1,077.69
116	351331	2,888	6	481	\$971.13
117	351335	267	1	267	\$1,117.31
118	351342	118	1	118	\$1,219.09
119	351344	353	2	177	\$1,178.78
120	351424	895	3	298	\$1,096.13
121	361348	60	1	60	\$1,258.71
122	361356	4,234	5	847	\$774.71
123	361365	183	1	183	\$1,174.68
124	361372	98	1	98	\$1,232.75
125	361390	1,821	7	260	\$1,122.09
126	361396	2,573	4	643	\$860.46
127	361401	1,562	10	156	\$1,193.13
128	361403	681	1	681	\$834.50
129	361404	801	2	401	\$1,025.77
130	361408	1,044	3	348	\$1,061.97
131	361409	4,667	1	4,667	\$663.34
132	361413	963	4	241	\$1,135.07
133	361423	819	1	819	\$778.37
134	361424	677	2	339	\$1,068.12
135	361430	5,544	8	693	\$826.31
136	361431	1,660	4	415	\$1,016.21
137	361439	432	3	144	\$1,201.32
138	361443	6,708	9	745	\$790.79
139	361450	2,868	6	478	\$973.18
140	361472	3,669	10	367	\$1,049.00
141	361474	401	1	401	\$1,025.77
142	361475	3,272	9	364	\$1,051.04
143	361495	479	2	240	\$1,135.75
144	361500	30	1	30	\$1,279.20
145	361502	1,156	2	578	\$904.86
146	361505	5,551	18	308	\$1,089.30
147	361508	460	1	460	\$985.46
148	361512	135	1	135	\$1,207.47
149	361654	1,188	3	396	\$1,029.18
150	371555	4,754	9	528	\$939.02
151	371563	569	2	285	\$1,105.01
152	371581	1,156	2	578	\$904.86
153	371590	56	1	56	\$1,261.44
154	381509	279	2	140	\$1,204.06
155	381601	41	1	41	\$1,271.69
156	381614	1,090	5	218	\$1,150.77
157	381615	1,441	4	360	\$1,053.78
158	381622	774	2	387	\$1,035.33
159	391640	1,261	3	420	\$1,012.79
160	391664	2,385	14	170	\$1,183.56
161	391682	358	2	179	\$1,177.41
162	401710	610	2	305	\$1,091.35

Appendix C-1
 2019 Average Schedule USF Study
 Model Companies Proposed 2020 USF Loops and Cost per Loop

Obs	Study Area Code	Loops	Exch	Loops per Exch	Proposed Cost per Loop *
163	401712	5,415	8	677	\$837.23
164	401722	2,068	8	259	\$1,122.77
165	421893	233	1	233	\$1,140.53
166	421900	786	4	197	\$1,165.12
167	421932	1,132	1	1,132	\$737.49
168	421936	311	1	311	\$1,087.25
169	421942	1,317	3	439	\$999.81
170	442043	295	2	148	\$1,198.59
171	462198	784	1	784	\$782.94
172	462206	59	1	59	\$1,259.39
173	462210	68	1	68	\$1,253.24
174	472227	1,099	5	220	\$1,149.41
175	482252	1,829	2	915	\$765.83
176	502279	1,032	1	1,032	\$750.55
177	502283	1,016	3	339	\$1,068.12
178	532396	556	1	556	\$919.89
179	613005	59	1	59	\$1,259.39
180	613026	168	1	168	\$1,184.93

* Proposed Cost per Loop with Opex limit applied