Before the
POSTAL RATE COMMISSION
WASHINGTON, D.C. 20268-0001

POSTAL RATE AND FEE CHANGES, 2000) Docket No. R2000-1

RESPONSES OF NATIONAL NEWSPAPER ASSOCIATION WITNESS STUART ELLIOTT TO INTERROGATORIES OF THE UNITED STATES POSTAL SERVICE, (USPS/NNA T2- 1 to 23)
July 5, 2000

The National Newspaper Association hereby provides the responses of witness Stuart Elliott to the following interrogatories of the United States Postal Service (USPS/NNA T2 1 to 23), filed on June 16, 2000. Each interrogatory is stated verbatim and is followed by the response. A declaration is attached.

Respectfully submitted,

NATIONAL NEWSPAPER ASSOCIATION

By its attorney:
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July 5, 2000

Certificate of Service

I hereby certify that I have this date served the instant document on all participants to record in this proceeding in accordance with section 12 of the Rules of Practice.

Tonda F. Rush

USPS/NNA-T2-1. Please refer to the survey you discuss in Part II of your testimony on which you base your testimony. Please also refer to the document prepared by Project Performance Corporation (PPC) for NNA attached as Attachment 1 to this interrogatory.

a. Please confirm that the Attachment is PPC's final report on this study. If not, please identify the attachment and provide a copy of the final report.

b. Please confirm that other than the glossary and survey instrument shown in the attachments to your testimony, you have not provided any survey-based raw data, computer programs, worksheets, formulae, assumptions, data files or other information called for by the Commission's Rules of Practice that would enable an independent reviewer to validate or replicate your findings or results. If you are unable to confirm, please explain fully.

c. Please provide all documentation for the study, including input and output data, preferably in computer readable form, that will permit replication of the results. If necessary, you may redact or code respondent identifier information (such as name and company) or provide material under protective conditions to maintain survey respondent confidentiality.

d. Please confirm that your study began after the joint meeting initiated by the Postal Service in 1999 referenced in USPS/NNA-T1-5. If not confirmed, please explain fully and provide copies of any written documentation supporting your view.

a. Confirmed.

b. Confirmed, subject to the correction that there were no attachments to my testimony.

c. The data for the study are being provided in library reference NNA-LR-1 as an Access 2000 database entitled "NNA Survey." Answers for questions from the survey are prefaced with a number in parenthesis, indicating the corresponding question from the original survey form. Answers to the last question (6) are not provided, because in a number of instances the respondent provided identifying

information about the publication. In addition, a written answer to (3e) is *redacted for one respondent because it provided identifying information.*

Empty numerical fields are usually indicated in the database by 9999999999, though sometimes they are indicated by a blank entry. When respondents provided total circulation figures without disaggregating them by distribution method, circulation figures are indicated as empty. The yearly total circulation figures in the database are calculated fields and are not taken from the survey form.

In addition to the survey data, the database includes six extra fields: 1) a respondent ID; 2) the NNA database's figure for the newspaper's circulation per issue; 3) a code indicating the stratum; 4) the type of paper, whether daily or weekly; 5) a "clean" version of the first question on the survey, asking respondents for the number of issues they published per week; and 6) a rescaling factor used to adjust the circulation figures of respondents who did not appear to give annual figures. The last two of these fields are discussed in USPS/NNA-T2-18l, which describes the data cleaning procedure.

The circulation figures for 12 publications were questioned because of apparent internal inconsistencies, and this resulted in alterations in 10 cases. This data cleaning is also discussed in USPS/NNA-T2-18l. The database reflects these 10 changes. This data cleaning was performed for only the respondents who provided complete data for 1992 and 1998; it was not performed for respondents who provided complete data for 1995 but incomplete data for 1992 or 1998.

d. Confirmed.

USPS/NNA-T2-2. Please refer to the survey described in Part II of your testimony.
a. What was your role in each of the design, development, implementation, data editing and reporting, and data analyses stages of the survey? Please explain fully.
b. Please list all university level courses taken and completed by you related specifically to the study of survey sampling methods, mathematical statistics (distribution theory), probability, and variance estimation (but not economic theory). Please include with your list the name of the college or university you attended, the year you completed each course, and the textbooks and their authors.
c. Please define precisely the population under study and provide a working definition of the sampling unit at each level of sampling employed in your survey.
d. Please compare and contrast your definitions from part (c) with those underlying the Postal Service's RPW-based estimates of volume.
e. Please describe completely the process used to select the sample within each stratum of the stratified random sample.
f. Was a skip or interval sampling method used to select the sample within each stratum? If so, please describe the mechanism, process or procedure used to select the sample and provide the program code (hardcopy) and the code used to sort the sampling units within each stratum prior to sample selection.
g. Please describe any random start process used and describe how such a random start was determined and used to select the final sample within each stratum. If no random start was used please state so and describe fully all mechanisms and procedures used to impart randomness into sample selection process prior to the draw of the sample in each stratum. Please identify the programming language used and provide in hardcopy form the programming code for the random process used to select the sampled units.
h. Please provide the method used to determine any random seed used in the random selection process and provide the random seeds.
i. How were stratum boundaries determined? Were boundaries other than those shown in Tables 1-3 of your testimony considered? If so, what were they and why were they rejected? If not, why not? Please explain fully.
j. Please explain how the sample sizes shown in Table 1 were determined for each of the nine strata. Please provide all formulae used in determining the stratum sample sizes.
k. Please provide the reasons it was found necessary to sample the NNA database in lieu of a complete census of this database.

a. I was not involved in the design, development, or implementation of the

survey. I had primary responsibility for the data editing, reporting, and analysis.

b.

Undergraduate Courses:

Columbia University, Introduction to Statistics for Economists, 1984
Freedman et al., *Statistics*, Norton, 1980.

Columbia University, Econometrics, 1984
Pindyck and Rubinfeld, *Econometric Models & Econometric Forecasts*, McGraw-Hill, 1981.

Graduate Courses:

MIT, Statistical Methods for Econometrics, 1985
Larsen and Marx, *An Introduction to Mathematical Statistics and its Applications*, Prentice-Hall, 1981.
McFadden, lecture notes.

MIT, Econometrics I, 1986
Theil, *Principles of Econometrics*, Wiley, 1971.
McFadden, lecture notes.

MIT, Econometrics II, 1986
Amemiya, *Advanced Econometrics*, Harvard, 1985.
Various journal articles.

c. The population of interest is United States newspapers that are current or potential users of In-County mail, with a sampled unit being an individual newspaper.

d. My understanding is that the Postal Service's RPW-based estimates of volume for the In-County mail subclass is focused on a population of post offices, with a sampled unit being an individual post office. The Postal Service's population will provide information about both newspaper and non-newspaper users of In-County mail. The NNA's population will provide information about

both postal and non-postal methods of newspaper distribution. Both methods will provide information related to newspaper distribution using In-County mail. Note, however, that the Postal Service does not have any information about the relative sizes of the newspaper and non-newspaper portions of In-County mail use (NNA/USPS-13).

e. The NNA database was stratified using circulation figures in the database. Within each stratum, a number of newspapers was randomly selected to be included in the survey. Table 1 of my testimony gives the total number of newspapers and the number surveyed within each stratum. The random selection was performed using the random number generator of High Performance System's iThink software (Analyst 5.1.1 version). The random number generator was seeded with the value of 1 for the generation of each sample.

f. No.

g. See part (e) above. I do not believe that a copy of the actual programming code is available.

h. See part (e) above.

i. My understanding is that the stratum boundaries were determined through discussions with NNA experts on community newspapers about the size differences that might lead to differences in distribution methods.

j. My understanding is that the sample sizes were determined to be proportional to the number of newspapers in each stratum, subject to a minimum of 60.

k. It would have been more costly to have sent the survey to all publications listed in the NNA database.

USPS/NNA-T2-3. Please refer to use of the terms "circulation" and "survey" throughout your testimony. Please also refer to the terms "copies" and "pieces" (one or more copies bundled together and mailed to the same address) as required on the Form 3541 postage statement (see Appendix A of USPS-LR-I-26/R2000-1) to compute postage.
a. Please indicate whether you believe that a respondent reporting circulation units as copies instead of pieces in your survey biases your reported measures. Please explain fully.
b. Please describe and explain all steps taken in the survey to ensure that circulation was reported by the survey respondents in piece-based units and not in copy-based units. Please provide copies of all written documents where the copy and piece distinction is explained to the intended survey recipients.
c. Please confirm that the In-County postage paid circulation volumes reported by the survey respondents were not validated by obtaining copies of mailer provided postage statements. If you are unable to confirm, please explain fully.
d. Please explain how eligibility for In-County rates was determined. Please indicate where on the survey form guidelines were provided pertaining to DMM editorial and circulation minimums to help the survey respondents understand In-County eligibility requirements.

a. My understanding is that only a small proportion of newspaper In-County volume represents pieces with multiple copies bundled together. As a result, I believe that the distinction between copies and pieces is of no practical importance for the survey results report in my testimony.

By "total annual circulation" the survey meant the total number of copies of the newspaper distributed throughout the year. In determining the proportion of total newspaper circulation delivered using In-County mail, one should use the number of copies that are sent by In-County mail. However, since In-County mail volume is measured in pieces, one should use the number of pieces that are sent by In-County mail in determining the change in newspaper In-County mail volume over time.

If respondents provided the number of copies, then newspaper In-County mail volume could be over-estimated. However, as long as the proportion of pieces

representing multiple copies is relatively constant over time, there would be no bias in the estimate of the change in newspaper In-County mail volume. If respondents provided the number of pieces, then the In-County proportion of total newspaper delivery could be under-estimated. I do not believe that any of these biases are likely to be large enough to be of practical importance for the results reported in my testimony.

Respondents were not directed to make a distinction between copies and pieces. However, they were asked to provide a breakdown of their annual circulation figures according to the delivery method used. In this context, I would speculate that most respondents provided answers in terms of the number of copies.

b. See part (a) above.

c. Confirmed.

d. The respondents were simply asked whether or not they were "eligible to mail newspapers using the Postal Service's in-county mail service" in 1992, 1995, and 1998. No guidelines on In-County eligibility requirements were provided.

For small and medium size newspapers, I would speculate that most respondents were familiar with the requirements for In-County eligibility, given their small staffs and the importance of In-County mail as a distribution method for these papers. For large newspapers, I would speculate that some respondents were not familiar with In-County eligibility requirements and might have included newspapers mailed to addresses within the county but not at In-County rates. It is possible that the strata of daily and weekly newspapers with the largest circulations are affected by this misunderstanding. If that is the case,

then the decrease in In-County volume shown for those strata in Table 3 may be purely an artifact of a misunderstanding about In-County eligibility. This suggests that the increase in newspaper In-County volume may be under-estimated in the reported survey results.

USPS/NNA-T2-4. In Tables 1-3 of your testimony, you report circulation values in undefined units. Please answer the following.
a. Please define the term "circulation" as you have used it in these tables.
b. Please reconcile your circulation-based volume definition with the copy- and piece-based terms found in the DMM for Periodicals mail or as required to compute postage on Form 3541.
c. Please provide corrected circulation in piece-based units for all Table 1-3 entries. If you are unable to do so, please explain why.

a. See my response to USPS/NNA-T2-3a.

b. See my response to USPS/NNA-T2-3a.

c. No data are available to provide corrected figures. In any case, as I have explained in my response to USPS/NNA-T2-3a, I believe that the distinction between pieces and copies is of no practical importance for the results reported in my testimony and that any potential correction would be so small as to be insignificant.

USPS/NNA-T2-5. Please refer to Tables 2-3 of your testimony.
a. Please describe completely how your reported estimates of circulation totals, changes in circulation, and related standard errors are constructed for each entry in Tables 2-3. Please include in your description all expansion factors, their development, and explain why you selected the particular expansion factors you used over other possible choices. Please include all necessary assumptions you made pertaining to your data and estimation methodology.
b. Please provide all formulae relied upon by you to construct each table entry in sufficient detail to enable an independent analyst to replicate your results.
c. Please identify the source of the estimator formulae including the source used for estimating standard errors.

a. The same procedure was used for developing the figures in the first, second, and third columns of Tables 2 and 3. The only difference was the data used to calculate the figures. In the case of the third columns, showing the 1992-98 change for circulation and newspaper in-county volume, respectively, the sampled unit value was the 1992-98 change for the individual newspaper. Within each stratum *h*, the estimate of the population total $\hat{\tau}_h$ for the stratum is calculated as:

$$\hat{\tau}_h = N_h \bar{y}_h$$

where N_h is the number of newspapers in stratum *h* and $\bar{y}_h$ is the average value for the sampled newspapers. The value of N_h used is simply the value in the "Total Number of Papers" column in Table 1 of my testimony. Thus, the survey results are expanded to project values to the population of newspapers contained in the NNA database.

The estimated population totals for each strata are added together, as appropriate, to obtain the daily and weekly estimated population subtotals and the estimated population total for all papers. These additions are calculated as follows:

$$\hat{\tau} = \sum_{h} \hat{\tau}_{h}$$

where $\hat{\tau}$ is the appropriate population subtotal or total that is being calculated. The fourth columns of Tables 2 and 3 provide standard errors for the 1992-98 change values. In each case, the value is simply the square root of the estimated variance of the estimated population total for the stratum, which is calculated as follows:

$$\hat{\text{var}}\left(\hat{\tau}_{h}\right) = \frac{N_{h}\left(N_{h} - n_{h}\right)}{n_{h}} s_{h}^{2}$$

where n_{h} is the number of sampled units in the stratum, and s_{h}^{2} is the sample variance for the sampled units. The latter is calculated as follows:

$$s_{h}^{2} = \frac{1}{n_{h} - 1} \sum_{i=1}^{n_{h}} \left(y_{h,i} - \bar{y}_{h}\right)^{2}$$

where $y_{h,i}$ is the value for the *i*-th sampled unit. The actual calculation of s_h^2 is performed within Access using the program's variance grouping function.

The estimated variances of the estimated population totals for each stratum are simply added together to obtain the estimated variances for the population subtotals and the total over all papers:

$$\hat{\text{var}}(\hat{\tau}) = \sum_h \hat{\text{var}}(\hat{\tau}_h)$$

The square root of this variance is taken to obtain the standard error of the 1992-98 change for the daily and weekly subtotals and for the total over all papers.

The fifth columns of Tables 2 and 3 provide the 1992-98 change as a percentage of the 1992 values. This percentage is obtained simply by dividing the values in the third column by the values in the first column and converting to percents.

Note: the above formulae are adapted from *Sampling* by Steven K. Thompson (Wiley, 1992).

b. See part (a) above.

c. See part (a) above.

USPS/NNA-T2-6. Please refer to Tables 2-3 provided in your testimony.
a. Please confirm that an estimated C.V. (coefficient of variation) computed from your reported standard error of 44.16 million circulation units for your reported estimate of change of 14.88 million circulation units in Table 3 is 296.8 percent. If you are unable to confirm, please provide an estimate of the C.V. for your estimate of change and describe completely how you arrived at your estimate.
b. Please provide an estimated 95 percent confidence interval for each total circulation and change in total circulation estimate shown in Tables 2-3 at the stratum, subtotal and grand total levels.
c. Please confirm that your estimated confidence intervals for the changes in "All Papers" circulation from part (b) for Tables 2-3 include the (i) value zero and (ii) negative values. If you are unable to confirm, please explain fully.
d. Please provide an estimated 95 percent confidence interval for each estimate of standard error shown in your tables under the "Standard Error of Change" column at each stratum, subtotal and grand total level. Please provide all formulae used to provide these interval estimates and identify in the literature the source of your formulae.
e. Please provide an estimate of the C.V. of your estimated change at the "All Paper" level in Table 2 and show how you compute this estimate. If you are unable to compute this estimate, please explain why.
f. Please interpret your result from part (e) and explain the usefulness and meaning of any negatively valued C.V. estimate.
g. Assuming a single population and parameter are of interest, please confirm that a C.V. is a relative measure of precision that allows one to compare the results of different sampling methodologies and their outcomes for purposes such as assessing the relative efficiency between two or more sampling methodologies. If you are unable to confirm, please explain fully.
h. Please indicate if you believe that a confidence interval that includes the value of zero provides evidence of a statistically significant change. Please explain your answer fully.
i. Please confirm that the Postal Service reports an estimated C.V. of 2.2 percent for its In-County piece-based volume estimate for the FY 1998 period. If you are unable to confirm, please explain fully.

a. Confirmed.

b. The 95 percent confidence intervals are provided in the following six tables.

Note that for the individual strata the confidence intervals are calculated using the *t* distribution with the appropriate number of degrees of freedom in the stratum, whereas for the subtotal and total the confidence intervals are calculated using the *t* distribution with an asymptotic number of degrees of freedom.

Table 6b-1: 1992 Circulation (NNA-T-2 Table 2)

Stratum (circulation per issue)	Point Estimate (millions)	Lower Bound of 95% Confidence Interval (millions)	Upper Bound of 95% Confidence Interval (millions)
Daily Papers			
Under 5,000	202.46	11.27	393.64
5,000-10,000	570.01	383.35	756.67
10,000-25,000	1,597.97	1,343.08	1,852.85
Over 25,000	5,231.72	2,711.90	7,751.54
Subtotal	**7,602.15**	**5,278.79**	**9,925.51**
Weekly Papers			
Under 1,000	23.32	18.20	28.44
1,000-3,000	273.02	195.04	351.00
3,000-5,000	236.59	158.42	314.76
5,000-20,000	766.13	580.23	952.02
Over 20,000	797.70	454.34	1,141.06
Subtotal	**2,096.76**	**1,738.21**	**2,455.31**
All Papers	**9,698.91**	**7,348.04**	**12,049.77**

Table 6b-2: 1998 Circulation (NNA-T-2 Table 2)

Stratum (circulatio per issue)	Point Estimate (millions)	Lower Bound of 95% Confidence Interval (millions)	Upper Bound of 95% Confidence Interval (millions)
Daily Papers			
Under 5,000	199.59	20.67	378.51
5,000-10,000	540.74	365.76	715.73
10,000-25,000	1,596.36	1,383.29	1,809.44
Over 25,000	5,056.51	2,644.42	7,468.59
Subtotal	**7,393.21**	**5,171.90**	**9,614.51**
Weekly Papers			
Under 1,000	23.93	16.52	31.34
1,000-3,000	324.09	168.87	479.32
3,000-5,000	249.01	177.24	320.77
5,000-20,000	819.27	632.25	1,006.28
Over 20,000	870.39	446.49	1,294.29
Subtotal	**2,286.69**	**1,850.98**	**2,722.39**
All Papers	**9,679.89**	**7,416.26**	**11,943.53**

Table 6b-3: 1992-98 Circulation Change (NNA-T-2 Table 2)

Stratum (circulation per issue)	Point Estimate (millions)	Lower Bound of 95% Confidence Interval (millions)	Upper Bound of 95% Confidence Interval (millions)
Daily Papers			
Under 5,000	-2.87	-61.25	55.52
5,000-10,000	-29.26	-64.24	5.71
10,000-25,000	-1.60	-121.80	118.60
Over 25,000	-175.21	-368.11	17.69
Subtotal	**-208.94**	**-420.09**	**2.20**
Weekly Papers			
Under 1,000	0.61	-4.24	5.45
1,000-3,000	51.08	-30.27	132.42
3,000-5,000	12.41	-6.75	31.58
5,000-20,000	53.14	-31.98	138.25
Over 20,000	72.69	-41.13	186.52
Subtotal	**189.93**	**39.10**	**340.75**
All Papers	**-19.01**	**-278.50**	**240.47**

Table 6b-4: 1992 In-County Mail (NNA-T-2 Table 3)

Stratum (circulation per issue)	Point Estimate (millions)	Lower Bound of 95% Confidence Interval (millions)	Upper Bound of 95% Confidence Interval (millions)
Daily Papers			
Under 5,000	47.79	-12.12	107.69
5,000-10,000	29.95	-26.47	86.38
10,000-25,000	5.28	0.93	9.64
Over 25,000	26.67	6.46	46.88
Subtotal	**109.69**	**39.29**	**180.10**
Weekly Papers			
Under 1,000	12.20	9.50	14.90
1,000-3,000	106.55	79.05	134.05
3,000-5,000	73.42	37.55	109.30
5,000-20,000	193.32	130.99	255.64
Over 20,000	26.63	-32.09	85.36
Subtotal	**412.12**	**322.97**	**501.27**
All Papers	**521.81**	**408.21**	**635.41**

Table 6b-5: 1998 In-County Mail (NNA-T-2 Table 3)

Stratum (circulation per issue)	Point Estimate (millions)	Lower Bound of 95% Confidence Interval (millions)	Upper Bound of 95% Confidence Interval (millions)
Daily Papers			
Under 5,000	46.33	-9.01	101.67
5,000-10,000	31.62	-25.67	88.90
10,000-25,000	3.30	0.34	6.25
Over 25,000	13.60	3.91	23.28
Subtotal	**94.84**	**28.36**	**161.32**
Weekly Papers			
Under 1,000	11.71	8.54	14.87
1,000-3,000	114.79	78.96	150.63
3,000-5,000	76.07	42.77	109.36
5,000-20,000	234.02	137.65	330.38
Over 20,000	5.27	-4.56	15.09
Subtotal	**441.85**	**337.21**	**546.48**
All Papers	**536.69**	**412.72**	**660.66**

Table 6b-6: 1992-98 In-County Change (NNA-T-2 Table 3)

Stratum (circulation per issue)	Point Estimate (millions)	Lower Bound of 95% Confidence Interval (millions)	Upper Bound of 95% Confidence Interval (millions)
Daily Papers			
Under 5,000	-1.46	-12.44	9.53
5,000-10,000	1.67	-1.39	4.72
10,000-25,000	-1.99	-3.90	-0.07
Over 25,000	-13.08	-25.39	-0.76
Subtotal	**-14.85**	**-29.46**	**-0.24**
Weekly Papers			
Under 1,000	-0.49	-2.95	1.96
1,000-3,000	8.25	-2.96	19.45
3,000-5,000	2.64	-4.24	9.52
5,000-20,000	40.70	-34.99	116.40
Over 20,000	-21.37	-70.36	27.63
Subtotal	**29.73**	**-55.58**	**115.04**
All Papers	**14.88**	**-71.67**	**101.43**

c. Confirmed that the estimated confidence intervals in part (b) above for the change in "All Papers" circulation from Table 2 and the change in "All Papers" In-County mail from Table 3 include the records for papers that had zero circulation for one year, zero In-County mail for one or both years, a decline in circulation from 1992 to 1998, or a decline in In-County mail from 1992 to 1998.

d. I do not have ready access to a formula giving an estimator of the variance of the estimator of the variance of a sampled value, which is required in order to calculate the standard error of an estimated standard error. Therefore I have no basis for constructing 95 percent confidence intervals for the standard error estimates included in Tables 2 and 3.

In any case, I am not aware that such 95 percent confidence intervals for standard error estimates appear in any portion of the Postal Service's direct testimony. Therefore, it seems that the Postal Service itself does not believe that the construction of confidence intervals for standard error estimates is of any practical importance.

e. My understanding is that the coefficient of variation is defined to be the standard error of an estimate divided by the estimate itself. Using this definition, the coefficient of variation for the estimated change at the "All Papers" level of Table 2 is –696 percent. Please note that the Postal Service does not provide coefficients of variation for estimated changes in In-County mail, so there is no way to compare this figure to coefficients of variation from the Postal Service's RPW system.

f. The fact that the coefficient of variation in part (e) is negatively valued is irrelevant: whenever an estimated quantity is negative its coefficient of variation will be negatively valued. However, this does not have any impact on using the coefficient of variation as a short-hand for understanding the degree of uncertainty in an estimate arising from sampling error.

g. Confirmed that in some cases a coefficient of variation allows a useful comparison between different sampling methodologies. It is important to note, however, that non-sampling error is not reflected in an estimated standard error and so is not reflected in a coefficient of variation. If different sampling methodologies are subject to different biases, a comparison of their coefficients of variation will not provide useful information about the impact of those biases.

As an example, it is instructive to compare the change in the Postal Service's RPW figures with the change in newspaper In-County volume found by the survey reported in my testimony. The Postal Service's RPW figures for 1992 and 1998 imply a decrease in In-County volume from 1,193 million to 924 million. NNA/USPS-T5-4 and USPS-T-5 Table 2. This represents a decrease of 269 million, which is a change of –22.5 percent of the 1992 volume figure. In contrast, the 95 percent confidence interval for the change in newspaper In-County mail that I report above in part (b) is from –72 million to 101 million. Expressed as a percentage of the estimated 1992 newspaper In-County mail,

this 95 percent confidence interval is from –13.7 to 19.4 percent. Despite the large coefficient of variation from the survey, this confidence interval is still tight enough to reject the hypothesis that the estimated change in newspaper In-County volume is the same as the Postal Service's estimate of a change of –22.5 percent in total In-County volume. The source of the difference between these two estimates must therefore lie in differences between their populations (see USPS/NNA-T2-2d) or in their biases, neither of which are reflected in a comparison of their coefficients of variation.

h. Under conventional usage, a confidence interval that includes the value of zero is not considered evidence of a "statistically significant change." Nevertheless, it is important to remember that some information is still contained in estimates even if they are not considered "statistically significant" when using an arbitrary cutoff of 95 percent confidence.

For example, using the normal approximation of the distribution of the estimated change it is possible to calculate the probability that the range from 0 to positive infinity contains the true change in newspaper In-County volume. With an estimated change of 14.88 million and an estimated standard error of 44.16 million, the probability that the positive range contains the true change is about 63 percent. Conversely, the probability that the range from 0 to negative infinity contains the true change in newspaper In-County volume is about 37 percent. Thus the results indicate that it is 1.7 times as likely that the positive range includes the true change than that the negative range includes the true change.

Equivalently, this means that it is 1.7 times as likely that the true change is included in the range representing an increase in newspaper In-County volume than that it is included in the range representing a decrease in newspaper In-County volume.

It is also important to note that the study's finding of an estimated change of 2.9 percent in newspaper In-County volume is statistically significant in comparison to the RPW estimate of a change of –22.5 percent in total In-County volume over the same six-year period. As pointed out in part (g) above, the RPW estimate does not lie within the 95 percent confidence interval found by the study. Indeed, the RPW estimate does not even lie within the 99 percent confidence interval found by the study. There is only a 0.5 percent chance that the range from –19.1 percent to negative infinity includes the true value of the change in newspaper In-County volume.

i. Confirmed that the Postal Service reports an estimated coefficient of variation of 2.2 percent for its In-County piece-based volume estimate for the FY 1998 period. For comparison, the estimate of 536.69 million pieces of newspaper In-County mail for 1998 that I report in Table 3 of my testimony has a standard error of 63.25 million. These figures imply an estimated coefficient of variation of 11.8 percent.

USPS/NNA-T2-7. Please refer to the survey discussed by you in your testimony.
a. Please provide the survey coverage period for each of the two years studied (show calendar begin and end dates).
b. Please provide for each year surveyed the probability that a Periodicals eligible publication of any type (newspaper or otherwise) regardless of the type of delivery (Postal Service or other means) that meets the DMM requirements for an In-County mailing is sampled in your survey.
c. Please provide for each year surveyed the probability that a Periodicals eligible publication of any type (newspaper or otherwise) mailed through the Postal Service that meets the DMM requirements for an In-County mailing is sampled in your survey.
d. Please provide for each year surveyed the probability that a Periodicals eligible newspaper regardless of the type of delivery (Postal Service or other means) that meets the DMM requirements for an In-County mailing is sampled in your survey.
e. Please provide for each year surveyed the probability that a Periodicals eligible newspaper mailed through the Postal Service that meets the DMM requirements for an In-County mailing is sampled in your survey.
f. Please provide for each year surveyed the probability that a non-newspaper publication mailed at In-County rates through the Postal Service is sampled in your survey.
g. Please provide for each year surveyed the probability that a publication mailed at In-County rates through the Postal Service that is not a NNA or potential NNA member is sampled in your survey.
h. Please indicate if you believe that the probability that any single mailpiece mailed at In-County rates that has a non-zero probability of being included in the BRPW automated or non-automated office panel also has a non-zero probability of being included in your study. Please explain your answer.
i. Please show how you arrived at the probabilities requested in Parts (b-g) or explain why you are unable to provide any of these probabilities.

a. The survey asked for information about 1992, 1995, and 1998. No directions regarding calendar dates were given. I would speculate that most respondents provided answers for calendar years. To the extent that there was any deviation from this convention, I believe that its impact would be so small as to have no practical importance for the results reported in my testimony.

b. I do not have data available to answer this question. My testimony refers to a study conducted using the NNA database, which includes only newspapers and does not provide information on In-County eligibility. According to NNA/USPS-13, the Postal Service also has no data available to answer this question.

c. See part (b) above.

d. See part (b) above.

e. See part (b) above.

f. Since the survey was conducted using a sample from the NNA database, publications not included in the database have a zero probability of being included in the sample.

g. See part (f) above.

h. The circulations of newspapers mailed at In-County rates have a non-zero probability of being included in the study if they are publications that are included in the NNA database.

i. See parts (b-g) above.

USPS/NNA-T2-8. In Table 3 of your testimony, you report an increase in circulation of 14.88 million units between 1992 and 1998. Please provide the probability that the estimated change in In-County circulation between the two years is exactly this number reported by you. Please explain how you derive this answer.

The answer to this question is of no practical importance, since the probability of a single value drawn from a continuous distribution is infinitesimal. It is more informative to ask for probabilities in relation to ranges of values. For example, as I point out in my response to USPS/NNA-T2-6h, there is a 63 percent chance that the estimated change lies in the range from 0 to positive infinity. As I further point out in my response to that interrogatory, there is only a 0.5 percent chance that the estimated change lies in the range from –19.1 percent to negative infinity, which is the range that includes the estimate of –22.5 percent derived from the Postal Service's RPW system for the change in total In-County volume from 1992 to 1998.

USPS/NNA-T2-9. In Table 3 of your testimony, you report an increase in circulation of 14.88 million units between 1992 and 1998 and a standard error of 44.16 million units.
a. Please construct an estimated 95% confidence interval for your estimate and provide the probability that the true (and unknown) change in circulation is in your estimated 95% confidence interval. If you are unable to do so, please explain why.
b. Please confirm that any number in an estimated 95% confidence interval constructed around your estimate is possible. If you are unable to confirm, please explain fully.

a. See USPS/NNA-T2-6b for the 95 percent confidence interval for the estimated change in newspaper In-County volume. By construction, "the probability that the true (and unknown) change in circulation is in your estimated 95% confidence interval" is 95 percent. Also note that since the uncertainty lies with the estimated change rather than with the true (and unknown) change, some statisticians might prefer a more exact wording of this portion of the interrogatory as "the probability that the estimated 95 percent confidence interval contains the true (and unknown) change in circulation."

b. Any number is "possible" for the true change, including values both inside and outside the 95 percent confidence interval. However, all numbers are not equally likely. By construction, there is a 95 percent chance that the 95 percent confidence interval contains the true change and only a 5 percent chance that the range of values outside the 95 percent confidence interval contains the true value. Even inside the 95 percent confidence interval, not all numbers are equally likely, with numbers closer to the point estimate being more likely than numbers farther away.

USPS/NNA-T2-10. Please refer to page 3 of your testimony at lines 12-15 where you refer to the NNA database. What proportion of all newspapers nationwide (postal and non-postal delivery methods) do you believe is captured in the NNA database? What proportion of all newspapers nationwide (postal and non-postal delivery methods) that meets all DMM eligibility requirements for mailing at In-County rates do you believe is captured in the NNA database? Please explain fully how you arrive at your answers.

My understanding is that the number of dailies is better known than the number of weeklies. Editor & Publisher, as reported on the website of the Newspaper Association of America, lists a total of 1,489 daily newspapers in 1998 (www.naa.org/info/facts99/13.html). Thus the 1,184 daily newspapers included in the NNA database represent approximately 80 percent of all daily newspapers. Because of the focus of NNA on smaller newspapers, I would expect the organization devotes proportionally more resources to identifying weeklies and smaller dailies, but I also suspect that such newspapers are harder to identify than larger dailies. However, without having any other numbers for comparison, I believe it would be a reasonable approximation to conclude that the NNA database covers roughly 80 percent of all papers. Given the focus of NNA on smaller newspapers that are more likely to meet the DMM eligibility requirements for mailing at In-County rates, I believe it would be reasonable to conclude that the NNA database includes somewhat more than 80 percent of such papers.

USPS/NNA-T2-11. Please refer to your Tables 2-3 and to the survey form provided in Appendix B of your testimony.
a. Please explain why 1995 data are excluded from your Tables 2-3.
b. Please explain why your answer to part (a) would not also apply to the 1992 and 1998 years in your study.
c. Please provide in the same format as for Tables 2-3 of your testimony, (i) the 1995 results relative to the 1992 results, and (ii) the 1998 results relative to the 1995 results.

a. It is my understanding that the survey asked for figures for 1995 because there was concern that many small newspapers would not be able to locate circulation and distribution figures going back all the way to 1992. However, in my preliminary review of the data, it seemed that there were not many newspapers that had data for 1995 but not for 1992. Since it is easier to see a constant temporal trend in data over a longer period of time and since there appeared to be only a small cost in the number of usable observations, I therefore began my analysis using the 1992 data. Because of budget limitations, I never analyzed the 1995 figures further.

b. See part (a) above.

c. The tables with the 1995 comparisons follow. These comparisons use only data for which complete answers are provided for all three years. Note that this additional constraint removes two observations from those analyzed in my testimony, which required complete answers for only 1992 and 1998. One observation each is removed from the stratum of dailies with circulations per issue of 5,000 to 10,000 and the stratum of weeklies with circulations per issue of 3,000 to 5,000.

Table 11c-1
Estimated Total Annual Circulation Change, 1992 to 1995

Stratum (circulation per issue)	1992 Circulation (millions)	1995 Circulation (millions)	1992-95 Change (millions)	Standard Error of Change (millions)	Change as Percent of 1992 Circulation
Daily Papers					
Under 5,000	202.46	196.47	-5.98	6.39	-2.95%
5,000-10,000	579.40	580.84	1.45	5.05	0.25%
10,000-25,000	1,597.97	1,600.55	2.58	32.48	0.16%
Over 25,000	5,231.72	5,152.89	-78.83	44.35	-1.51%
Subtotal	**7,611.54**	**7,530.76**	**-80.78**	**55.57**	**-1.06%**
Weekly Papers					
Under 1,000	23.32	24.57	1.25	1.78	5.36%
1,000-3,000	273.02	279.28	6.26	4.43	2.29%
3,000-5,000	238.94	244.56	5.62	5.06	2.35%
5,000-20,000	766.13	790.31	24.19	17.31	3.16%
Over 20,000	797.70	812.26	14.56	12.62	1.83%
Subtotal	**2,099.10**	**2,150.98**	**51.88**	**22.52**	**2.47%**
All Papers	**9,710.64**	**9,681.74**	**-28.90**	**59.96**	**-0.30%**

Table 11c-2
Estimated Total Annual Circulation Change, 1995 to 1998

Stratum (circulation per issue)	1995 Circulation (millions)	1998 Circulation (millions)	1995-98 Change (millions)	Standard Error of Change (millions)	Change as Percent of 1995 Circulation
Daily Papers					
Under 5,000	196.47	199.59	3.12	19.34	1.59%
5,000-10,000	580.84	542.90	-37.94	15.34	-6.53%
10,000-25,000	1,600.55	1,596.36	-4.18	43.65	-0.26%
Over 25,000	5,152.89	5,056.51	-96.38	69.36	-1.87%
Subtotal	**7,530.76**	**7,395.37**	**-135.39**	**85.59**	**-1.80%**
Weekly Papers					
Under 1,000	24.57	23.93	-0.65	0.58	-2.65%
1,000-3,000	279.28	324.09	44.81	40.11	16.04%
3,000-5,000	244.56	252.00	7.44	6.22	3.04%
5,000-20,000	790.31	819.27	28.95	36.18	3.66%
Over 20,000	812.26	870.39	58.14	49.08	7.16%
Subtotal	**2,150.98**	**2,289.68**	**138.70**	**73.26**	**6.45%**
All Papers	**9,681.74**	**9,685.05**	**3.31**	**112.66**	**0.03%**

Table 11c-3
Estimated Change in Newspaper In-County Mail Use, 1992 to 1995

Stratum (circulation per issue)	1992 In-County Mail (millions)	1995 In-County Mail (millions)	1992-95 Change (millions)	Standard Error of Change (millions)	Change as Percent of 1992 In-County Mail
Daily Papers					
Under 5,000	47.79	48.58	0.80	1.96	1.67%
5,000-10,000	5.17	5.05	-0.12	0.18	-2.32%
10,000-25,000	5.28	3.78	-1.51	0.61	-28.60%
Over 25,000	26.67	20.78	-5.89	2.68	-22.08%
Subtotal	**84.91**	**78.19**	**-6.73**	**3.38**	**-7.93%**
Weekly Papers					
Under 1,000	12.20	12.22	0.02	0.84	0.16%
1,000-3,000	106.55	112.31	5.77	3.62	5.42%
3,000-5,000	75.24	76.00	0.76	2.20	1.01%
5,000-20,000	193.32	192.22	-1.10	13.11	-0.57%
Over 20,000	26.63	8.56	-18.08	18.22	-67.89%
Subtotal	**413.93**	**401.30**	**-12.63**	**22.86**	**-3.05%**
All Papers	**498.85**	**479.49**	**-19.36**	**23.11**	**-3.88%**

Table 11c-4
Estimated Change in Newspaper In-County Mail Use, 1995 to 1998

Stratum (circulation per issue)	1995 In-County Mail (millions)	1998 In-County Mail (millions)	1995-98 Change (millions)	Standard Error of Change (millions)	Change as Percent of 1995 In-County Mail
Daily Papers					
Under 5,000	48.58	46.33	-2.26	4.28	-4.65%
5,000-10,000	5.05	6.51	1.47	1.62	29.11%
10,000-25,000	3.78	3.30	-0.48	0.49	-12.70%
Over 25,000	20.78	13.60	-7.18	4.38	-34.55%
Subtotal	**78.19**	**69.74**	**-8.45**	**6.35**	**-10.81%**
Weekly Papers					
Under 1,000	12.22	11.71	-0.51	0.35	-4.17%
1,000-3,000	112.31	114.79	2.48	3.26	2.21%
3,000-5,000	76.00	77.92	1.92	2.70	2.53%
5,000-20,000	192.22	234.02	41.80	32.87	21.75%
Over 20,000	8.56	5.27	-3.29	3.03	-38.43%
Subtotal	**401.30**	**443.70**	**42.40**	**33.29**	**10.57%**
All Papers	**479.49**	**513.44**	**33.95**	**33.89**	**7.08%**

USPS/NNA-T2-12. Please refer to page 7 at lines 13-15 of your testimony. Please reconcile your contention of a net increase in newspaper In-County volume with your Table 3 estimate of change for "All Papers" in the context of your reported standard error which is nearly 3 times the estimate of purported change.

The summary portion of my text that this interrogatory refers to states that the survey found a "net increase in newspaper in-county volume." Given the size of the estimated standard error of this estimate, the change is not statistically significantly different from zero. My testimony does not state that the estimated change in newspaper In-County volume is statistically significantly different from zero, though that point is clear from even a cursory review of Table 3. My testimony does discuss the point estimate for the change in In-County volume. I believe it is customary to discuss the values of point estimates, even if they are not statistically significantly different from zero in conventional terms.

As I have pointed out in my response to USPS/NNA-T2-6h above, "it is important to remember that some information is still contained in estimates even if they are not considered 'statistically significant' when using an arbitrary cutoff of 95 percent confidence." In that response, I go on to point out that "it is 1.7 times as likely that the true change is included in the range representing an increase in newspaper In-County volume than that it is included in the range representing a decrease in newspaper In-County volume."

Furthermore, even if the increase in newspaper in-county volume found by the study is not significantly different from zero, it is still significantly different from the large decline in total in-county volume indicated by the Postal Service's RPW system. See my response to USPS/NNA-T2-6g.

USPS/NNA-T2-13. Please refer to the survey referenced in Part II of your testimony.

a. What statement(s) can you make about the adequacy of the useable or effective response rate of approximately 15.8 percent (100*161/1016) computed from your Table 1 "Number Surveyed" and "Complete Surveys" columns?
b. Have you studied other survey response rates? Please explain fully.
c. What assurances do you have that this group was similar in study results?
d. Please confirm that you conducted a non-response follow-up study to verify the study results and provide the results of this follow-up study.

a. Obviously, a higher response rate is more desirable than a lower response rate. That being said, it is important to remember that even a survey with a low response rate contains some information. Furthermore, if non-response doesn't impart a bias, then its only impact is to increase sampling error. See my response to part (c) below.

b. I have not studied other survey response rates.

c. Non-response imparts a bias if respondents and the non-respondents differ systematically with respect to the quantity being measured. Without this systematic connection, the only impact of non-response is to increase the standard error because of the reduction in observations.

Since the survey was focused on In-County mail use, it's reasonable to think that users of In-County mail might have been more likely to respond. Further, it's reasonable to think that such differing response rates would lead to an over-estimate of newspaper In-County mail volume. With this concern in mind, it's instructive to look at the response rates in Table 1 of my testimony. In-County mail is more important to weekly papers than to daily papers, but the daily papers actually show a slightly higher response rate. In-County mail is more important

to small papers than to large papers, but there is no trend in response rates as circulation increases. Thus, although it's reasonable to be concerned that heavy users of In-County mail were more likely to respond to the survey, the data that I have suggests that this was not in fact a problem.

A different issue is involved with respondents who provided incomplete surveys. For such respondents, I believe the primary issue is the availability of data rather than an interest in providing it. In order for the survey completion rate to bias the results, it must be the case that respondents with complete data differ systematically from respondents with incomplete data in relation to their use of In-County mail. It's plausible to think that smaller newspapers are more likely to have incomplete historical records. As a result, I believe it's plausible to think that any potential bias from differing completion rates would lead to an under-estimate of newspaper In-County volume. The table below provides the completion rate for each of the strata reported in Table 1 of my testimony. This completion rate is calculated by simply dividing the number of complete surveys by the number of surveys returned. As with the response rate, this table suggests that for the completion rate there is no difference between weeklies and dailies. The high completion rate for the largest strata of daily papers does suggest that there might be some small bias introduced within some strata by a higher completion rate for larger papers within the stratum. Based on contrasts across different strata, I believe such a higher completion rate for larger papers within some strata could lead to a small under-estimate of newspaper In-County

volume and a small under-estimate of the change in newspaper In-County volume.

Table 13c-1
Completion Rate

Stratum (By Circulation Per Issue)	Surveys Returned	Complete Surveys	Completion Rate
Daily Papers			
Under 5,000	20	7	35%
5,000 to 10,000	19	9	47%
10,000 to 25,000	24	9	38%
Over 25,000	20	15	75%
Subtotal	**83**	**40**	**48%**
Weekly Papers			
Under 1,000	28	11	39%
1,000 to 3,000	93	45	48%
3,000 to 5,000	49	16	33%
5,000 to 20,000	68	40	59%
Over 20,000	19	9	47%
Subtotal	**257**	**121**	**47%**
All Papers	**340**	**161**	**47%**

d. Not confirmed. The limited budget for the survey did not allow a non-response follow-up study.

USPS/NNA-T2-14. Please confirm that the Postal Service's estimation of In-County volume is independent of mailpiece type (newspaper, newspaper [sic], magazine or other publication) and frequency of issuance (daily, weekly, or other period). If you are unable to confirm, please explain your understanding of how the Postal Service constructs its estimates of In-County volume.

Confirmed.

USPS/NNA-T2-15. Please refer to Table 1 of your testimony and to the survey form shown in Appendix B of your testimony.
a. Please provide a count of the responses indicating "Yes" and a count of the responses indicating "No" to question No. 3.
b. Please distribute each of the two counts from part (a) to the nine strata shown in Table 1 and provide this distribution.

a. The Table is provided below.

Table 15-1
Count of Responses to Question 3

Stratum (By Circulation Per Issue)	Yes	No	No Response
Daily Papers			
Under 5,000	14	3	3
5,000 to 10,000	9	8	2
10,000 to 25,000	15	4	5
Over 25,000	15	4	1
Subtotal	**53**	**19**	**11**
Weekly Papers			
Under 1,000	15	12	1
1,000 to 3,000	40	42	11
3,000 to 5,000	21	21	7
5,000 to 20,000	37	22	9
Over 20,000	7	6	6
Subtotal	**120**	**103**	**34**
All Papers	**173**	**122**	**45**

b. See part (a) above.

USPS/NNA-T2-16. Please refer to page 3 of your testimony at lines 12-13 where you state that "[t]his database consists of weekly and daily newspapers that belong to the association or have a potential interest in membership." Please also refer to Tables 1-3 and to the glossary in Appendix A of your testimony.
a. Please define explain [sic] how it was determined that a publication had potential interest in NNA membership.
b. For each Table 1-3, please partition its data into NNA-only and potential-NNA tables and provide these tables.
c. How many of the 7,630 total newspapers shown in the second column of Table 1 fall into the category referred to in part (a)?
d. Please explain if your answer to part (c) is also the count of publications "eligible for membership" as described in your glossary.
e. Would you consider all newspapers that are not members of NNA at the time of the survey as having "a potential interest in membership"? Please explain.
f. What is the annual In-County volume for the group of non-member newspapers? Please explain how you arrived at this number.

a. My understanding is that NNA attempts to record all newspapers in its database as possible members. However, because its focus is largely upon community newspapers, its data collection efforts are directed more intensely to smaller and weekly newspapers rather than larger newspapers.

b. I do not have access to NNA's membership list and therefore have no way to partition the data into members and non-members.

c. This information is not available.

d. Not applicable.

e. I believe NNA would consider them to be potentially interested. I am not involved in NNA's membership recruitment program.

f. See part (b) above.

USPS/NNA-T2-17. Please refer to the survey form shown in Appendix B of your testimony.
a. Please confirm that the survey was mailed to the recipients.
b. If part (a) is confirmed, to whom (title) were the survey packets addressed?
c. Please provide a copy of all correspondence accompanying the survey including a copy of the cover letter referenced on page 2 of the NNA survey findings report attached to USPS/NNA-T2-1.
d. Please provide a copy of the instructions and guidelines that the survey recipients received with their survey form.
e. Please describe completely the follow-up methodology used to resolve all incomplete items or partial responses.
f. Please describe completely the follow-up methodology used for all nonrespondents.

a. Confirmed.

b. My understanding is that the surveys were addressed to the contact person included in the NNA database, who is generally the publisher or general manager.

c. Copies of near-final drafts of the survey correspondence are included on the following pages. These drafts were provided to the mailing service that sent out the mailing. I do not have ready access to actual copies of the mailed correspondence.

Text of the initial letter describing the survey

Ms. Jane Doe, Circulation Manager
The Somewhere Tribune
P.O. Box 00001
Any County, USA 12345-6789

Dear Ms. Doe,

Within the next few days, you will receive a request to complete a brief questionnaire. We are mailing it to you in an effort to learn more about how newspaper publishers use the Postal Service to deliver their papers.

We believe that the Postal Service will soon file a case with the Postal Rate Commission to raise postage rates. We are conducting this survey in order to be better able to represent your interests to the Postal Rate Commission.

If you would take a few minutes to complete and return the questionnaire, we would truly appreciate it.

Thanks in advance for your help.

Sincerely,

XXXXXXXXX
National Newspaper Association

Text of the cover letter that accompanied the survey

Ms. Jane Doe, Circulation Manager
The Somewhere Tribune
P.O. Box 00001
Any County, USA 12345-6789

Dear Ms. Doe,

For some newspapers, mail delivery via the Periodicals In-County subclass is an important delivery option. According to the United States Postal Service, use of this subclass has changed in the past ten years, and the subclass may therefore be targeted for a rate increase in the next postal rate hearings.

Your newspaper is one of a small number that we are asking to provide information about the use of the Periodicals In-County mail subclass. Depending on the results of this survey, we may be able to negotiate more favorable rates for this subclass when the Postal Rate Commission next meets to discuss broad rate changes.

Your paper was selected at random from a list of all rural newspapers in the United States. In order to get an accurate picture of how important the Periodicals In-County subclass is, we need everyone in our survey group to provide the information we ask for. You can help ensure that our information is of the highest possible quality by filling out and returning your questionnaire in the envelope enclosed with this letter. We will keep all of your responses confidential.

If you have any questions about this survey or how it will be used, please call me at (202) 555-1212.

Thank you very much for your help.

Sincerely,

XXXXXXXXX
National Newspaper Association

Text of the postcard sent after the survey

Last week, we sent you a questionnaire asking about your newspaper's use of the Periodicals In-County mail subclass. Your paper was among a small group that we selected at random to represent all rural newspapers in the United States.

If you have already completed and returned the questionnaire to us, we thank you. If you have not, please do so as soon as possible. We believe that your help will allow us to negotiate more favorable mailing rates for rural newspapers.

If you did not receive a questionnaire, or if it was lost or misplaced, please call us at (202) 555-1212 and we will send you a new one right away.

Sincerely,

XXXXXXXXXX
National Newspaper Association
Address
Address

Text of the cover letter sent with the second copy of the survey

Ms. Jane Doe, Circulation Manager
The Somewhere Tribune
P.O. Box 00001
Any County, USA 12345-6789

Dear Ms. Doe,

About three weeks ago, we wrote to you asking for information about your paper's use of the Periodicals In-County mail subclass. As of today, we have not yet received your completed questionnaire. We realize that you may not have had time to fill it out. However, we would sincerely appreciate your response, and we hope that you will take a few minutes to complete the questionnaire.

We are conducting the survey in the hope that we can negotiate more favorable mailing rates for rural newspapers around the country. Your participation is vital to the success of this effort because the statistical method we are using depends upon a response from every paper selected for the study. Any information you provide will be used only for this study and will be kept confidential.

In case your questionnaire has been lost or misplaced, we enclose a replacement. We are very happy to answer any questions you may have about the questionnaire or about the survey itself. Please do not hesitate to call us at (202) 555-1212.

Thank you for your help.

Sincerely,

XXXXXXXXX
National Newspaper Association

d. See part (c) above.

e. There was no follow-up for incomplete or partial responses.

f. As described on page 2 of the survey report that was provided as an attachment to USPS/NNA-T2-1, non-respondents were first sent a thank you and reminder postcard and were then later sent a second copy of the questionnaire with a cover letter explaining the importance of responding.

USPS/NNA-T2-18. Please refer to the NNA survey findings report attached to USPS/NNA-T2-1.

a. Please quantify the "first case" of bias referenced on page 6 that leads to an overcount of In-County mail in your survey.

b. Please quantify the "second case" of bias referenced on page 6 and indicate its direction. If the direction is unknown, please explain why this bias was not believed important enough to warrant study.

c. For the stratum example provided on page 6 wherein 15 useable (complete survey) responses from the 60 daily newspapers were received, please provide any information you have on the 45 nonrespondents in this stratum that would allow any inference regarding how the sample mean for the 15 respondents relates to that of the 45 or the total stratum sample.

d. For the stratum example provided on page 6 wherein 15 useable (complete survey) responses from the 60 daily newspapers were received, please provide any information you have on the 45 nonrespondents in this stratum that would allow one to assume that the correlation between 1992 and 1998 data based on 15 respondents is the same as or close to that based on all 60 daily newspapers sampled in this stratum.

e. Please confirm that from your useable responses, the actual or effective response rate of 25% (=100*15/60) for the daily "over 25,000" stratum shown by you in your example on page 6 is the highest response rate of the nine survey strata. If you are unable to confirm, please explain fully.

f. Please confirm that from your useable responses, that the lowest actual or effective response rate for a stratum in your survey is approximately 10.5 percent for the weekly "3000-5000" circulation stratum. If you are unable to confirm, please explain fully.

g. Please identify in the literature where it is stated that sample-based estimates obtained under conditions of a low response rate such as your 10.5 percent (rounded) response rate, in the absence of information on the missing 89.5 percent of the sampled units, are reliable. Please provide your assessment of the accuracy of such measures, particularly in light of the fact that respondents having a significant business interest at stake may be more likely to respond than others in the population.

h. Please refer to the statement at the bottom of page 2 in which it is stated that "...most large dailies are ineligible for In-County mail because of their size and geographic reach". Please define a large daily. Please explain how a publication's size and reach make it ineligible for In-County rates. Please identify the DMM or other postal reference source for this statement.

i. Please confirm that if AABP's data were expanded (using same procedure as for non-AABP data) and added into your estimates, the purported net change in circulation would be reduced by over 50%.

j. Please confirm that the T-scores provided in Table 3 on page 8 indicate that the declines in volume in the AABP and daily paper groups are more significant than the increase for the weekly group. If you are unable to confirm, please explain fully.

k. Please provide the formula used to compute the T-scores and identify the source of this formula.
l. Please explain the "data cleaning" process described on page 4 as it pertains to each of the 75 and the remaining 86 useable surveys. Please describe more fully the procedure used to "rescale" the circulation figures and provide all formulas required in this process.
m. Please explain how it was determined that incomplete responses including the three in the example described on page 5 do not affect the results of your study.
n. Please provide the results of any follow-up analyses conducted on any group of nonrespondents or on incomplete responses.

a. See the discussion in the second paragraph of USPS/NNA-T2-13c. That discussion concludes: "Thus although it's reasonable to be concerned that heavy users of In-County mail were more likely to respond to the survey, the data that I have suggests that this was not in fact a problem."

b. If respondents provided circulation figures for all the papers in a multi-paper group, it would clearly result in an over-estimate of both total circulation and total newspaper In-County volume. There is no reason, however, to think that this would lead to a substantial bias in measures of the change of total circulation or of total newspaper In-County volume over time. If multi-paper groups experience some economies of scale in their distribution methods, it's possible that they use a somewhat different mix of distribution methods than comparably sized newspapers that are not part of multi-paper groups. To the extent that this is the case, it would bias the ratio of In-County volume to total newspaper circulation. This ratio was not a focus of my testimony.

In any case, I believe that the number of observations belonging to multi-paper groups is likely to be small. Two cases of multi-papers were detected during data cleaning and both of these were corrected. See part (l) below.

c. For a discussion of possible non-response bias see the second paragraph of USPS/NNA-T2-13c.

d. For a discussion of possible non-response bias see the second paragraph of USPS/NNA-T2-13c.

e. Confirmed.

f. Confirmed.

g. For a discussion of possible non-response and non-completion bias, see USPS/NNA-T2-13c.

h. I do not use "large daily" in my testimony as a precisely defined term. In general, however, it would be reasonable to conclude that the newspapers in the stratum of dailies with circulations over 25,000 are "large." In Appendix A of the survey report that was provided as an attachment to USPS/NNA-T2-1, there is a definition of In-County mail that is taken almost unchanged from the eligibility requirements listed in the DMM Section E270.1. As this definition makes clear, to be eligible for In-County rates a periodical must either have a circulation less than 10,000 copies or have more than half its circulation distributed within the county of publication. Publications with circulations larger than 10,000 will fail the first condition. In addition, publications with higher circulations are more likely to be distributed over multiple counties and therefore to fail the second condition as well.

i. Not confirmed. The AABP data reported in Tables 2 and 3 of the survey report that was provided as an attachment to USPS/NNA-T2-1 are already expanded. If these AABP data were added to the data for all newspapers from the NNA database, the estimated change in total circulation would change from –19.01 to –24.76 million, and the estimated change in "newspaper" In-County volume would change from 14.88 to 14.31 million.

j. Confirmed.

k. The values in the "T-score" columns of the tables in the report are *t* statistics, which are calculated simply by dividing the estimated value of interest by the standard error of the estimate.

l. The raw data included 164 responses with complete figures for 1992 and 1998. This number was reduced to 161 after a cleaning procedure to check for internal inconsistencies in relation to the use of In-County mail or in relation to total circulation.

In 5 cases, respondents provided In-County mail figures but indicated on other parts of the survey that they were ineligible for In-County rates or that they mailed at third class rates. The IDs associated with these responses are 014416, 002494, 048480, 035587, and 025364. For these newspapers, the In-County mail figures were included in Out-of-County mail, which in this survey included both Standard A and Regular Rate periodicals.

In 3 cases for the stratum of Weeklies with circulations over 20,000, respondents indicated a high level of In-County mail usage that seemed potentially

inconsistent with the DMM requirements for In-County mail eligibility (see USPS/NNA-T2-18h). These respondents were contacted. In one case (ID 004708) the numbers were correct and no change was made. In the second case (ID 019614), the numbers were not correct and no correct disaggregated figures were available, so the figures for this record were deleted. In the third case (ID 048203), the provided figures were totals for 5 publications, no correct disaggregated figures were available, and the publication's total circulation per issue of 5-6,000 indicated that it had not been included in the right stratum. The figures for this record were also deleted.

In 4 cases, the sizes of the respondent's circulations were about 10 times larger than would be expected based on the circulations in NNA's database. In one case (ID 014924) the publication was contacted and the respondent's numbers were correct. No change was made to this record. In the second case (ID 020465) the publication was contacted and the respondent had provided information on the wrong newspaper. Figures for the correct newspaper were not available, so the figures for the record were deleted. In the third case (ID 035521) the publication was contacted and the respondent's total circulation figures were correct but the newspaper was not eligible for In-County mail. The In-County mail circulation in this response was moved to the Out-of-County column, but the record was left in the same stratum. In the fourth case (ID 003076) the respondent had indicated on the survey form that information had been provided for a group of newspapers rather than a single newspaper. The

circulation figures for this record were divided by the number of newspapers in the group.

After the check for internal consistency, the circulation figures were rescaled where necessary to obtain annual figures. This was necessary because 75 of the 161 complete responses reported an "annual" circulation figure that was close to the circulation per issue figure in the NNA database. In these cases, I assumed the respondent had given circulation distribution figures in terms of the number of copies per issue rather than the number of copies per year. To convert to annual figures, I therefore multiplied the provided figures by the number of issues per year. Because there are 52 weeks in a year, I obtained the number of issues per year by multiplying the number of issues per week provided as an answer to the survey's question (1) by 52.

The resulting calculation is combined in a field called the "Rescaling Factor" in the database provided in response to USPS/NNA-T2-1c. When the respondent's total annual circulation figure for 1992 is greater than 1.5 times the circulation per issue figure in the NNA database, no rescaling is performed and the rescaling factor is set to 1. When the respondent's total annual circulation figure for 1992 is less than 1.5 times the circulation per issue figure in the NNA database, the rescaling factor is set to be 52 times the newspaper's number of issues per week. (Note that the survey report provided as an attachment to USPS/NNA-T2-1c erroneously reports that the cutoff for rescaling was 25 percent greater than the circulation per issue figure from the NNA database.)

The issues per week field also required some cleaning before it could be used to generate the Rescaling Factor. Many respondents provided figures that appeared to be for the number of issues per year rather than the number of issues per week. When respondents indicated a value for issues per week of 48-52, I concluded that they had given figures for issues per year instead of issues per week and converted their responses to 1. For all other cases when the respondent indicated a value for issues per week greater than 7, a correct value was obtained from NNA or from contacting the publisher directly. The corrected value for issues per week is contained in a field called "Clean Issues Per Week" in the database provided in response to USPS/NNA-T2-1c.

m. For a discussion of possible non-completion bias, see USPS/NNA-T2-13c.

n. The limited budget for the survey did not allow any follow-up analyses on non-respondents or on incomplete responses.

USPS/NNA-T2-19. Please refer to the glossary shown in Appendix A of your testimony and to your definition of a newspaper. Please refer also to what you have described on page 3 at line 13 and elsewhere in your testimony as newspapers (publishers) that have a "potential interest" in NNA membership.
a. Please confirm that the mailed at In-County rates circulation reported by the survey respondents was verified for the minimum 25 percent editorial content requirement. If you are unable to confirm, please explain why this verification was not done and if it was believed to be unimportant.
b. Please confirm that the mailed at In-County rates circulation reported by survey respondents was verified for the minimum 50 percent paid subscriber requirement. If you are unable to confirm, please explain why this verification check was not done and if it was believed unimportant.
c. Please confirm that the "potential interest" In-County rate circulation [sic] reported by potential interest In-County survey respondents [sic] was verified for the minimum 25 percent editorial content requirement. If you are unable to confirm, please explain why this verification check was not done and if it was believed to be unimportant.
d. Please confirm that the "potential interest" mailed at In-County rates circulation [sic] reported by survey respondents was verified for the minimum 50 percent paid subscriber requirement. If you are unable to confirm, please explain why this verification check was not done and if it was believed to be unimportant.

a. Not confirmed. The survey relied on the respondents' own knowledge of the distribution methods used by their newspapers. The purpose of the study was to provide information on newspaper distribution methods, not to assess the Postal Service's ability to verify compliance with the editorial content requirement.

b. Not confirmed. The survey relied on the respondents' own knowledge of the distribution method used for their newspapers. The purpose of the study was to provide information on newspaper distribution methods, not to assess the Postal Service's ability to verify compliance with the paid subscriber requirement.

c. The phrase "potential interest" appears in my testimony in reference to an interest in NNA membership, not to an interest in In-County mail. NNA-T-2, page

3, line 13. As explained in my response to USPS/NNA-T2-16b, I have no way to partition the data into responses from members and non-members. See also my response part (a) above.

d. See parts (c) and (b) above.

USPS/NNA-T2-20. Please refer to page 3 of your testimony at line 24 where you state that you received 340 responses out of 1,016 surveys sent out. Please also refer to page 3 at line 25 and to page 4 at lines 1-2 of your testimony where you state that "...we focused on newspapers that provided circulation figures by delivery method for both 1992 and 1998. Out of the 340 returned surveys, 161 provided information on both years."
a. Please confirm that from your useable 161 responses, the effective or actual response rate for your study is less than the 33 percent shown in your Table 1 and is approximately 15.8 percent. If you are unable to confirm please explain fully.
b. Please describe the original purpose of the survey before any data analyses were conducted.
c. Please explain if the purpose of the survey changed after any respondent data were received.
d. If the original purpose of the survey was to estimate change between two years, why isn't this stated on the survey instrument? Please explain fully.
e. If the original purpose of the survey was to estimate change between 1998 and 1992, why was data collected for the 1995 period? Please explain fully.
f. For each item asked on the survey form, and for all 340 survey respondents, please provide counts of the complete and incomplete responses.
g. Please indicate if either formally or informally, the survey data were studied for a correlation between In-County circulation changes (positive or negative) and any response variable. If no study of correlation was made, please explain why. If any correlation studies were made, please describe them completely and provide the findings.

a. For a discussion of non-response, see USPS/NNA-T2-13.

b. The original purpose of the survey is described on page 3 of my testimony, lines 5-10.

c. The purpose of the survey did not change after respondent data had been received.

d. The purpose of the survey was not solely "to estimate change between two years" and so it would have been inappropriate to have stated this on the survey instrument.

e. See USPS/NNA-T2-11a.

f. The following table shows the counts of complete and incomplete responses. Please note that questions 3a, 5, 5a, 5b, and 5c are conditional and are counted as incomplete only if no response is given when the condition is satisfied.

Table 20f-1: Counts of Incomplete Responses

Question	Complete	Incomplete
1	322	18
2	159	181
3	295	45
3a	336	4
4	307	33
5	337	3
5a	320	20
5b	326	14
5c	335	5

g. Budget limitations did not allow exploration of any correlation between In-County volume changes and other response variables.

USPS/NNA-T2-21. Please provide the count of the NNA members referred to on page 3 of your testimony at line 13. Please provide a list of these members.

See USPS/NNA-T2-16b.

USPS/NNA-T2-22. Please provide the number of mailers in your database who use In-County rates.

The NNA database does not contain information on the use of In-County rates.

USPS/NNA-T2-23. Please confirm that newspapers with insufficient editorial or circulation content as defined in the DMM are ineligible for Periodicals rates and must be mailed instead at Standard Mail rates. If you are unable to confirm, please explain fully.

Confirmed.

DECLARATION

I, Stuart Elliott, declare under penalty of perjury that the answers to interrogatories of the United States Postal Service, USPS/NNA T-1-16 are true and correct to the best of myknowledge, informaion and belief.

Executed 7-5-00

Stuart W. Elliott

Stuart Elliott

Certificate of Service

I hereby certify that I have this day served the foregoing document upon all participants of record in this proceeding in accordance with section 12 of the Rules of Practice.

Tonda F. Rush

July 5, 2000