Administration for Community Living Data Restructuring II and ACL Data: Work Plan and Timeline

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Introduction and Background

In 2017, the Administration for Community Living (ACL) began the ACL Data Restructuring (DR) Project to assess the data hosted on the AGing Integrated Database (AGID), and to develop and test a potential restructuring of the data. The purpose of this document is to provide a multi-year plan to continue and expand ACL DR efforts (Phase II), then develop the next generation platform to replace AGID, ACL Data (Phase III), using the new data structure.

Currently, the AGID website hosts a variety of ACL programs' aging-related data sets as well as key demographic data about older adults from the US Census Bureau. The types of information hosted on AGID include Older Americans Act (OAA) program services, such as administrative information on long-term care ombudsman services, supportive services programs, nutrition services programs, and caregiver support services for US adults ages 60 and older and individuals with disabilities.

The data are available at a glance, through state-based profiles, and user-defined custom tables. Data hosted on AGID are updated periodically depending on the release schedules of the hosted ACL data. Data sources are only viewable as separate windows, and no current joining or linking functionality exists on the platform.

ACL's original impetus for exploring a restructuring of ACL data was to develop a linking functionality between ACL data sets to allow for cross-data set analyses and to create an operational approach that will allow for the incorporation of additional data sets, such as ACL disability data sets.

The AGID website is used by researchers, professionals in state agencies, and other individuals involved in aging-related policy and services. An improved AGID with the flexibility to incorporate additional datasets and with additional functionality for users in aging- and disability-related fields would enhance the abilities of federal and state agencies, service providers, and policy makers to understand and deliver care to older Americans and people with disabilities.

ACL DR Phase II and ACL Data Phase III may consider a range of data relevant to ACL, however, the primary focus for both sets of workplans and timelines will be the following five aging-related datasets:

- **ACL State Program Reports (OAA Title III and Title VII Chapters 3 and 4)**. Available approximately February of each year. States provide data about the services provided under Title III and Title VII Chapters 3 and 4 of the Older Americans Act through web-based submissions of the State Program Report (SPR). The annual reports summarize the services provided, selected demographics of the individuals served, and information about program staffing. Nutrition Services Incentive Program (NSIP) data are reported by these same grantees in conjunction with their SPR reports.
- **ACL OAA Title VI**. Available approximately May of each year. Each year ACL disburses Federal grant funds, allocated to each state, under Title VI, including funding for the Nutrition Services Incentive Program (NSIP) of the OAA Grants for Native Americans. The Title VI reports, which are submitted by grantees to ACL, contain program performance data about staffing information and nutrition, supportive, and caregiver support services.
- **ACL National Ombudsman Reports (OAA Title VII)**. Available approximately November of each year. States provide data about the services provided under Title VII (Chapter 2) of the Older Americans Act through web-based submissions of the State Long Term Care Ombudsman Program Reporting Form. The annual reports summarize long term care ombudsman efforts on

behalf of residents in long term care facilities, including information on cases, complaints, program statistics, and narrative reports.

- **National Survey of Older American Act Participants (NSOAAP)**. Available approximately March of each year. The National Survey of OAA Programs is a collection of annual national surveys of recipients of six Title III services. The survey instruments focus on consumer assessment of service quality and consumer-reported outcomes. The instruments also measure special needs characteristics such as physical and social functioning of the people who receive services.
- **United States Census American Community Survey (ACS) Public Use Microdata Sample (PUMS) 1-Year Files.** The ACS PUMS 1-Year files are a sample of the actual responses to the ACS, an ongoing survey that provides important information about the social, housing, economic, and demographic characteristics of the U.S. population. The ACS PUMS 1-Year files contain an annual sample of the ACS records representing about 1 percent of the population (i.e., for the U.S., for each state, the District of Columbia, Puerto Rico, and special non-overlapping sub-state areas called Public Use Microdata Areas or PUMAs).

ACL Data Restructuring: Phase II

Phase II is designed to continue and expand efforts completed during the initial ACL Data Restructuring Project in preparation for development of a consolidated ACL database (ACL Data) in Phase III. This phase consists of eight major tasks described in the sections below along with estimated timeline, personnel, and budgets by task.

Task 1.0: Project Planning, Coordination, and Communication

ACL and the contractor will conduct an initial kick-off meeting to discuss the Phase II workplan and timeline and to address any needs for a smooth transition from the initial ACL Data Restructuring Project to Phase II. ACL and the contractor will meet regularly (e.g., bi-weekly) and as-needed to ensure effective planning, coordination, and ongoing project management. The contractor will submit monthly reports documenting progress on the workplan and completion of deliverables as well as any challenges encountered and proposed solutions. At the conclusion of the project, the contractor will collaborate with ACL to most effectively transition the work and key deliverables of Phase II into the development of ACL Data – Phase III.

Task 2.0: Data Documentation

The contractor will develop data documentation, such as static codebooks (e.g., pdf documents), for three ACL aging datasets (i.e., SPR/OAA Title III, OAA Title VI, and NORS/OAA Title VII). The contractor will review existing data documentation for the three ACL datasets, and cross-walk variables across years of data collection for each dataset. The review will include data from 2010 and later. The specific years to be included for each of the three datasets will be determined in agreement with ACL. Data documentation for related datasets (e.g., NSOAAP, Census datasets) may be considered when determining the style and format of data documentation for the three ACL aging datasets. This documentation may include the following information:

- Dataset-Level Documentation
    - Program description
    - Data collection methodology
    - Data validation and quality assurance procedures
    - Data manipulations from raw data
    - Structure and organization of data files
    - Variable naming conventions
    - Cross-year differences and feasibility of merging
    - Data confidentiality, access and use conditions
    - Actual data collection tools/instruments
- Variable-Level Documentation
    - Variable name, type, and label
    - Question text
    - Cross-year differences
    - How constructed (for constructed variables only)
    - Variable length
    - Values and labels for response options

Task 3.0: Consolidated Database for Aging Datasets

The contractor will expand the SQL database built during ACL Data Restructuring (DR) Phase I to include additional aging datasets. The SQL database developed in ACL DR Phase I includes all SPR/OAA and OAA Title VI data files for fiscal year 2013, 2014, and 2015. The expanded SQL database will include: (1) all

data files for SPR/OAA and OAA Title VI datasets, for additional years determined in agreement with ACL, and (2) all data files for NSOAAP, ACS PUMS 1-Year Files, and NORS/OAA Title VII, for years determined in agreement with ACL. The consolidated database will include data from 2010 and later. The specific years to be included for each of the five datasets will be determined in agreement with ACL. A key consideration for this task is understanding and accounting for differences in data collection over time for each of the five datasets (e.g., new variables, dropped/suppressed variables, revised variables). In cases where data change from year to year within a dataset (e.g., due to revision of the data collection form or tool), the consolidated database must appropriately account for those differences and combine years of data in a way that users can still perform valid multi-year analysis.

The current SQL database demonstrates linkages between two ACL administrative aging datasets. In order to demonstrate other dataset relationships of interest, new datasets will be added to the SQL database in the following order:

- NSOAAP – To demonstrate linkages with an ACL survey aging dataset.
- ACS PUMS 1-Year Files – To demonstrate linkages with a Census dataset.
- NORS/OAA Title VII

Once the consolidated database for ACL aging datasets is built, the contractor will use the database to demonstrate linkages between datasets and the ability to assess trends over time within datasets. Data results from the demonstration will be reviewed against source data and the proposed linkages will be re-assessed for appropriateness. If necessary, proposed linkages will be revised or removed.

Task 4.0: Align Measures for Conceptual Linkages across ACL Datasets

ACL dataset reviews performed during ACL DR Phase I found measures that were not aligned for common constructs across ACL datasets (e.g., age, race/ethnicity, disability). The contractor will review documentation of these measures and recommend a process for coordinating across ACL programs to standardize measures, wherever possible, to increase the availability of appropriate linkages for cross-dataset analysis. This process will begin with reviewing potential conceptual linkages identified during ACL DR Phase I and proposing necessary steps to change “potential” conceptual linkages to “actual” conceptual linkages (e.g., revising data collection tools, providing standard definitions for terms/concepts being measured). The contractor will also explore opportunities for additional conceptual linkages within and between key datasets (e.g., NSOAAP, ACS PUMS), determined in agreement with ACL.

Task 5.0: Topical Navigation

The current AGID platform allows ACL data users to navigate by dataset. This requires users to understand the contents of the datasets in order to access information about particular areas or populations of interest. The contractor will develop a cross-dataset classification of information by key areas of interest to ACL data users. For example, this classification could include the topic, “nutrition services”, and specify where users would pull data about home-delivered meals and congregate meals services across ACL programs, rather than having to navigate separately through the SPR/OAA Title III and OAA Title VI datasets for this information. Other topic areas for navigation may include: geographic areas (e.g., U.S., Census Region, Census Division, HHS Region, ACL Region, State, Tribe), service types (e.g., nutrition services, supportive services, caregiver services), populations (e.g., age, race/ethnicity, disability), resources (e.g., funding, expenditures).

Task 6.0: Compile Requirements List for ACL Data

Many business and system requirements for a consolidated ACL database (ACL Data) have been proposed throughout ACL DR Phase I, and through previous contract work (e.g., AGID market research white paper, AGID user interviews). ACL also maintains requirements for the current AGID system and may have other documentation that could be relevant to defining requirements for ACL Data. The contractor will review and compile all known requirements into a Foundational Requirements Document. Any new requirements defined during ACL DR Phase II will be added into this document. The contractor will also identify gaps, needs, and considerations for defining remaining requirements for ACL Data. This document will provide the initial foundation for the contractor and ACL to conduct the requirements tasks for ACL Data: Phase III—which will involve completing and approving the business, system, technical, and security features for the system that will replace AGID. This document will also assist ACL and its contractor to effectively determine the size and scope of work for the development and maintenance of ACL Data.

Task 7.0: Technical Advisory Group

Stakeholder engagement will help ensure that ACL DR Phase II is responsive to the needs and preferences of ACL data users. At the direction of ACL, the contractor may convene a Technical Advisory Group (TAG) for up to four meetings to capture stakeholder input on ACL DR Phase II activities and deliverables (e.g., codebooks, conceptual linkages/aligning measures, topical navigation). The TAG may include all or some of the members who participated in the initial ACL Data Restructuring Project.

Major Deliverables

- Kick-off meeting
- Revised workplan (if applicable)
- Monthly reports
- Data reviews and cross-walks for SPR/OAA Title III, OAA Title VI, and NORS/OAA Title VII
- Codebook template
- Completed codebooks for SPR/OAA, OAA Title VI, and NORS/OAA Title VII
- Total of up to six meetings, two for each dataset (i.e., SPR/OAA, OAA Title VI, and NORS/OAA Title VII) with ACL program staff responsible for each dataset
- SQL database with up to nine years of data (i.e., 2010-2019) for SPR/OAA, OAA Title VI, NORS/OAA Title VII, NSOAAP, and ACS PUMS 1-Year Files
- Report of database development approach and findings
- Report of proposed conceptual linkages and aligned measures across SPR/OAA, OAA Title VI, NORS/OAA Title VII, NSOAAP, and ACS PUMS 1-Year Files
- Report describing topical navigation and mapping specific variables to each topic across SPR/OAA Title III, OAA Title VI, NORS/OAA Title VII, NSOAAP, and ACS PUMS 1-Year Files
- Report compiling existing requirements for ACL Data and gaps/needs/considerations for remaining requirements.
- Total of up to four TAG meetings (e.g., one focusing on task 3, two focusing on task 4, and one focusing on task 5)

Timeline

The overall anticipated timeline to complete all tasks for ACL DR Phase II is 24 months.

Estimated Staff Levels of Effort

Estimated staff levels of effort for ACL DR Phase II, by staff and task, are provided in a separate attachment (Attachment 1).

ACL Data: Phase III

Phase III involves ACL's effort in partnership with a contractor to finalize requirements and create ACL Data (the next generation of the AGing Integrated Database, AGID). Researchers, professionals in state agencies, and other individuals in aging and disability fields rely on AGID. AGID hosts a variety of ACL programs' aging-related data sets as well as data from the US Census Bureau. These data are available at a glance, through state-based profiles, and user-defined custom tables. ACL obtains the data from various sources and imports them into AGID after their release dates.

ACL has invested considerable work (i.e., AGID user interviews, consultations with data subject matter experts, market research, new data structure and testing database) toward the development of ACL Data. ACL DR Phase II will produce two primary deliverables that will be essential for the development of ACL Data. These include a Foundational Requirements Document and a consolidated database prototype. The Foundational Requirements Document will provide a comprehensive listing of all known requirements collected through these efforts. The consolidated database prototype for aging datasets represents the data model for ACL Data. It will contain data linkages absent from AGID; and will allow for easier incorporation of additional data sets, such as ACL disability data sets.

Task 1.0: Project Planning, Coordination, and Communication

The success of the project will require effective planning, coordination, and ongoing project management. To ensure that the effort is successfully progressing, the contractor should develop key project management materials and maintain regular contact with ACL. ACL should instruct the contractor on whether they require regular status meetings, monthly progress reports, making necessary adjustments to the Project Work Plan on an as-needed basis in consultation with ACL, etc.

Task 1.1: Transition operation at the beginning of contract

ACL should indicate if they require the transition of operations and maintenance of AGID from the existing contractor at the beginning of the contract. ACL should indicate what the transitions are and request that the new contractor provide their proposed approach for the transitions.

Task 1.2: Conduct Kick-Off Meeting

The contractor should conduct an initial Kick-Off Meeting with ACL. The Kick-off Meeting is the first meeting with the project team members to discuss the project and the work that will be completed. This meeting introduces the members of the project team and provides the opportunity to discuss the role of each team member in the project work. ACL should indicate to the contractor what discussion topics should be addressed. Discussion topics may include the following, depending on ACL's needs:

- Review of project purpose, objectives, and expected products
- An overview of existing program issues
- Development of a plan for getting ACL feedback on deliverables and project's issues
- Development of the project work plan to guide the overall direction of the project and a Quality Assurance Surveillance Plan (QASP) to ensure a high quality of deliverables under the plan
- A discussion of the format and timetable for deliverables
- A review of the project governance strategies and processes
- Any other questions or issues identified by the contractor and/or ACL

Task 1.3: Develop Project Work Plan

The contractor should develop a Project Work Plan. The plan may include the following, depending on ACL's needs:

- The contractor's approach for maintaining regular contact with ACL
- The contractor's responsibilities, including responsibilities for roles and corresponding personnel assignments, and if applicable, subcontractors
- Plan for documenting key project decisions
- Approach for ensuring adequate ACL feedback on key project deliverables
- Work schedule/timeline for the project, including key project milestones, and due dates, and artifacts and deliverables— this may include work breakdown or other specific structures that define the work of this project
- Management control system to facilitate project performance measurement, and quality assurance and improvement against the work breakdown or other structure
- Performance and service levels, and reporting intervals for specific tasks

Task 1.4: Develop a Quality Assurance Surveillance Plan (QASP)

The contractor should produce a QASP to ensure that every process and deliverable meets a high-quality standard and provides the desired results according to the scope of work. ACL will use the QASP to monitor the quality of the contractor's performance. The oversight provided for in the contract and in the QASP will help to ensure that service levels reach and maintain the required levels throughout the contract term. Further, the QASP provides ACL with a proactive way to avoid unacceptable or deficient performance. The QASP should include descriptions of performance standards, surveillance methods, and explanations of how the contractor will meet performance standards for all tasks and subtasks under this effort. The contractor should submit a draft QASP in response to the request for proposal/quote. Following award, the contractor should revise the QASP based on feedback from ACL during the kickoff meeting. The contractor should submit a revised QASP at the same time as the initial draft of the Project Work Plan for ACL's review and approval.

Task 1.5: Transition operation at the end of contract

ACL should indicate if they require transition of operations at the end of the contract. ACL should indicate what transitions they will require and request that the contractor provide their proposed approach for the transitions.

Task 2.0: Compile business requirements

The contractor should thoroughly review the Foundational Requirements Document. This document describes the known back-end (to include the consolidated database prototype) and front-end functions ACL Data must be able to perform to fulfill ACL's business needs. The contractor should propose an approach for how they will review, validate, and refine these known requirements, as well as how they will identify and compile additional requirements to create a final, comprehensive Business Requirements Document for ACL's review and approval. The contractor's approach should include how they intend to gain information from key ACL management, technical staff, program staff, AGID users, or others to obtain a clear picture of what users of ACL Data need.

Task 3.0: Define system requirements

The contractor should propose an approach for translating the business requirements within the approved Business Requirements Document into system requirements. The approach should indicate the format of system requirements (i.e., user stories, functional requirements documents, etc.) they plan to produce and describe their method for translating the business requirements into system requirements that encompass all desired back-end (to include the consolidated database prototype) and front-end functions, features, and services of ACL Data. The contractor should also provide the process for how they will review the system requirements with ACL, and how they propose ACL will approve/sign-off on them.

Task 4.0: Define technical requirements

Leveraging the approved system requirements, the contractor should develop all technical requirements necessary to support ACL Data. These should include software and hardware requirements for development and maintenance, as well as processes for migrating, importing, processing, and outputting of data. In preparation for developing technical requirements, the contractor should plan a meeting with ACL technical staff to identify any technical parameters ACL requires for ACL Data. During this meeting the contractor should also confirm all technical documentation required under this task. ACL should indicate all the documents that the contractor is expected to complete under the effort.

Task 5.0: Define security requirements

The contractor should develop and execute a System Security Plan (SSP) and conduct related security and privacy assessments in accordance with the Federal Information Security Management Act (FISMA) for proper operation of ACL Data. The IT Security Plan must ensure the integrity, confidentiality, when appropriate, and availability of all data collected on behalf of the Federal government. All records that are the property of the Federal government must be maintained in accordance with HHS policies and procedures, and National Archives and Records Administration (NARA) disposition schedules.

ACL will determine the appropriate security level for the disparate data sets as well as the entirety of ACL Data. ACL expects that the system to be at a FISMA low-impact level since the data are publicly available and do not include any personally identifiable information.

Under this task, the contractor should document and verify the existence of specific security threats, their severity, minimum mitigation, or authentication measures needed, and the need for specific requirements such as firewalls, access control and user permissions, encryption methods, and data source-specific security requirements, if any. The contractor must also include detailed protocol for how they would approach and resolve incidents involving breaches of security. Task 9.0 provides an overview of the requirements, activities, and documentation that may be applicable for Task 5.0.

Task 6.0: Develop wireframes

Using wireframing tools (e.g., Balsamiq, Lucidchart, Microsoft Visio, etc.), the contractor, should create wireframes, or visual representations of ACL Data. These may include diagrams, schemas, or mock-ups that depict the proposed methods for accomplishing the system requirements for all back-end (e.g., schema) and front-end (e.g., user interfaces) elements. Wireframes that depict data relationships, flow, and interactions are essential for this effort. The contractor should review all wireframes with ACL and modify them as necessary until ACL approves them. The contractor should be prepared to minimally revise system requirements if modifications to wireframes warrant the changes.

Task 7.0: Develop the system

Task 7.1: Define the development methodology

The contractor should propose a methodology for developing ACL Data. It is recommended that ACL be open to Waterfall, Agile, or hybrid approaches. The Waterfall methodology is linear, employing a sequential design and implementation process that defines the activities and processes completely before work begins. The system would be developed, then presented to ACL. Progress and status presentations would be given to keep ACL informed of potential slippage to the project timeline and risks to project completion. The Agile methodology proposes an incremental and iterative approach to system design. The design process is broken into individual models that designers work on. There is no pre-determined course of action or plan. Designers are free to respond to changes in requirements as they arise and make changes as the project progresses. ACL may serve as a Product Owner or identify a customer representative who will be a member of the core Agile team. Hybrid methodologies involve a combination of aspects of Agile and Waterfall.

The contractor should indicate the primary methodology they intend to use and provide an explanation of the benefits the methodology will provide ACL. It is assumed that an Agile methodology will demand a deeper level of ACL's participation and resources compared to the Waterfall approach. Since the choice of development methodology can significantly affect ACL's role and involvement, ACL should request an estimated level of effort (in hours) the contractor anticipates ACL staff should plan to participate in discussions, reviews, demonstrations, etc. on a weekly basis during the development phase.

ACL can decide if one approach makes more sense to deploy than the other prior to making a final selection among the RFP finalists if it is clear that the requirements and skillsets of the applicant pool make it more feasible for one approach or the other. For example, if it is expected that ACL will prefer a more iterative approach to user experience and user interface development, but is clear on stability of the back-end requirements, then ACL may choose to adopt a hybrid approach according to specific phases of development.

Regardless of the approach selected, the contractor's role will be to formalize the working agreements and structure of the project management team and process. These decisions shall be presented by the contractors to ACL, who will then review and approve the approach.

Task 7.2: Establish the environments

In addition, the contractor will define the environments in which to develop ACL Data. At a minimum, the following should be established:

- testing environment (i.e., where data is first imported, processed, and tested)
- staging environment (i.e., where the accuracy/integrity of the data is verified)
- production (i.e., where the data goes live for public use).

Having the three environments gives the contractor greater flexibility to reverse any errors/problems that may occur. These environments should be based on Microsoft technologies such as Windows Server and SQL Server. The consolidated database prototype is developed in SQL Server.

The contractor should fully document the tasks and milestones which must be completed at each stage before updates can be pushed to the next environment. In addition, the contractor should provide ACL with access to the three or more environments to facilitate design decisions, feature implementation, and user testing.

Task 7.3: Develop the code for the system

Once the environments are identified and established, the contractor should develop the code for ACL Data. The contractor should provide scripts for SQL tables informed by the system requirements and wireframes to code the back-end and front-end (e.g., coding the user interface for different types of users – administrator, public-user, super-user [e.g., public-user with approved access to certain restricted files, etc.]). For producing the front-end website, the contractor should employ WSYIWYG / HTML coding for the UI/UX development, including prototypes.

To conduct rigorous and logical version control of the code base, the contractor should outline a system and process for version control in a memo to ACL. The contractor may choose among popular version control systems, such as SQL Source Control in conjunction with Git, TFS, or Subversion.

ACL may want to request that the contractor share access to the code base platform with ACL staff. This would allow ACL to review the coding with a minimum of file transfers and email attachments. ACL may also want to request that the contractor provide a changelog at a mutually agreed upon interval. The changelog would allow ACL to better track iterations and progress made in achieving functional and business requirements.

Task 8.0: Test the system

To ensure that the new system fulfills the business requirements and is fully functional to all user types without potential failure points, the contractor should perform functional testing, quality assurance testing, and accessibility testing.

Task 8.1: Conduct functional testing

The contractor should perform functional testing to check that back-end and front-end system requirements have been met for proper input, processing, and output of data (e.g., queries can produce information from multiple data sets). Typically, the developer performs basic functional testing. The contractor should consider key steps of the testing phases performed in the initial ACL Data Restructuring Project and Phase II.

Task 8.2: Conduct quality assurance (QA) testing

The contractor should test many scenarios to try to 'break' the system and identify requirements of the system that are not being fulfilled. The contractor should provide their approach to QA testing since there are many acceptable forms; and approaches tend to vary based on unique organizational processes. It would be advantageous if the contractor had their own dedicated group of staff who perform QA testing given the size/scope of the system to be developed. QA testing may include test cases (or testing against user stories), multiple levels of QA (e.g., junior staff that perform preliminary testing followed by senior staff that review/approve the testing), etc.

Task 8.3: Conduct accessibility testing

The contractor must conduct testing to ensure the system is accessible to users with disabilities. The contractor should detail their approach for ensuring 508 compliance. Accessibility testing should be

conducted throughout the development process. A comprehensive and thorough process to ensuring the accessibility of the system, such as the Interagency Trusted Tester Program (ITTP) is preferred (More information available from: https://www.dhs.gov/interagency-trusted-tester-program).

The contractor will provide progress reports of testing results in regular status updates to ACL. Any issues that are identified in the testing phases will be documented in a tracking document with resolution plans included. After discussing potential issues with ACL, ACL may approve the resolutions plans and the contractor may implement them.

Task 8.4: Conduct full pilot testing with user groups

The contractor should verify the entire system under a real-time operating condition in a user simulated environment before deploying it to production. The contractor should provide ACL with a pilot test plan detailing their proposed criteria for the group of end users who will participate in the test, how they will recruit the group, the test cases the group will perform, and the mechanisms to collect feedback from the group. After ACL has approved the plan, the contractor should perform the pilot test. The contractor should document and prioritize, with ACL, any bugs or enhancements gleaned from the pilot testing. The contractor should be prepared to remediate any high priority bugs or implement critical enhancements prior to launch, dependent on ACL's instruction.

Task 9: Develop Authority to Operate (ATO) Package

All of the contractor deliverables (described below) under this task must comply with applicable federal laws that include, but are not limited to, the Federal Information Security Modernization Act (FISMA) of 2014, (Title III of the E-Government Act of 2002, Public Law 107-347), Office of Management and Budget (OMB) Circular A-130, Management of Federal Information Resources, Appendix III, Security of Federal Automated Information Resources, Federal Acquisition Regulation (FAR) 39.101 , HHS Acquisition Regulation (HHSAR) Subpart 311.70—Section 508 Accessibility Standards , and other applicable federal laws, regulations, National Institute of Standards and Technology (NIST) guidance and Departmental policies.

In accordance with the timeframes specified by ACL's Chief Information Security Officer (CISO), ACL should direct the contractor to prepare and submit the security requirements for review, comment, and acceptance to achieve an authority to operate (ATO) for the system. Adherence to FISMA standards is required for federal agencies, departments, and contractors who are engaged in the processing or storage of federal data systems. The contractor must complete the FIPS 199 Standards for Security Categorization of Federal Information and Information. Based on the FIPS 199, ACL should require that the contractor perform the applicable Security Assessment and Authorization (SA&A) activities necessary to obtain the ATO. These may include the following:

- System Security Plan (SSP) – The SSP must provide an overview of the system environment and security requirements to protect the system as well as describe the security controls in place or planned for meeting those requirements. It must provide a structured process for planning adequate, cost-effective security protection for a system. The contractor must review and update the SSP at least annually thereafter, if a substantive change is made to the system, or if emerging circumstances require a change the system to ensure adequate management and technical controls.
- Security Assessment Report (SAR) – The contractor and ACL must arrange for an independent assessor to conduct a security assessment consistent with NIST SP 800-53A, NIST SP 800-30,

latest revisions, and any additions or augmentations requested by ACL. The assessor must document the assessment results in a SAR. The contractor must update the SAR at least annually thereafter.

- Plan of Actions and Milestones (POA&M) – The contractor must mitigate all security risks found during continuous monitoring and security reviews of the system. The contractor must mitigate all high-risk vulnerabilities within 60 days and all moderate risk vulnerabilities within 180 days from the date vulnerabilities are identified. The contractor must track all identified risks between required security control baselines, continuous monitoring controls, and the contractor's implementation, as documented in the SAR, for mitigation in POA&M documentation.
- Contingency Plan – The contractor must develop a contingency plan in accordance with NIST SP 800-34, latest revision, and other applicable HHS guidance. Upon acceptance by the system owner, the contractor must test the contingency plan and prepare a contingency plan test report that includes the test results. The contractor must update and test the contingency plan at least annually thereafter.
- Security Review – The contractor must perform an independent annual security control assessment and provide to ACL for verification by the ACL CISO that the system ATO remains valid. Evidence of a valid system security authorization includes written results of (A) annual testing of the system contingency plan and (B) the performance of a security control assessment. Upon the ATO award, the contractor-operated system must meet or exceed the continuous monitoring requirements identified below.
- Government Access for IT Inspection – The contractor (and/or its subcontractors) must afford the government, including but not limited to the U.S. Department of Justice and the HHS Office of the Inspector General (OIG), access to its and the subcontractors' facilities, installations, operations, documentation, information systems, and personnel used in performance of this contract to the extent required to carry out a program of IT inspection (to include vulnerability testing), investigation, and audit to safeguard against threats and hazards to the integrity, confidentiality, and availability, of federal data or to the protection of information systems operated on behalf of HHS. The contractor, and any subcontractor at any tier handling or accessing protected information, must consent to and allow the government, or an independent third party working at the government's direction, without notice at any time during a weekday from 9:00 a.m. to 5:00 p.m. contractor/subcontractor local time, to access contractor and subcontractor installations, facilities, infrastructure, data centers, equipment (including but not limited to all servers, computing devices, and portable media), operations, documentation (whether in electronic, paper, or other forms), databases, and personnel which are used in performance of the contract. The purpose of the access is to facilitate performance inspections and reviews, security and compliance audits, and law enforcement investigations. For security audits, the audit shall likely check, at a minimum, buffer overflows, open ports, unnecessary services, lack of user input filtering, cross site scripting vulnerabilities, SQL injection vulnerabilities, and any other known vulnerabilities. The contractor's (and any subcontractor's) cooperation with inspections, audits, investigations, and reviews must be provided at no additional cost to the government.
- Information Security Continuous Monitoring – All of the contractor- and subcontractor-owned/operated systems that input, store, process, output, and/or transmit sensitive information must meet or exceed the information security continuous monitoring requirements identified in FISMA, based on the sensitivity level of the system. The contractor (and/or any subcontractor) must also store monthly information security continuous monitoring data at its location for a period not less than one year from the date the data is created. The monthly

continuous monitoring data must be encrypted in accordance with FIPS 140-2 Security Requirements for Cryptographic Modules and shall not be stored on systems that are shared with other commercial or government entities. The government may elect to perform information security continuous monitoring and IT security scanning of the contractor (and/or any subcontractor) systems from government tools and infrastructure. Based on the sensitivity level of the system, and the need for monitoring defined in the SSP, ACL may request the contractor work with HHS Incident Response Teams to include the system's continuous monitoring data in HHS-maintained IT security continuous monitoring dashboards.

- Asset Management – The contractor (and/or any subcontractor) must use any available Security Content Automation Protocol (SCAP)-compliant automated tools for active/passive scans to provide an inventory of all IT assets for both hardware and software, (computers, servers, routers, databases, operating systems, etc.) that are processing government-owned information/data. It is anticipated that this inventory information will be required to be produced at least monthly. The contractor (and/or any subcontractor) must be capable of providing detailed IT asset inventory information, to include IP address, machine name, operating system level, security patch level, and SCAP-compliant format information. The contractor (and/or any subcontractor) must work towards ultimately maintaining a capability to provide an inventory of 100% of its IT assets using SCAP-compliant automated tools. The contractor must consult with the ACL CISO to determine how best to satisfy this requirement.
- Configuration Management – The contractor (and/or any subcontractor) must use available SCAP-compliant automated tools, per the NIST IR 7511, for authenticated scans to provide visibility into the security configuration compliance status of all IT assets, (computers, servers, routers, databases, operating systems, application, etc.) that are processing government-owned information/data. Compliance will be measured using IT asset and system security configuration guidance provided by the government, for all IT assets. The SCAP-compliant automated tools will compare the installed configuration to the government specific security configuration guidance; contractor may reflect the most restrictive security configuration mode consistent with operational requirements. It is anticipated that this IT asset security configuration information will be required to be produced at least monthly. The contractor must work towards ultimately maintaining a capability to provide security configuration compliance information for 100% of IT assets using SCAP-compliant automated tools. The contractor must consult with the ACL CISO to determine how best to satisfy this requirement.
- Vulnerability Management – The contractor (and/or any subcontractor) must use SCAP-compliant automated tools for authenticated scans to detect any security vulnerabilities in all IT assets, (computers, servers, routers, Web applications, databases, operating systems, etc.) that are processing government-owned information/data. It is anticipated that this IT asset security vulnerability information will be required to be produced at least monthly. Contractors (and/or any subcontractors) must actively manage system vulnerabilities using automated tools and technologies where practicable. Automated tools must be complaint with NIST-specified SCAP standards for vulnerability identification and management. Additionally, contractors without in-place automated SCAP-compliant vulnerability management tools and technologies, are required to provide the number of systems (expressed in a percentage) that vulnerability information can be obtained for along with plans for procuring and implementing automated tools that comply with HHS requirements. The contractor (and/or any subcontractor) must work towards ultimately maintaining a capability to provide security vulnerability scanning information for 100% of IT assets using SCAP-compliant automated tools. The contractor must consult with the ACL CISO to determine how best to satisfy this requirement.

- Data Protection – Current Federal government security guidance requires that sensitive government information that is stored on laptops and other portable computing devices must be encrypted using Federal Information Processing Standard (FIPS)-140-2 validated encryption. The contractor must provide the percentage of portable IT assets that are equipped with FIPS 140-2 validated encryption, to encrypt all sensitive government information, via a report on a quarterly basis. ACL requires that all data used to satisfy the requirements of this contract be encrypted, both at rest and while in transit.
- Remote Access – Current Federal government security guidance requires that two-factor authentication be implemented when remotely accessing sensitive government-owned information/data on IT systems (both government owned and contractor owned systems). The contractor must work with the ACL CISO to determine, adhere to, and report on any additional remote access requirements for the system based on results of the FIPS 199.
- Continuous Vulnerability Remediation – The contractor (and/or any subcontractor) must install critical security patches or take other security remediation action as directed to Federal agencies by the Department of Homeland Security (DHS) to resolve weaknesses in systems processing government-owned information/data. The contractor must report status and when the directed action has been completed. It is anticipated that this type of urgent security remediation action may be necessary at least 1-2 times per month.
- Secure Coding – The contractor (and/or any subcontractor) must follow secure coding best practice requirements, as directed by United States Computer Emergency Readiness Team (US-CERT) specified standards and the Open Web Application Security Project (OWASP), that will limit system software vulnerability exploits. The contractor must consult with the ACL CISO to determine when and how the appropriate code reviews are undertaken.
- Standard for Security Configurations – The Contractor (and/or any subcontractor) must apply approved security configurations to IT that is used to process information on behalf of HHS.
- Desktop and/or Laptop Computers or Other Computing Devices Required for Use by the Contractor – The Contractor (and/or any subcontractor) must ensure that IT equipment that is used to process information on behalf of HHS are deployed and operated in accordance with approved security configurations determined by ACL and the contractor.
- Information Technology Application Design or Support – The Contractor (and/or any subcontractor) must ensure IT applications designed for end users run in the standard user context without requiring elevated administrative privileges per the HHS Acquisition Regulation (HHSAR) Subpart 352.239-70–Standard for Security Configurations.

Task 10: Deliver the system

After all testing is completed to ACL's satisfaction, the contractor will push the site "live" to production so that end users can use the system. The contractor will describe their approach for pushing the system to production.

There are many acceptable pathways for getting the system live for public use, which may include performing user acceptance testing (UAT), post-launch acceptance testing (PAT), etc. UAT is like QA testing but is performed by ACL as a final step of review and approval before the system moves to production. PAT is like UAT but performed in the production environment.

After the site goes live, the contractor will continue to monitor and fulfill troubleshooting and maintenance tasks for originally agreed-upon functional requirements that experience outages, errors, warnings, or deviant functionality from the expected requirements. This period of maintenance will last

for a fixed period of time prior to the end of the contract in order to avoid interruptions in service or unacceptable customer service to users.

Task 10: Maintain and operate the system

Following deployment of ACL Data to production, the contractor should maintain the system. Prior to the launch, the contractor should provide details of how they will accomplish this task in an Operations & Maintenance (O&M) Plan. The O&M Plan describes the day-to-day activities that are conducted and managed and indicates who is responsible for each task. ACL should provide the O&M Plan template to the contractor to complete. ACL should also consider if they wish the contractor to provide helpdesk assistance for system users.

Major Deliverables

- Kick-Off Meeting
- Project Work Plan
- Quality Assurance Surveillance Plan
- Business Requirements Document
- System Requirements
- System Security Plan
- Wireframes
- List of milestones and checkpoints for advancing system codebase from one environment to the next
- Results of functional, quality assurance, accessibility, and pilot testing
- ATO Package
- Final Live Website
- Operations and Maintenance Plan

Timeline

Without having a full set of foundational requirements to scope out entirely the work required for Phase III, it's difficult to determine an accurate timeline. ACL can determine a more accurate estimate once these requirements are complete. However, based on the known requirements and previous efforts of similar size and scope, the timeline (excluding activities performed under "Task 10: Maintain and operate the system") is currently estimated to be within 9 to 12 months, given the estimated staff levels of effort indicated below.

Estimated Staff Levels of Effort

More accurate staff levels for Phase III should be determined based on the final Foundational Requirements Document and the consolidated database prototype developed in ACL Data Restructuring Phase II. However, the following staff would be essential for the project and estimated hours are provided based on a 9 to 12-month development cycle for the base year.

Staff Type	Role Description	Estimated Hours
Product or System Owner	Responsible for defining all business requirements for the system and how it will be used. His or her input describes the problem or the opportunity that the system will ultimately solve. ACL staff will serve in this role.	N/A

Staff Type	Role Description	Estimated Hours
Technical Project Manager	Develops and maintains a project plan for developing, operating, and maintaining the system. The plan outlines the project tasks, milestone dates, status, and allocation of resources. He or she also has a background and essential experience in managing Information and Communication Technology projects.	380-640
Business Analyst	Captures, consolidates, and communicates information from Subject Matter Experts to the rest of the development team. This person works with the Product or System Owner and other subject matter experts to translate their needs into business, system, and/or technical requirements.	580-1,100
Database Architect	Develops and maintains a formal description of the system data and data structures - this can include data definitions, data models, data flow diagrams, etc.	260-520
Database Developer	Develops databases used within a system.	640-1,140
Database Administrator	Maintains databases used within a system.	390-520
Quality Assurance Lead	Responsible for developing methods to test that the system that is built meets its system requirements and functions properly.	300-560
Accessibility Testing Lead	Responsible for testing a system to ensure it meets the Federally mandated accessibility requirements of Section 508 of the Rehabilitation Act.	170-300
Contractor Systems Security Officer	Responsible for overseeing the implementation of all security requirements and system-related security controls. This person also manages the contractor's involvement in obtaining and maintaining the system's ATO.	150-250