

**Department of Commerce
U.S. Census Bureau
OMB Information Collection Request
Construction Progress Reporting Surveys
OMB Control Number 0607-0153**

Part B. – Collections of Information Employing Statistical Methods

1. Universe and Respondent Selection

The monthly universe for private construction is approximately 4,700 projects with an estimated sample size of 700 new projects selected each month. State and local governments have a monthly universe of approximately 6,292 projects with an estimated sample size of 690 new projects selected each month. The federal government has a monthly universe of approximately 300 projects with an estimated sample size of 100 new projects selected each month. The monthly universe for multifamily is approximately 240 projects with an estimated sample size of 235 new projects selected each month. Construction projects stay in sample until conclusion of the project (an average of 12 months). On average 22,000 projects are in sample each month and are asked to report two key items: the value of construction per month (ongoing basis) as well as the total value (one time) for the entire project.

The monthly value of construction unit response rates after 3 months of collection effort are: 23 percent for private projects; 64 percent for state and local projects; 65 percent for federal projects; and about 24 percent for multifamily projects. The total quantity response rates (TQRR) for monthly value after 3 months of collection effort are: 31 percent for private projects; 69 percent for state & local projects; 64 percent for federal projects; and 49 percent for multifamily projects.

The total value of construction unit response rates after 3 months of collection efforts are: 30 percent for private projects; 72 percent for state and local projects; 67 percent for federal projects; and about 33 percent for multifamily projects. The TQRR for total value of construction after 3 months of collection effort are: 45 percent for private projects; 77 percent for state & local projects; 73 percent for federal projects; and 66 percent for multifamily projects.

Projects are selected each month using stratified systematic sampling procedures. Projects are stratified within ownership (private nonresidential, state & local, federal) by type of construction (TC) and estimated project value. Stratum sampling rates were determined by applying Chromy's algorithm for multivariate sample allocation which optimizes sample size based on cost and variance constraints. The target coefficients of variation (CVs) for major TCs were set between 10-20%, and 35% and 50% for nested subcategories within each major TC. Optimal sample sizes were then boosted to account for expected rate of nonresponse in each TC group and sampling rates for each strata

were determined. These rates can be found in the survey methodology posted online at <http://www.census.gov/construction/c30/methodology.html>. Multifamily residential projects that are not duplicates or out-of-scope are selected with certainty from multi-unit projects included in the sample for the Survey of Construction

2. Procedures for Collecting Information

The Census Bureau is contracted with an outside vendor to provide source data on private, state and local government, and federal government construction projects valued at \$75,000 or more. Projects in areas not covered by building permit systems or reported by the outside vendor are obtained by Census field staff within a small number of non-permit areas, and are selected with certainty. Projects are stratified by type of construction and valuation and then a systematic sample is taken in each strata using predetermined sampling rates which can be found in the methodology posted on our webpage. Each month all new privately owned multi-unit residential building projects with 2 or more units are selected to report in CPRS from the sampled cases used in the Census Bureau's Survey of Construction.

Once a project is selected, it remains in the sample until it is completed. Monthly construction project reports are requested from the appropriate owner, contractor, builder, or agent responsible for the project. Imputations are made for projects that have not reported at the time of the monthly tabulation, based on estimated total construction value and month of start of the project. Estimates of value put in place are obtained by multiplying the final weight of each project by the monthly reported value and summing all projects. The final weight is a product of the basic weight (reciprocal of the probability of selection) and adjustment factors to account for outliers, costs not included in the monthly construction spending such as architectural and engineering fees, and frame duplication. Weighted data are summed over all sample projects by type of construction and ownerships (private, state and local, and federal). In addition, undercoverage factors are applied to projects in each ownership to account for projects not included in the frame. Private manufacturing construction is benchmarked to the Annual Capital Expenditures Survey.

3. Methods to Maximize Response

To increase response rates, respondents are encouraged to report online. Respondents who choose to respond via Centurion receive email notifications rather than letters or paper forms. Several attempts are made to collect information by telephone follow-up if a response has not been received online or by mail or fax. We also permanently instituted robo-call technology to ensure every active respondent is contacted at least once per month. If a respondent has more than one project in the sample, information is requested for all projects with one telephone call. Each respondent is contacted at their requested time by the computer assisted interview process known as the Call Scheduler. In addition to telephone follow-ups, letters are mailed to respondents to encourage

response (see Attachments F-I). For State and Local Government's that publish their project spending on their websites, we extract the relevant spending information that is needed for our survey without requesting additional response from the respondent. Additionally, we have developed reporting arrangements with other State and Local Governments who send us consolidated reporting via a monthly spreadsheet.

In an effort to improve the response rate for the Construction Progress Reporting Surveys, we have developed and implemented a variety of collection strategies and practices since the previous OMB submission and authorization.

Beginning with the November 2019 statistical period, Census HQ staff began transitioning state Department of Transportations (DOTs) to an autoloading process. Since that initial effort, we have successfully converted 11 DOTs comprising over 1,000 projects to this more streamlined and efficient collection process. In April 2020, we supplemented our existing collection strategy with a new robocall operation to efficiently contact respondents and encourage them to report online. The addition of this process to the overall collection strategy has allowed us to refocus NPC resources to conduct critical 2nd and 3rd follow-up contact for delinquent cases. We have also expanded the use of email for contact, leveraging an automated "eblast" process for both initial and follow-up operations. In conjunction with ongoing efforts to transition from reliance on mailed survey forms to paperless options, we are encouraging as much online reporting as possible. This effectively provides respondents with more time to complete their response while still meeting our indicator processing deadlines, and in turn can support a positive impact on our overall response rate.

The implementation of the above strategies has resulted in improved response rates in some areas and helped to mitigate the decline in others. Our Federal category for the first six months of 2021 had a 66.4% rate compared to the 2018-2020 average of just 63.7%. State and Local was up to 71.1% from 69.2% for the same periods. Non-residential held steady – 32.1% vs. 32.5%. Multi-family remains our most difficult category to address at 41.0% vs 52.9% (for the same periods). We continue to search for innovative and effective new ways to address the ever-present issue of declining participation in surveys that support official statistics.

To that end, we are actively researching several modernization efforts as part of the Construction Re-engineering initiative to directly address the issue of declining response rates. The Construction Re-engineering effort includes assessing the availability, reliability, and accuracy of alternative data sources that can be leveraged in lieu of direct response. This includes acquisition of third-party data sources, development of proof-of-concept estimate curation that leverages these sources, and analysis of the comparability with established indicator estimates. Additionally, the team is exploring the application of satellite imagery and machine learning models to not only detect new construction but also track these projects through their construction lifecycle and accurately estimate the associated construction spent each month. Through these modernization efforts, our goal is to reduce the program's reliance on traditional survey collection modes, reduce overall

respondent burden, and at the same time, improve the quality and accuracy of the construction spending indicator.

4. Tests of Procedures of Methods

We completed an evaluation of the CPRS as required by the Statistical Policy Directive on Compilation, Release, and Evaluation of Principal Federal Economic Indicators; this evaluation was submitted to the OMB in March 2019. Additionally, testing and evaluation of the variance methods was conducted, which led to the implementation of updated variance programs in July 2015.

All changes to methodology or processing systems are tested. For example, during the development of our new processing system in 2018 we conducted thorough testing utilizing data from the previous production system to ensure similar and consistent survey results. Additionally, we have improved our sampling and tabulation programs to be more efficient, prior to implementation, we conducted thorough testing to ensure consistent results to the previous system.

5. Contacts for Statistical Aspects and Data Collection

The Economic Indicators Division (EID) plans and coordinates the survey. This includes the design of the reporting forms, instructions for collecting and editing information, tabulation and publication of the data. The Economic Statistical Methods Division (ESMD) is responsible for the survey methodology and sample selection.

The contact person for questions relating to the statistical aspects of the survey is Ms. Bonnie Kegan, Chief of the Construction Surveys Statistical Methodology Branch, ESMD. She can be reached on (301) 763-7639.

The contact person for questions relating to the collection, analysis and processing of the data is Mr. Aidan Smith, Assistant Division Chief for Construction Indicator Programs, EID. He can be reached on (301) 763-2972.

Attachments:

- A. Form C-700: Construction Progress Reporting Survey for Private Construction Projects
- B. Form C-700(R): Construction Progress Reporting Survey for Multifamily Residential Projects
- C. Form C-700(SL): Construction Progress Reporting Survey for State and Local Governments
- D. Form C-700(F): Construction Progress Reporting Survey for Federal Government
- E. BEA Letter of Support for CPRS
- F. Respondent Letter for Newly Selected Private Construction Projects (C-700-L1A)
- G. Respondent Letter for Newly Selected Public Construction Projects (C-700-L1B)
- H. Pressures Sealed Letter for Continuing Projects (C-700-L2(PS))
- I. Postcard Notification (C-700-PC) – designed as a one-time mailer
- J. Picture of Centurion Login Screen for Confidentiality
- K. Picture of Centurion Burden Statement
- L. Picture of Website ‘About the Survey’
- M. Legal Authority