

SUPPORTING STATEMENT
U.S. Department of Commerce
U.S. Census Bureau
Commodity Flow Survey a Component of the 2022 Economic Census
OMB Control Number 0607-0932

A. Justification

1. Necessity of Information Collection

The U.S. Census Bureau plans to conduct the 2022 Commodity Flow Survey (CFS), a component of the 2022 Economic Census, as it is the only comprehensive source of multi-modal, system-wide data on the volume and pattern of goods movement in the United States. The CFS is conducted in partnership with the Bureau of Transportation Statistics (BTS), Office of the Assistant Secretary for Research and Technology, U.S. Department of Transportation (DOT) and the Pipeline and Hazardous Materials Safety Administration (PHMSA), U.S. Department of Transportation.

The survey provides a crucial set of statistics on the value, weight, mode, and distance of commodities shipped by mining, manufacturing, wholesale, and selected retail and services establishments, as well as auxiliary establishments that support these industries. The Census Bureau will publish these shipment characteristics for the nation, census regions and divisions, states, and CFS defined geographic areas. As with the 2017 Commodity Flow Survey, this survey also identifies export, hazardous material, and temperature-controlled shipments.

BTS is mandated by Congress under Title 49 to collect economic data on transportation mode choice and goods movement. This information informs freight flows and is critical to understanding the use, performance, and condition of the nation's transportation system, as well as informing transportation investments. Data on the movement of freight also are important for effective analyses of changes in regional and local economic development, safety issues, and environmental concerns. They also provide the private sector with valuable data needed for critical decision-making on a variety of issues including market trends, analysis, and segmentation. Each day, governments, businesses, and consumers make countless decisions about where to go, how to get there, what to ship and which transportation modes to use. Transportation constantly responds to external forces such as shifting markets, changing demographics, safety concerns, weather conditions, energy and environmental constraints, and national defense requirements. Good decisions require having the right information in the right form at the right time.

The CFS provides critical data to federal, state and local government agencies to make a wide range of transportation investment decisions for developing and

maintaining an efficient transportation infrastructure that supports economic growth and competitiveness.

Transportation planners require the periodic benchmarks provided by a continuing CFS to evaluate and respond to ongoing geographic shifts in production and distribution centers, as well as policies such as “just in time delivery.”

As part of the 2022 Economic Census, the CFS information collection is required by law under Title 13, U.S.C., Sections 8(b), 131 and, 193. Title 13, U.S.C., Sections 224 and 225 require response. The BTS also has authority to collect these data based on its enabling legislation 49 U.S.C., Section 6302. Relevant excerpts from Title 13 U.S.C. and Title 49 U.S.C. are provided in Attachment C.

The 2022 CFS will be an electronic reporting sample survey of approximately 160,000 business establishments in the mining, manufacturing, wholesale, and selected retail and services industries, as well as auxiliary establishments that support these industries. Copies of the survey materials and the summary of changes are presented in Attachments A and B.

The CFS is co-sponsored by BTS, the Census Bureau, and PHMSA, with a majority of funding (62 percent) provided by BTS. In addition to their funding support, BTS also provides additional technical and planning guidance in the development and implementation of the program. The funding support of PHMSA allowed for the expansion of the hazardous materials data collected on the CFS and an increase in the sample size to improve the coverage of likely hazardous materials shippers.

2. Needs and Uses

The CFS is the primary source of information about freight movement in the United States. Estimates of shipment characteristics are published at different levels of aggregation. The CFS produces summary statistics and a public use data file. The survey covers shipments from establishments in the mining, manufacturing, wholesale, and selected retail industries, as well as auxiliary establishments that support these industries. Federal agencies, state and local transportation planners and policy makers, and private sector transportation managers, analysts, and researchers strongly support the conduct of the CFS.

At the federal level, the data from the CFS are required by a variety of agencies to help accomplish their missions. Results from the CFS help promote economic development and provide for an efficient U.S. transportation system. The CFS allows for better informed infrastructure investment decisions and contributes to the development of policies promoting public safety and protecting the natural environment affected by transportation.

Users and supporters of CFS data at the federal level include:

- Federal Highway Administration
- Federal Railroad Administration
- Maritime Administration
- Pipeline and Hazardous Materials Safety Administration
- Bureau of Transportation Statistics
- Bureau of Economic Analysis
- Bureau of Labor Statistics
- Federal Emergency Management Administration
- U.S. Army Corps of Engineers
- Department of Energy
- Environmental Protection Agency

The Federal Highway Administration and the Bureau of Transportation Statistics use the CFS estimates as input into the Freight Analysis Framework (FAF). The CFS acts as the foundation of the FAF and directly represents up to 70% of the data used to construct the FAF; all of the CFS is used for alternative data allocation and assignment. The FAF is used widely by states and localities to conduct freight planning.

The Bureau of Economic Analysis (BEA) relies heavily on data from the CFS to prepare the industry economic accounts of the United States. The CFS is BEA's primary source of data for distributing the cost of transportation across individual commodities. BEA uses information from the CFS to produce estimates on the use of transportation services by commodity in the benchmark input-output accounts (I-O). The benchmark I-O accounts are used in-turn in the estimation of BEA's national income and product accounts, annual industry accounts, and travel and tourism satellite accounts. These accounts are widely used by business, government, and researchers to analyze industry performance and the changing structure of the U.S. economy. CFS data are BEA's primary inputs for estimating each private industry's purchases of transportation services by mode of transport. Without these data, the accuracy of BEA's estimates of value added (i.e., contribution to GDP) for every private industry would be reduced.

The Maritime Administration (MARAD) uses the CFS data directly to ascertain multimodal domestic freight flows on our nation's transportation system. The CFS provides the only nationally consistent data set for multimodal domestic transportation. MARAD also relies on CFS data indirectly through BEA's benchmark input-output (I-O) accounts and uses I-O account data as input into numerous studies that promote and protect the U.S. maritime industry. Recently, MARAD in conjunction with the American Waterways Operators completed a study on the importance of the tug and barge industry.

The Bureau of Labor Statistics (BLS) also relies on CFS data indirectly through BEA's benchmark input-output (I-O) accounts and uses I-O account data to produce their own input-output data for the U.S. economy, which show the flow

of commodities from production through intermediate use by industries to purchases by the final users.

The Federal Emergency Management Agency (FEMA) utilizes the CFS estimates in its training document as a resource to plan for potential HazMat incidents. Transportation routes, number of shipments, and quantities of chemicals are estimated by the CFS, which allows Local Emergency Planning Communities to conduct hazard vulnerability assessments.

The U.S. Army Corps of Engineers (USACE) uses the CFS data to better understand the contributions of the marine transportation system to the broader multimodal freight network. The origin-destination cargo flow details needed to determine these insights are provided by the Freight Analysis Framework (FAF), which uses the CFS data as its primary source of input. USACE researchers consider the FAF to be the only comprehensive nationwide multimodal freight data source, providing insights into mode share in a way that no other readily available dataset can. Thanks to the underlying CFS data, USACE researchers can use the FAF for detailed analyses of freight volumes (tonnage and cargo value) by mode, commodity, and shipment distances for states and metropolitan areas with marine port activities enabled by federal navigation projects.

The U.S. Energy Information Administration (EIA) relies heavily on data from the CFS to prepare its projections of energy use by fuel type and mode of transport. In particular, the data collected from CFS and the international trade in goods data from the U.S. Census Bureau flow into the Department of Transportation's Freight Analysis Framework, which serves EIA's primary source of data for shipping vehicle miles traveled and ton-miles. EIA uses information from the Freight Analysis Framework to examine the impact of vehicle miles traveled and ton-miles on energy markets as they relate to the transportation sector in both baseline AEO projections and policy case scenarios. Without CFS data, the quality of these projections intended to provide useful information to support efficient decision making in the private sector and support evidence-based policy making would suffer.

The Environmental Protection Agency (EPA) uses the CFS data to assess the types and volumes of hazardous materials, that move through different communities across the country and use this information to increase preparedness, prevention, and response capabilities. In light of the number of accidents that occur, identifying and understanding transportation-related risks are critical components of emergency preparedness and prevention. This requirement is part of the Emergency Planning and Community Right-to-Know Act (EPCRA) passed in 1986, which requires that emergency response plans developed by Local Emergency Planning Committees (LEPCs) to identify the "routes likely to be used for the transportation of substances on the list of extremely hazardous substances...." Additionally, EPA's SmartWay program has found the CFS data to be useful in its research and analyses of trends in freight. These analyses have

contributed to our understanding of the modal choices made by industries that are responsible for moving high volumes and heavy loads of freight, and the efficiency gains and potential emissions benefits associated with those choices. SmartWay has used the CFS data as a source of information to improve our understanding of the general performance of the freight transportation system, in particular the use of multimodal freight networks within the system. Many of EPA's SmartWay partners are pursuing multimodal solutions as a way to move their goods more efficiently, and through the analyses using CFS data, EPA has been able to validate the benefits of pursuing multimodal shipping options.

At the state and local levels, the information from the CFS is extremely valuable for economic development and transportation planning. The CFS data is used at the state level to develop state freight plans, a requirement under the Fixing America's Surface Transportation Act passed in 2015. The CFS data are also used by many localities in responding to requirements contained in the Transportation Equity Act for the 21st Century.

The Pipeline and Hazardous Materials Safety Administration (PHMSA) uses data from the CFS to determine the volume of hazardous materials transported across the United States. This information aids PHMSA in determining the impact of regulatory changes. However, major data gaps exist when rulemaking or a risk assessment requires an accurate snapshot of a packaging type, since no formal quantifiable collection exists of the types of hazmat packaging in transportation. The CFS Expanded Hazardous Materials Supplemental questionnaire attempts to close this gap. These supplemental questions will collect data about the packaging types used to transport hazardous materials throughout the country.

Transportation planners and policy makers in special interest areas have also identified CFS data as critical to their decision making. For example, CFS data on the types and magnitude of hazardous materials shipped in various geographic regions are critical in evaluating and setting policies on the movement of hazardous materials.

CFS data are also crucial to transportation managers, analysts, and researchers in the private sector. These data are used to identify trends in shipping activities, strength of market segments, costs associated with shipping and existing and potential transportation related issues requiring additional resources. Over the past cycle, the following data uses were identified from email inquiries:

- The state of Hawaii used CFS data to better manage food shipments
- Assessing different transportation options and researching what modes are currently being used for different commodities and industries
- Analyzing the volume of freight truck travel between inter and intra state
- Commodity costs associated with air freight

- Research project examining the domestic U.S. supply chain in food and agriculture
- Research into barge inland transportation and the commodities that utilize this mode of transportation
- Research project regarding resilience and compared growth between independent and autonomous Hawaiian Islands in relation to their historical trajectories
- Creating profiles for specific commodities to show the commodity flows across the United States
- Research examining the modes of truck and rail to determine relative market share, the implications of mode conversion, and exploring future possibilities of transportation modes off the highway
- Research examining the total weight of specific commodities to estimate the weight of resulting waste to build business case for recycling

The CFS has received support from a wide range of users expressing the need for the unique data produced by the survey.

Information quality is an integral part of the review of the information disseminated by the Census Bureau (fully described in the Census Bureau's Information Quality Guidelines, which can be found at <http://www.census.gov/about/policies/quality/guidelines.html>). Information quality is also integral to the information collections conducted by the Census Bureau and is incorporated into the clearance process required by the Paperwork Reduction Act.

3. Uses of Information Technology

In 2022, the CFS will collect data through online reporting using the Census Bureau's Centurion system. Centurion is a software system that provides a highly secure and user-friendly means of collecting survey and census information. Centurion is accessed directly via the Respondent Portal, which is an online portal that allows respondents to report for their Census Bureau surveys. Respondents will be asked to set up an account on the Respondent Portal if they do not already have one from reporting on other surveys. If respondents already have an account, they can simply log in, enter the authentication code that will be provided in the survey invitation, and then access Centurion to begin reporting electronically. Through the Respondent Portal users will also be able to learn more about the survey, check their filing status or communicate securely with a Census Bureau representative through email. The Respondent portal ensures respondent correspondence is handled with complete security, safety, and confidentiality.

For the 2022 CFS, respondents will report online for all four quarters of 2022, including the CFS expanded hazardous materials supplement in quarters 1 and 4. Centurion will provide the ability to access any/all of the questionnaires for the four reporting periods, print completed questionnaires, and determine if completed questionnaires were received. This online user interface will also assist respondents in accurately completing the CFS questionnaire by utilizing built-in consistency edits.

The CFS program will have a webpage dedicated to respondents that provides answers to frequently asked questions and additional information on the CFS.

4. Efforts to Identify Duplication

Through meetings and a series of data user conferences with the DOT, professional organizations, as well as transportation planners and data users, the Census Bureau determined that no information collections by Federal agencies, trade groups, or businesses duplicate the content, comprehensive coverage, detail level of transportation characteristics, geographic detail, and statistical reliability provided by the CFS. These features distinguish the ability of the CFS data to meet the requirements of its principal data users and make the survey uniquely suited to provide these valuable transportation statistics.

5. Minimizing Burden

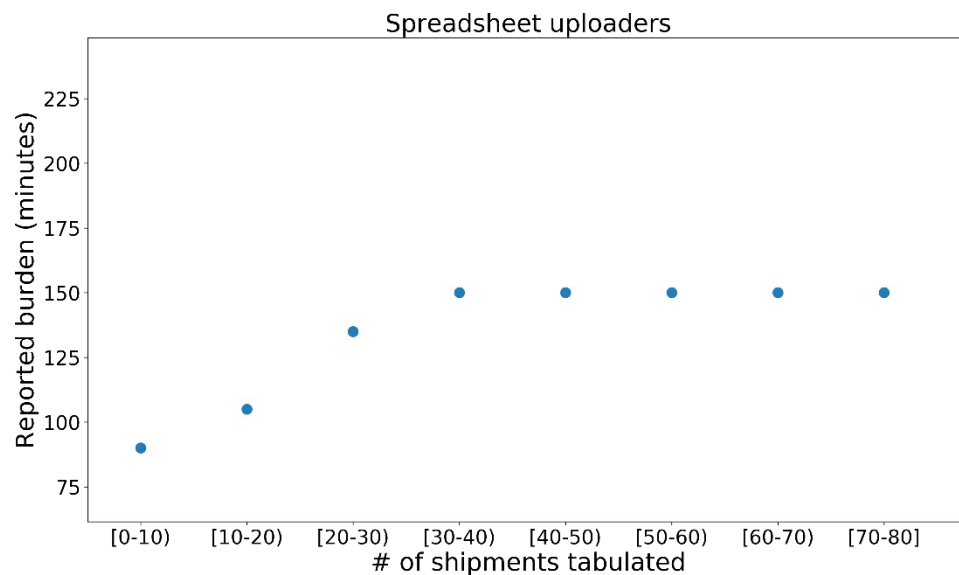
Respondent feedback, data user needs, and burden research from the 2017 CFS were used to drive development and implementation of features and functionality, modernizing the 2022 CFS collection instrument to reduce and minimize burden.

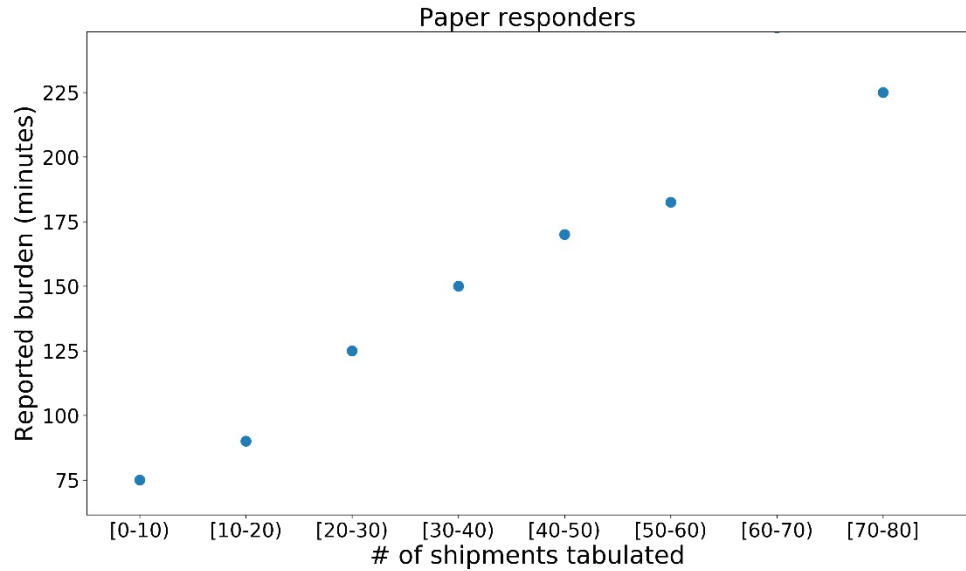
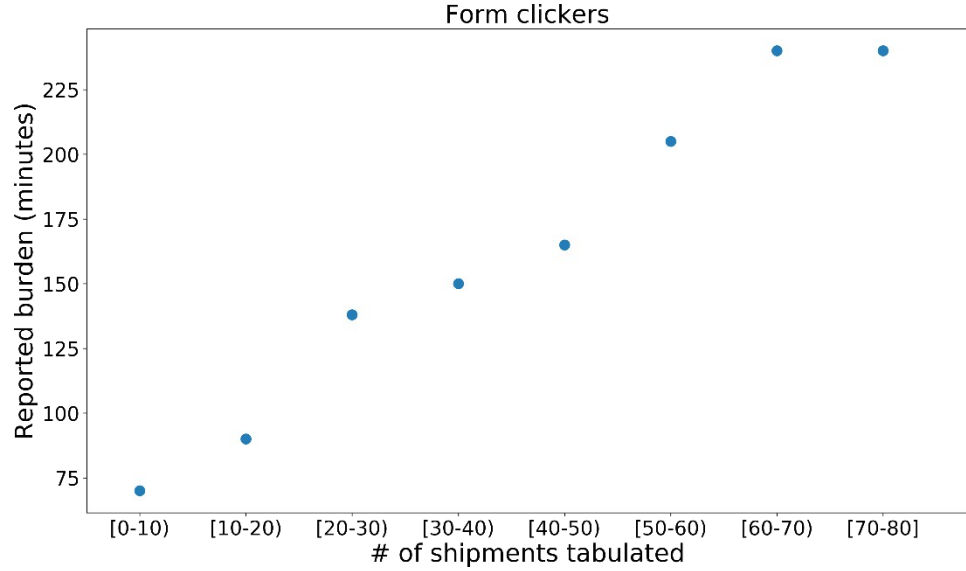
Burden research included examination of the results from the new 2017 CFS question that captured time to complete the survey. The table below summarizes the results from the new time to complete survey question.

Collection Period	Median Burden (minutes to complete)
Q1	80
Q2	60
Q3	60
Q4	60
Annual (all 2017 CFS responses)	60

The graphs below compare the median burden (minutes to complete) for the three

different reporting methods available in the 2017 CFS: uploading a spreadsheet of shipments (“Spreadsheet uploaders”), individually reporting information about each sampled shipment via a web-based form interface (“Form clickers”), and filling out a paper response form (“Paper responders”). Paper responses and form clickers show a linear increase based on the number of shipments sampled. The spreadsheet uploaders show that median burden flattens around 2.5 hours regardless of the number of shipments provided. Based on both these graphs and qualitative feedback from interviewing over 50 CFS respondents between 2019 and 2021, we believe that these results stem from a company’s data storage practices. Those who chose to upload a spreadsheet typically “dump” the records they need from an electronic database, and the amount of time spent developing the appropriate database query has little relationship with the number of shipments in the final output. In fact, many spreadsheet uploaders found the shipment sampling step to be extra burdensome, as they would extract their shipment records for the reporting week from their database and then have to perform sampling as an extra step. On the other hand, those who chose to either transcribe the data onto a paper form or use the web-based form interface are more likely to have done so because they had to reference paper-based records of some kind. For those respondents, the CFS was asking for information they did not keep in an electronic database, and referencing paper records on an individual basis takes proportionately longer depending on how many records the respondent is required to provide.





The Census Bureau has taken the following steps in the design of the 2022 CFS to reduce reporting burden:

Assistance on the CFS Internet site

For the 2022 CFS, the Census Bureau will provide assistance to respondents on the CFS Internet site, such as answers to frequently asked questions, guidance on quickly identifying the correct commodity and hazardous material codes, references to collection materials, conversion charts for weights to pounds, and a contact page. Respondents completing the survey through the Centurion site will

not have to determine their shipment sample size or take-every number . The Centurion instrument will determine this information for them.

Consolidated Reporting

As needed, the Census Bureau will work with respondents to provide the ability for consolidated reporting, which allows one respondent to complete the survey for multiple establishments within the same company. This reduces burden by only requiring one log in and reduces the need to provide duplicate information for each establishment. This feature was implemented based on respondent feedback from 2017 CFS.

Machine Learning for Standard Classification of Transported Goods (SCTG)

Feedback on the 2017 CFS and subsequent interviews with respondents indicated that reporting product codes (in the SCTG product coding scheme) for each shipment was a particularly burdensome step in the CFS survey process. For 2022, the need for respondents to look up SCTG product codes is nearly eliminated using machine learning. Respondents can provide a plain English description of their product or commodity instead and a machine learning model, built into the collection instrument, will generate an SCTG code based on this description. If the machine learning model struggles to identify the correct SCTG code, it will generate a list of the top predictions for the respondents to select the best fit. This will greatly lower the time required for classifying commodities, especially in cases where a company ships many different commodities. Respondents will also have the option to look up their commodity codes, as they have done in previous cycles.

Use of Estimates

The respondents for the establishments selected in the 2022 CFS are not required to create or maintain data not readily available in their records. Instructions on the questionnaire indicate that prepared estimates are acceptable when book figures are unavailable.

Option of Sampling

The stratified random sample design used for CFS is a design that uses the least number of sampling units required to produce estimates with the desired level of reliability, thus minimizing the respondent burden. Per the above research into 2017 burden by response mode, and based on respondent feedback, sampling of

shipments does not save time for everyone. For the 2022 CFS, respondents now have the option to provide all the requested shipment data elements if sampling their shipments will add an extra step and require more time and increase burden.

Screener Question for New CFS Hazmat Supplemental

At the request of the Pipeline and Hazardous Materials Safety Administration (PHMSA), supplemental survey questions have been added to the first and fourth quarters of the 2022 CFS. The supplemental questions will collect data about the packaging types used to transport hazardous materials in 2021 and 2022. Since these question only apply to shippers that handle hazardous materials, a screener question has been created to allow respondents who don't ship hazmat to bypass these additional questions.

Toll-free Telephone Number

A toll-free telephone number for respondents to use for questions or assistance will be available. In addition, the Census Bureau offers a platform to email securely via the E-Correspondence system for those respondents with a preference for communicating via e-mail.

6. Consequences of Less Frequent Collection

The survey is conducted at 5-year intervals as part of the Economic Census and covering the same data year. Linking and integrating the 5-year program of commodities manufactured, mined, and traded (Economic Census) with how and where they are moved (CFS) will improve the utility of both data sets. In addition, Economic Census data are used in the process of producing the CFS estimates.

If the data were collected less frequently, transportation policy makers and planners at the Federal, state, and local levels would lose significant utility from a critical source of transportation statistics. With transportation practices and trends changing at an ever-increasing rate, less frequent collection of these data would severely restrict data users' ability to accurately analyze and improve the transportation services, facilities, and infrastructure.

7. Special Circumstances

This information collection will be conducted in a manner consistent with OMB guidelines and there are no special circumstances.

8. Consultations Outside the Agency

The Census Bureau developed the methodology and questionnaire design for the 2022 CFS jointly with survey co-sponsors at BTS and PHMSA. The technical documentation available on the CFS website provides further details and is

continually updated each cycle to capture changes.

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A presubmission notice was published in the Federal Register July 23, 2021 on pages 38977 and 38978 with the title “Agency Information Collection Activities; Submission to the Office of Management and Budget (OMB) for Review and Approval; Comment Request; Commodity Flow Survey (CFS).” The Census Bureau received letters of support (Attachment D) from BEA, MARAD, EIA, EPA and USACE expressing the importance of continuing the CFS.

9. Paying Respondents

The Census Bureau does not pay respondents and does not provide them with gifts in any form to report requested information to the Commodity Flow Survey.

10. Assurance of Confidentiality

The 2022 CFS Questionnaire and mailed letters will inform respondents what sections of Title 13 U.S.C. authorize the survey, require them to respond, and that their response will be kept confidential.

The statutory basis for this assurance of confidentiality is Title 13 U.S.C., Section 9. All activities relating to the collection and use of the 2022 CFS data satisfy requirements of this law.

11. Justification for Sensitive Questions

This information collection asks no questions of a sensitive nature.

12. Estimate of Respondent Burden

The Census Bureau will canvass approximately 160,000 establishments four times each during the 2022 calendar year. We estimate that on average, each questionnaire will take approximately 1.5 hours to complete, or slightly longer than the median burden from the 2017 CFS. Additionally, an expanded hazmat supplement in quarters 1 and 4 will take 1 hour to complete. This estimate is based on previous CFS burden estimates using the questionnaire’s “time to complete” responses. The supplemental questions burden is estimated based on cognitive testing and interviews. The table below breaks down the burden estimates that contribute to the total annual response burden of 1,280,000 hours. This total annual response burden estimate is lower than the 1,600,000 hours provided in the presubmission notice because the new hazmat supplement will not be done in quarters two and three so supplement burden has been removed for those two quarters.

The estimated total annual response burden provided represents the maximum burden and uses the total sample size, which includes many non-shippers that are out of scope to the CFS. The actual annual burden will be lower than the estimates shown.

Collection Period	Main CFS (hours)	Supplement (hours)	Sample Size (Establishments)	Total Burden (hours)
Quarter 1	1.5	1	160,000	400,000
Quarter 2	1.5		160,000	240,000
Quarter 3	1.5		160,000	240,000
Quarter 4	1.5	1	160,000	400,000
Total Annual			160,000	1,280,000

We estimate the cost to respondents to be \$35,878,400. This is based on the response burden estimate of 1,280,000 hours and the mean hourly wage of \$28.03. [The wage figure is an estimate, based on Metropolitan Statistical Areas data from the Bureau of Labor Statistics: Occupational Employment and Wages, May 2020; First-Line Supervisors/Managers of transportation and Material-Moving Machine and Vehicle Operators taken from <https://www.bls.gov/oes/current/oes531047.htm>]

13. Estimate of Cost Burden

We do not expect respondents to incur any costs other than that of their time to respond. The information requested is of the type normally known by those familiar with the establishment's shipping activities. No special hardware or shipping software or system is necessary to provide answers to this information collection.

14. Cost to the Federal Government

The cost to the government for the 2022 CFS is estimated at \$23 million over a 5-year period. BTS will incur approximately sixty three percent of the cost, PHMSA will incur approximately twenty two percent, and the Census Bureau will incur approximately fifteen percent of the cost to conduct the 2022 CFS. This includes development, mail out, follow-up, data capture, processing, and publication.

15. Reason for Change in Burden

The increase in burden is attributable to the fact that this survey is being submitted as a reinstatement of a previously approved collection.

16. Project Schedule

The Census Bureau will begin mailing the 2022 CFS in March 2022 and continue collection and follow up activities through May 2023. A general timetable for major activities is listed below:

Activity	Start	Finish
Select Sample	Dec 2021	Dec 2021
Mail Survey Letters	Mar 2022	Dec 2022
Non-response Follow up	May 2022	May 2023
Check-in, Editing, Problem Resolution	Apr 2022	Jul 2023
Data Estimation & Analysis	Jul 2023	Apr 2025
Publication Release - Final	May 2025	May 2025

17. Request Not to Display Expiration Date

The assigned expiration date will be displayed on all data collection instruments used in this information collection.

18. Exceptions to the Certification

There are no exceptions to the certification.

19. North American Industry Classification System (NAICS) Codes Affected

The 2022 CFS will include establishments in the following 2017 NAICS groups:

<u>NAICS</u>	<u>Industry</u>
212	Mining (except Oil and Gas)
31 - 33	Manufacturing
42	Wholesale Trade
45411	Electronic Shopping and Mail-Order Houses
45431	Fuel Dealers
484	Truck Transportation (Auxiliary Establishments)
4931	Warehousing and Storage (Auxiliary Establishments)
5111	Newspaper, Periodical, Book, and Directory Publishers
51223	Music Publishers
551114	Corporate, Subsidiary, and Regional Managing Offices (Auxiliary Establishments)