

**Supporting Statement for Paperwork Reduction Act Submission  
Part A**

**LANDSAT SURVEY**

**OMB Control Number: 1028-NEW  
Expiration Date: TBD**

**Terms of Clearance: None**

**A. Justification**

- 1. Explain the circumstances that make the collection of information necessary. Identify any legal or administrative requirements that necessitate the collection. Attach a copy of the appropriate section of each statute and regulation mandating or authorizing the collection of information.**

In 1999, U.S. Geological Survey (USGS) assumed responsibility for the flight operations, orbital maintenance, and management of all ground data reception, processing, archiving, product generation, and distribution of the Nation's land remote sensing satellites and the development of future land-focused satellite missions. One of the main land remote sensing missions is Landsat, first launched in the early 1970's to gather Earth resource data using a series of satellites over the past several decades. The current Landsat satellites provide high-quality, multi-spectral, moderate-resolution imagery for all areas of the world. Landsat imagery is used in a variety of fields that address both environmental and societal needs and problems, including agriculture, climate change, national defense, disaster and emergency management, urban and rural planning and development, and water resources. Consistent global coverage and an archive of over 30 years of imagery make Landsat data unique among other moderate-resolution imagery. Additionally, the imagery is currently available at no cost, whereas the majority of other imagery is not.

It has been frequently argued that the unique attributes of Landsat imagery make it a valuable resource that benefits both the environment and society. However, the value and the benefits have been drawn from anecdotal evidence and not through scientific study. More information is needed to determine the value and benefits of the Landsat system that can be used to improve the provision of Landsat imagery to the user community. Researchers within U.S. Geological Survey's (USGS) Biological Resource Discipline are conducting this information collection at the request of USGS' Land Remote Sensing Program of the Geography Discipline. This study of professional users of moderate resolution imagery is being conducted in order to 1) better understand the uses and applications of moderate-resolution satellite imagery, (2) identify and classify the breadth and depth of the users of this imagery, and (3) determine the value of this imagery to professional users.

This information collection supports USGS' mandates and programmatic requirements related to operating the Nation's land remote sensing satellites. Specifically, this surveying effort will provide information required by the following laws, regulations, policies and statutes:

- Land Remote Sensing Policy Act of 1992 (P.L. 102-555)
- Government Performance Results Act (GPRA) (1993)
- Presidential Decision Directive/NSTC-3 (October 16, 2000)

- Landsat Data Continuity Strategy, Memorandum from EOP/OSTP Director (August 13, 2004)
- Landsat Data Continuity Strategy Adjustment, Memorandum from EOP/OSTP Director (December 23, 2005)
- U.S. National Space Policy (August 31, 2006)

A brief overview of each is provided below:

*Land Remote Sensing Policy Act of 1992 (P.L. 102-555)*

This Act returned the management of the Landsat system to the Federal government. It stresses the importance of the Landsat system, and provides guidance on management of the system and continuity of Landsat data. According to this Act, USGS is responsible for "... ensuring that the operation of the Landsat system is responsive to the broad interests of the civilian, national security, commercial, and foreign users of the Landsat system..." USGS is also required to ensure the continuity of moderate-resolution data.

*GPRA (1993)*

This information will be used by USGS to meet Government Performance and Results Act (GPRA) requirements. In particular, GPRA requires that all agencies establish performance indicators and provide annual reports on program performance based on those indicators. For USGS, program goals include meeting the needs of the users of moderate-resolution satellite imagery.

*Presidential Decision Directive/NSTC-3 (October 16, 2000)*

This amended Directive transfers operations of satellites to the Department of Interior (DOI) and directs DOI, including USGS, to ensure data continuity beyond Landsat 7 (the most recent satellite).

*Landsat Data Continuity Strategy, Memorandum from EOP/OSTP Director (August 13, 2004)*

This policy reaffirms the importance of the Landsat system and states "Landsat is a national asset, and its data have made – and continue to make – important contributions to U.S. economic, environmental, and national security interests. Specifically, Landsat images are the principal source of global, medium resolution, spectral data used by Federal, state, and local government agencies, academia, and the private sector in land use/land cover change research, economic forecasting, disaster recovery and relief, and the scientific study of human impacts on the global environment." The policy also states "Any disruption in the continuous availability of Landsat imagery, products and value-added services will adversely affect government, international, and other users and may limit use of the global data set for certain types of scientific analysis."

*Landsat Data Continuity Strategy Adjustment, Memorandum from EOP/OSTP Director (December 23, 2005)*

This memorandum further clarifies the role of the DOI and USGS by stating "DOI, through the USGS, will be responsible for the operations of the Landsat data continuity mission and for the collection, archiving, processing, and distribution of the land surface data to U.S. Government and other users."

*U.S. National Space Policy (2006)*

This policy directs civil space agencies, including DOI and USGS, to increase the benefits of operational environmental monitoring activities of satellite systems, including Landsat. This policy directs DOI, through USGS, to "...collect, archive, process, and distribute land surface

data to the United States Government and other users and determine operational requirements for land surface data.”

As laid out above, these specific acts, policies, and directives identify USGS’ responsibility to:

1. Ensure data continuity;
2. Be responsive to users and their needs related to Landsat imagery; and
3. Increase the benefits of Landsat.

Additionally, two key changes in circumstances have occurred since USGS assumed responsibility of the management of the Landsat system and delivery of the imagery. First, beginning in January 2009, all Landsat imagery became available at no cost. Before this time the imagery was available for \$500/scene--an administratively set price. Since this change, there has been a 50-fold increase in annual downloads of the imagery (20,000 scenes to over a million) from the USGS Earth Resources Observation and Science (EROS) Center, which processes, archives and distributes the data. Though this increase in downloads has been documented, it is uncertain how use has changed or will change. In order to be responsive to users, USGS must understand how this change in delivery affects users and uses of the imagery.

Second, the current operational Landsat satellites (Landsat 5 and 7) are approaching the end of their lives. Landsat 5 has been orbiting for over 25 years, with an original design life of three years. Landsat 7 is five years past its design life and has a serious technical glitch which results in incomplete coverage. There is a high likelihood that either or both of these satellites will cease operating before the 2012-scheduled launch of the new satellite (Landsat Data Continuity Mission or Landsat 8), resulting in a break in the provision of Landsat imagery. If this occurs, USGS will provide data from other source(s) to ensure continuity, as required by law. To ensure this replacement imagery continues to meet the needs of the users, USGS needs to know the most important uses and attributes of the existing imagery. Because this replacement imagery will be purchased from another provider, USGS must ensure that these costs are equivalent to the value of the existing imagery to the users. This value cannot be determined from available information for a number of reasons. First, because Landsat imagery is now available at no cost, there is no price from which to determine the value. Second, the price before the imagery was available at no cost was administratively set and was not a market price. Third, once a user purchased and downloaded an image, the USGS did not (and still does not) set restrictions on how the image was used or passed on to other users. Therefore, the real number of users was unknown because many users of Landsat imagery did not actually purchase the product. With an unknown quantity of users and an artificially set price, any assessment of value based on information from before the imagery became available at no cost would be inaccurate.

In order to meet legal and programmatic responsibilities and more effectively manage the Landsat system in the face of changing circumstances, USGS needs information about the users, the uses and the value of Landsat imagery. Comprehensive information of this sort currently does not exist. This information collection will provide USGS with a better understanding of the users and the uses of Landsat data and thus the ability to be more responsive to these users in providing this data. Additionally, this information will be used to guide efforts to effectively respond to users in the event of a break in Landsat continuity (whereby other imagery would have to be substituted) by providing a better understanding of user response to this likely scenario. Information on the user demand would be essential to USGS in negotiating prices to acquire alternative scenes from other providers as well as knowing how many scenes users would purchase at alternative prices, and what would happen to the quantity of images demanded if USGS passed on the cost of purchasing substitute imagery.

**2. Indicate how, by whom, and for what purpose the information is to be used. Be specific. If this collection is a form or a questionnaire, every question needs to be justified.**

As indicated in #1 above, information from this survey will be used by USGS to more effectively manage the Landsat system and meet their programmatic requirements of overseeing the operations of the Landsat system and distribution of the imagery. How and for what purpose the information will be used by USGS is described below and in the attached survey.

This collection contains 4 forms (paths). All respondents will receive instructions and answer a series of questions. The responses to these questions will automatically direct the respondents to forms (paths) 1, 2, 3, or 4 depending upon the type of satellite imagery they use and the status of that use.

There are three categories of questions in the survey: (1) users and uses of satellite imagery, (2) value of and benefits from the imagery, and (3) demographics, described below. Individual question justifications are provided in the survey.

**Category 1: Users and Uses of Satellite Imagery**

The first category of questions is designed to identify the types of users and their uses of satellite imagery (current, past and predicted future uses). This information is necessary because it will, for the first time, identify and classify the breadth and depth of the users and uses of satellite imagery. This information will allow USGS to be more responsive to users in providing Landsat imagery and managing the Landsat system. This information will also be helpful to USGS in fulfilling their data continuity requirements by identifying the key uses of the imagery that need to be provided for by USGS.

Questions under this category include:

- Types of imagery used
- Applications of imagery
- Geographic scope and location to which the imagery is applied
- Acquisitions of imagery
- Past and future trends of amount of imagery use
- Why the imagery is (or is not) being used

**Category 2: Value of and Benefits from the Imagery**

The second category includes questions concerning the value and benefits of moderate resolution imagery generally and Landsat imagery specifically. Understanding the value of and benefits from Landsat imagery is critical information needed for USGS to provide data continuity, be responsive to their users, and increase the benefits of the imagery, as described in #1 above.

Questions include:

- Importance of and level of satisfaction with attributes of the imagery
- Impacts on users and their work if Landsat imagery were not available
- Current costs and revenues related to work which uses Landsat imagery

- Benefits to society and the environment of projects based on Landsat imagery
- Willingness to pay for replacement imagery if Landsat imagery were not available

Information in this category related to importance, satisfaction and the impacts on users if Landsat imagery were not available will provide USGS with a better understanding of user preferences and will allow them to be more responsive to users in providing Landsat imagery, as well as guide USGS in selecting replacement imagery in the event of a break in data continuity.

The cost and willingness to pay information will help USGS establish a reasonable expense for replacement imagery to ensure data continuity. Willingness to pay data is essential for USGS to understand how much demand there would be by users for alternative imagery as a function of the price that USGS would have to pay for alternative imagery. The willingness to pay for imagery if Landsat imagery were not available is a contingent valuation question. Contingent Valuation Method (CVM) will be used to determine how much users would pay for substitution imagery if Landsat imagery were not available. The method is recommended for use by federal agencies performing benefit cost analysis (U.S. Water Resources Council 1983). As suggested by the National Oceanic and Atmospheric Administration (NOAA) panel on contingent valuation (Arrow, et al. 1993), we will ask a dichotomous choice format question. Further justification for this question is available in the attached survey.

Information on the benefits of the imagery will be used to establish a baseline from which the USGS can build efforts to increase these benefits, as directed by the U.S. National Space Policy of 2006.

### **Category 3: Demographics**

This category of questions will allow the respondents to self-identify their age, gender, ethnicity/race, education, and employment sector. This information will provide a more detailed picture of the moderate-resolution imagery user community. Responses will tell us more about homogeneity and heterogeneity in this user population and highlight factors that may be related to respondents' use of imagery or their opinions about imagery. Additionally, in the case that longitudinal research is conducted on this topic, this information will be necessary to determine how the user community has changed. For instance, given that Landsat imagery is now available at no cost, it is now accessible to a larger group of people who may have different demographic characteristics than the previous population.

- 3. Describe whether, and to what extent, the collection of information involves the use of automated, electronic, mechanical, or other technological collection techniques or other forms of information technology; e.g., permitting electronic submission of responses, and the basis for the decision for adopting this means of collection.**

**Also describe any consideration of using information technology to reduce burden [and specifically how this collection meets Government Paperwork Elimination Act requirements].**

Data collection for this information collection will be 100% electronic. All respondents will receive an e-mail message providing a URL link to the survey. We will follow the most up-to-date methods for conducting a web-based survey. All instruction and the survey instrument will be available on-line. Key Survey™ software will be used to develop, serve, collect, store and analyze the information collected during this study.

The basis for choosing this approach is based on the technical nature of the population being sampled. The sample, professional users of moderate resolution imagery, is highly reliant on computer and web technology to work with these images. The method used for identifying the sample (See Part B) suggests that they all have access to email and web technology. Data collection methods will follow Dillman (2007) for web-based surveys. Reports will be available on the USGS Fort Collins Science Center web site.

**4. Describe efforts to identify duplication. Show specifically why any similar information already available cannot be used or modified for use for the purposes described in Item 2 above.**

Due to the unique nature of this program and authorizing legislation no other Federal agency collects this information. No duplication will occur.

**5. If the collection of information impacts small businesses or other small entities, describe the methods used to minimize burden.**

We have made efforts to keep the amount of information requested to a minimum for all of the respondents. This collection is not expected to have a significant impact on small business or small entities. We have attempted to minimize the burden to all respondents by developing an on-line survey.

**6. Describe the consequence to Federal program or policy activities if the collection is not conducted or is conducted less frequently, as well as any technical or legal obstacles to reducing burden.**

Without the information from this collection, USGS will not be able to fully meet their legal and programmatic requirements as outlined in #1. USGS will not be able to efficiently ensure data continuity as required by the Land Remote Sensing Policy Act, Presidential Decision Directive/NSTC-3, and the Landsat Data Continuity Strategy memorandums. Data continuity is not only required but, as the Landsat Data Continuity Strategy memorandum of 2004 states, a break in Landsat imagery would negatively affect users and limit the uses of the imagery. USGS will also be unable to be fully responsive to users and their needs related to Landsat imagery as required by the Land Remote Sensing Policy Act and GPRA. Because USGS has little information about the users and uses of the imagery, they cannot know how to best provide products and services to their users. Finally, USGS will be unable to effectively increase the benefits from the imagery as required by the U.S. National Space Policy. Since the baseline benefits of the imagery have not been established, increasing those benefits would be difficult.

There are no technical or legal obstacles to reducing burden for this collection.

**7. Explain any special circumstances that would cause an information collection to be conducted in a manner: (i) requiring respondents to report more often than quarterly, (ii) requiring respondents prepare written responses in fewer than 30 days after receipt, (iii) requiring respondents to submit more than an original and two copies of any document, (iv) retain records for more than 3 years; (v) in connection with a statistical survey, that is not designed to produce valid and reliable results that can be generalized to the universe of study; (vi) the use of a statistical data classification that has not been reviewed and approved by OMB; (vii) that includes a pledge of confidentiality not supported by authority established in statute or regulation; requiring respondents to submit proprietary trade secrets or other confidential**

## **information.**

This request contains no special circumstances with respect to 5 CFR 1320.5 (2) with the exception of (ii) and (v). In regard to (ii), because of the technical nature and the attentive nature of the audience, we expect that, respondents will respond rather quickly if they intend to respond at all. This is a voluntary survey and respondents are not obligated to respond. Following Dillman (2007), we will be asking respondents to send back their responses in fewer than two weeks after receipt of the survey. In regard to (v), please refer to Part B of the Supporting Statement for a complete discussion of the sampling strategy.

**8. If applicable, provide a copy and identify the date and page number of publication in the Federal Register of the agency's notice, required by 5 CFR 1320.8(d), soliciting comments on the information collection prior to submission to OMB. Summarize public comments received in response to that notice [and in response to the PRA statement associated with the collection over the past three years] and describe actions taken by the agency in response to these comments. Specifically address comments received on cost and hour burden.**

**Describe efforts to consult with persons outside the agency to obtain their views on the availability of data, frequency of collection, the clarity of instructions and recordkeeping, disclosure, or reporting format (if any), and on the data elements to be recorded, disclosed, or reported. [Please list the names, titles, addresses, and phone numbers of persons contacted.]**

**Consultation with representatives of those from whom information is to be obtained or those who must compile records should occur at least once every 3 years — even if the collection of information activity is the same as in prior periods. There may be circumstances that may preclude consultation in a specific situation. These circumstances should be explained.**

On September 4, 2008, we published a 60-day Federal Register notice (FR 73, 51645) announcing that we would submit this information request to OMB for approval. In that notice we solicited public comments for 60 days, ending Nov. 4, 2008. We did not receive any comments in response to that notice.

In addition to the Federal Register notice, we solicited comments from several potential moderate resolution imagery users. While attending the 17th William T. Pecora Memorial Remote Sensing Symposium in Denver, Colorado (Nov. 18 – 20, 2008) we held a survey feedback session as part of the conference. The purpose of the feedback session was to obtain critical reviews of the survey from individuals in the profession who have similar backgrounds to those in the sample. Twelve conferees attended the session: 5 from federal government, 5 from academia, 1 from local government, and 1 from the private sector. We asked for feedback on the clarity of instruction and the comprehension of questions. Most of the comments provided helped us make editorial and grammatical corrections. Over 100 recommendations resulted from the review. Nearly all the recommendations were incorporated. There were no recommendations to reduce the amount or type of data collected; recommendations were made to change the wording of several questions to provide respondents with a broader range of response choices. Below is a selection from the comments we received during the feedback sessions.

Three reviewers suggested that Question 2 concerning the respondents' current status of moderate-resolution use be modified to include a time frame. We revised the question to include a time frame of one year (see Appendix 1, Question 2).

Several reviewers provided input on which questions should allow for only one response (choose only one) and which should allow for multiple responses (choose all that apply). For example, Question 3 was modified to present clearer answer choices and to allow respondents to choose more than one answer (see Appendix 1, Question 3).

Several reviewers noted that open-ended questions sometimes provide more information than close-ended questions. Following that suggestion, the pre-set answer choices for Question 33B were eliminated and respondents will now write in their answer instead (See Appendix 1, Question 33B).

**Table 1. Names and contact information of individuals consulted with outside the agency.**

		<b><u>Federal Employees</u></b>
<p>Marvin Bauer, Professor University of Minnesota 1530 Cleveland Ave. North, St. Paul, MN, 55108 612-624-3703 <a href="mailto:mbauer@umn.edu">mbauer@umn.edu</a></p>	<p>Samuel Goward, Professor Department of Geography, University of Maryland 2181 LeFrak Hall 301-405-2770 <a href="mailto:sgoward@umd.edu">sgoward@umd.edu</a></p>	<p>Darrel Williams Landsat 5/7 Project Scientist NASA Goddard Space Flight Center Code 614, Bldg. 33, Rm. A120B, Greenbelt, MD, 20771 301-614-6049 <a href="mailto:Darrel.L.Williams@nasa.gov">Darrel.L.Williams@nasa.gov</a></p>
<p>William H. Heidbreder, Physical Scientist NGA/IIG (MS-L-64) 3838 Vogel Road, Arnold, MN, 63010-6238 314-676-0882 <a href="mailto:william.h.heidbreder@nga.mil">william.h.heidbreder@nga.mil</a></p>	<p>Curtis Woodcock, Professor Department of Geography and Environment, Boston University 675 Commonwealth Ave., Boston, MA, 02215 617-353-5746 <a href="mailto:curtis@bu.edu">curtis@bu.edu</a></p>	<p>Jim Irons, LDCM Project Scientist NASA Goddard Space Flight Center Code 613.0, NASA Goddard Space Flight Center, Greenbelt, MD, 20771 301-614-6657 <a href="mailto:James.R.Irons@nasa.gov">James.R.Irons@nasa.gov</a></p>
<p>Teresa Howard, Research Associate University of Texas at Austin, Center for Space Research 3925 West Braker Land, Ste. 200 512-232-7514 <a href="mailto:howard@csr.utexas.edu">howard@csr.utexas.edu</a></p>	<p>Allan Falconer, Associate Dean College of Science, George Mason University 4400 University Dr., Mail Stop 1E2, Fairfax, VA, 22030 703-993-1360 <a href="mailto:afalcon1@gmu.edu">afalcon1@gmu.edu</a></p>	<p>Brian Huberty Region 3, NWI Coordinator 1 Federal Drive Fort Snelling, MN 55111-4056 612-713-5332 <a href="mailto:brian_huberty@fws.gov">brian_huberty@fws.gov</a></p>
<p>Allen Cook ITT Space Systems <a href="mailto:frostbite@myawai.com">frostbite@myawai.com</a></p>	<p>Tony Morse <a href="mailto:tony_morse@idwr.idaho.gov">tony_morse@idwr.idaho.gov</a> 208-287-4879</p>	<p>John Gross, Ecologist National Park Service 1201 Oakridge Dr., Suite 150 970-267-2111 <a href="mailto:john.gross@nps.gov">john.gross@nps.gov</a></p>



Additionally, we sent the survey instrument to 3 federal scientists at the Fort Collins Science Center to estimate the time to complete the survey. It took reviewers between 15 and 35 minutes to complete the survey depending on which paths they completed. The longest path (path 1) took the reviewers about 35 minutes, the second longest path (path 2) took about 25 minutes, and the third longest paths (paths 3 and 4) took around 15 minutes. Based on this review, we recalculated and increased the overall burden to 23 minutes per response (from the 18 minutes suggested in the 60-day notice). The difference in the estimated completion time from the 60-day notice is due to the refinement of the survey instrument and verification of the time with reviewers. This estimated completion times of 35 (path 1), 25 (path 2), and 15 (paths 3 and 4) minutes are used in Table 2 to respond to question 12 below.

**9. Explain any decision to provide any payment or gift to respondents, other than remuneration of contractors or grantees.**

There are no payments or gift giving associated with this collection.

**10. Describe any assurance of confidentiality provided to respondents and the basis for the assurance in statute, regulation, or agency policy.**

No assurance of confidentiality is given to respondents. We will protect information from respondents considered proprietary under the Freedom of Information Act (5 U.S.C. 552) and implementing regulations (43 CFR part 2), and under regulations at 30 CFR 250.197, "Data and information are to be made available to the public or for limited inspection."

For the purposes of confidentiality, all connections between respondent e-mail address and returned survey will be eliminated upon receipt. No list of respondent e-mail addresses will be retained after data collection is completed.

**11. Provide additional justification for any questions of a sensitive nature such as: sexual behavior and attitudes, religious beliefs, and other matters that are commonly considered private. This justification should include the reasons why the agency considers the questions necessary, the specific uses to be made of the information, the explanation to be given to persons from whom the information is requested, and any steps to be taken to obtain their consent.**

This collection does not ask for information of a sensitive nature.

**12. Provide estimates of the hour burden of the collection of information. The statement should:**

- \* Indicate the number of respondents, frequency of response, annual hour burden, and an explanation of how the burden was estimated. Unless directed to do so, agencies should not conduct special surveys to obtain information on which to base hour burden estimates. Consultation with a sample (fewer than 10) of potential respondents is desirable. If the hour burden on respondents is expected to vary widely because of differences in activity, size, or complexity, show the range of estimated hour burden, and explain the reasons for the variance. Generally, estimates should not include burden hours for customary and usual business practices.
- \* If this request for approval covers more than one form, provide separate hour burden estimates for each form and aggregate the hour burdens.
- \* Provide estimates of annualized cost to respondents for the hour burdens for

**collections of information, identifying and using appropriate wage rate categories. The cost of contracting out or paying outside parties for information collection activities should not be included here. Instead, this cost should be included in Item 14.**

Burden estimate is based upon the time to read instructions and to complete an on-line survey. This collection contains 5 forms (paths). All respondents will receive instructions and answer a short series of questions. The responses to these questions will automatically direct the respondents to forms (paths) 1, 2, 3, or 4 depending upon the type of satellite imagery they use and the status of that use. The time to complete each form will vary. Form 1 (path 1) will take approximately 35 minutes to complete. This form is the longest because it contains questions about the value of Landsat imagery which only apply to current users of Landsat imagery and not to the other respondent groups. The next form (path 2) will take approximately 25 minutes to complete. It is almost identical to form 1 (path 1) but does not include the value questions because it will be followed by current users of moderate-resolution imagery other than Landsat. The forms 3 and 4 will take approximately 15 minutes each. Respondents who do not currently use moderate-resolution imagery will answer these survey questions. Path 3 is for those who have used moderate-resolution imagery in the past and path 4 is for those who have never used it. These forms (paths) contain approximately the same number and types of questions without the more detailed questions asked of current users of moderate-resolution imagery, such as the costs and revenues associated with the use of the imagery. We estimate that a quarter of the sample will respond to each path, which results in an overall average of 23 minutes to complete the survey.

The fifth form will contain questions from the survey that will be used to measure the non-response bias. This form will only be used if the response rate is less than 70.

A total of 3,883 nonfederal individuals will be contacted. Assuming an 80% response rate, we anticipate 3,106 nonfederal respondents. For the non-response check, we expect a 10% response rate which adds 100 respondents to the burden calculation. Total burden estimate for this collection will be 1,171 hours (see table 2 below)

We estimate an aggregated annual cost to the respondents to be \$38,711 (see Table 2). The hour cost is based on BLS news release USDL 08-1802 of December 10, 2008, for average full compensation per hour including benefits for private industry. The particular values utilized are:

- Individuals. Average hourly wage is \$19.29 multiplied by 1.4 to account for benefits (\$27.01).
- Private sector. Average hourly wage is \$18.56 multiplied by 1.4 to account for benefits (\$25.98).
- States/tribal/local governments. Average hourly wage is \$23.99 multiplied by 1.5 to account for benefits (\$35.99).

**Table 2. Estimated Dollar Value of Annual Burden Hours**

Survey Respondents (sector)	Annual Number of Respondents	Estimated Completion Time per Respondent (minutes)	Total Annual Burden Hours	Dollar Value of Burden Hour Including Benefits	Total Dollar Value of Annual Burden Hours
<b>Form 1</b>					
Individual	47	35	27	\$27.01	\$729
Private	186	35	109	\$25.98	\$2,832
State/Local/ Tribal Governments	544	35	317	\$35.99	\$11,409
<b>Subtotal</b>	<b>777</b>		<b>453</b>		<b>0</b>
<b>Form 2</b>					
Individual	47	25	20	\$27.01	\$540
Private	186	25	78	\$25.98	\$2,026
State/Local/ Tribal Governments	544	25	227	\$35.99	\$8,170
<b>Subtotal</b>	<b>777</b>		<b>325</b>		<b>010,736</b>
<b>Forms 3 and 4</b>					
Individual	93	15	23	\$27.01	\$621
Private	372	15	93	\$25.98	\$2,416
State/Local/ Tribal Governments	1,087	15	272	\$35.99	\$9,789
<b>Subtotal</b>	<b>1,552</b>		<b>388</b>		<b>0</b>
<b>Form 5 (Non-response Check)</b>					
Individual	6	3	0.3	\$27.01	\$8
Private	24	3	1	\$25.98	\$26
State/Local/ Tribal Governments	70	3	4	\$35.99	\$144
<b>Subtotal</b>	<b>100</b>		<b>5</b>		<b>\$178</b>
<b>Total</b>	<b>3,206</b>		<b>1,171</b>		<b>\$38,711</b>

**13. Provide an estimate of the total annual (non-hour) cost burden to respondents or recordkeepers resulting from the collection of information.**

We have identified no reporting and recordkeeping “non-hour cost” burdens associated with this proposed collection of information.

**14. Provide estimates of annualized cost to the Federal government**

There are 3 federal employees working on this study. In the past 5 years this USGS research team has collectively conducted over a dozen surveys for a variety of federal agencies. For each of these, employee salary must be calculated as part of full-cost accounting for projects. From these experiences we have calculated time estimations for this survey's tasks. The total estimated cost to the Federal Government for processing and reviewing information received as a result of this collection is \$ 24,146 (Table 3). This includes Federal employee salaries and benefits. The table below shows Federal staff and grade levels performing various tasks associated with this information collection. We used the Office of Personnel Management Salary Table 2008-DCB (<http://www.opm.gov/oca/08tables/html/dcb.asp>) to determine the hourly rate. We multiplied the hourly rate by 1.5 to account for benefits (as implied by the previously referenced BLS news release)

**Table 3. Federal Employee Salaries and Benefits**

Position	Grade/ Step	Hourly Rate	Hourly Rate incl. benefits (1.5 x hourly pay rate)	Estimated time per task	Annual Cost
Project Leader, Social Scientist	12/5	\$37.89	\$56.84	160 hrs	\$9,094
Economist	13/5	\$45.05	\$67.58	160 hrs	\$10,813
Social Scientist	11/9	\$35.33	\$52.99	80 hrs	\$4,239
<b>Total</b>					<b>\$24,146</b>

**15. Explain the reasons for any program changes or adjustments.**

This is a new request.

**16. For collections of information whose results will be published, outline plans for tabulation and publication. Address any complex analytical techniques that will be used. Provide the time schedule for the entire project, including beginning and ending dates of the collection of information, completion of report, publication dates, and other actions.**

The data collected during this study will be coded directly into a computerized database. Most of the statistics will be analysis through the use of SPSS® 17. Data analysis will include several phases. The first will consist of frequency distributions of responses to each question and each index created from combined questions. These will be reported as percentages in each of the strata. Cross tabulations will be used to investigate differences between Landsat and other moderate resolution imagery users. Cross tabulations will also be used to investigate differences between some of the independent and dependent variables. Multivariate analyses will be conducted to assess correlations between specific variables and created indices, and to ascertain whether individual variables might be combined to form a scale based on responses.

These types of analyses will also be used to determine amounts of variance in dependent variables as explained by independent variables, and form statistical models for explanation.

USGS Publication Series (Open File Report) and peer-reviewed publication to scientific journals are desired outlets for reporting this information. A time schedule for the project is presented in Table 4 below.

**Table 4.** Project Time Schedule

Task	Completion Date
Survey Information Collection	2 months from OMB clearance
Data Analysis	5 months from OMB clearance
Report Preparation	7 months from OMB clearance
Final Report	10 months from OMB clearance

**17. If seeking approval to not display the expiration date for OMB approval of the information collection, explain the reasons that display would be inappropriate.**

We will display OMB's expiration date on the information collection instruments.

**18. Explain each exception to the certification statement "Certification for Paperwork Reduction Act Submissions".**

We are requesting no exceptions to the certification statement

## Appendix 1: Comments from the Pecora Conference feedback session

Original Question	Comment	Revised Question
<p>2. What is the status of your use of moderate resolution imagery? Please check only one.</p> <p><input type="checkbox"/> I am currently using moderate resolution imagery.</p> <p><input type="checkbox"/> I have used moderate resolution imagery in the past but am not currently using it.</p>	<p>This may eliminate people who use moderate resolution imagery on an occasional basis, but are not using it in any current projects. Need to clarify the time frame to include people who have used it recently.</p>	<p>2. Have you used moderate-resolution imagery in the past year? Please check only one.</p> <p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p>
<p>3. Which of the following statements best describes your work with moderate resolution imagery? Please check only one.</p> <p><input type="checkbox"/> I process or manipulate raw satellite imagery data (for example, algorithm developer) and/or I develop software for processing or manipulating imagery (for example, software such as ERDAS or ENVI).</p> <p><input type="checkbox"/> I process and apply imagery to answer questions or solve problems (for example, researcher, scientist, teacher).</p> <p><input type="checkbox"/> I use, but do not process, imagery or products based on imagery to make decisions or solve problems.</p> <p><input type="checkbox"/> I provide or sell post-processed or value-added services or products based on imagery (for example, orthorectified images, land cover maps).</p>	<p>Many people will do more than one of these things. Respondents need to be able to pick more than one answer. Answer choices are also too long – they need to be shortened.</p>	<p>3. Which of the following describes your work with moderate resolution imagery? Please check all that apply.</p> <p><input type="checkbox"/> I process imagery (e.g., developing algorithms).</p> <p><input type="checkbox"/> I apply imagery to answer questions or solve problems (e.g., conducting research or teaching).</p> <p><input type="checkbox"/> I make decisions based on imagery or products derived from imagery.</p> <p><input type="checkbox"/> I provide or sell imagery (e.g., basic imagery, post-processed imagery, or value-added services or products).</p> <p><input type="checkbox"/> I develop software for processing or manipulating imagery (e.g., ERDAS or ENVI).</p>
<p>33B. Over the past year, how many Landsat scenes have you acquired? Please check only</p>	<p>It is unclear whether these intervals are appropriate for everyone. Some people may</p>	<p>33B. On average, how many Landsat scenes have you/your organizational</p>

<p>one.</p> <p><input type="checkbox"/> 1-5</p> <p><input type="checkbox"/> 6-15</p> <p><input type="checkbox"/> 16-25</p> <p><input type="checkbox"/> 26-50</p> <p><input type="checkbox"/> 51-100</p> <p><input type="checkbox"/> More than 100</p>	<p>have acquired many more scenes. Additionally, this provides general information, when more specific information could be acquired.</p>	<p>group/your organization acquired per month from <b>all</b> sources during each of the time periods indicated? Number of scenes per month _____</p>
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