



Arlington National Cemetery Gravesite Accountability Task Force



Report to Congress on Gravesite Accountability Study Findings

22 December 2011

Preparation of this report/study cost the Department of Defense a total of approximately \$133,000 for the 2012 Fiscal Year.

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1. Executive Summary

- a. Overview. Since Secretary of the Army John M. McHugh issued Army Directive 2010-04 on 10 June 2010, the United States Army has instituted comprehensive reforms in the management and oversight of its National Cemeteries Program, putting in place sweeping corrective actions to restore confidence and regain accountability at Arlington National Cemetery (ANC or Cemetery). Secretary McHugh's directive followed completion of three separate Army investigations, each more comprehensive in scope. These efforts culminated in the release of two exhaustive reports by the Army's Inspector General that detailed serious mismanagement and process failures at ANC. The Army's efforts were enhanced by Public Law (PL) 111-339, which requires the Army to submit a report to Congress accounting for the gravesites at the Cemetery.

This report is submitted in compliance with PL 111-339 and documents the Army's effort to provide a full accounting of gravesites. This submission represents a part of the Army's commitment to operate, manage and maintain ANC in a manner befitting the service and sacrifice of those interred or inurned there. As outlined below and detailed herein, the Army has made unprecedented efforts to achieve accountability at the Cemetery by defining requirements, developing innovative review processes and creating a detailed methodology to account for gravesites. A large, diverse and dedicated team methodically counted the gravesites in the Cemetery, photographed the grave markers, and compared all the available records for each case to verify that graves are properly labeled, identified and occupied. While great progress has been made thus far, additional work is required. Accordingly, this report sets forth a plan of action for sustaining a single, authoritative data set of all graves at the Cemetery.

- b. Sweeping Changes. Pursuant to the Secretary's June 2010 directive, the Army conducted a complete top-to-bottom reorganization at the Cemetery. This effort began with the appointment of the Cemetery's first-ever Executive Director and a new Superintendent who, in turn, established new training and certification programs and procured proper equipment and tools required by the workforce. The Cemetery's entire information technology infrastructure has been replaced and hundreds of network vulnerabilities addressed. Army experts improved existing applications and created new systems using digitized records and automated recordkeeping. Moreover, ANC staff is in the process of fielding a state-of-the-art Geospatial Information System, replacing all paper maps with a single digital map that supports all lines of ANC operations.
- c. Accountability Baseline Development. To regain accountability at the Cemetery, the Secretary approved the establishment of the ANC Gravesite Accountability Task Force (GATF or Task Force). Comprised of Army Soldiers and civilians, the Task Force was charged with physically identifying every gravesite and niche cover, cross-referencing each with all available records, identifying discrepancies, applying appropriate corrective actions and developing standardized procedures that can be instituted in the daily operations of the Cemetery. This comprehensive effort resulted in the first-ever review, analysis and coordination of all ANC records, which will be used to populate a single authoritative database. It will further create a set of proven, repeatable procedures that will ensure the accountability over all current and future gravesites.

The Task Force developed and applied formal business rules to make and document corrections as they were found, thus reducing both how often a record had to be reviewed



and the number of uncorrected errors. This effort produced a single, comprehensive set of categorized records ready for analyst review. The GATF built accountability features into all processes and automated tools, giving every record an auditable trail including by-name accounting of who reviewed, approved or corrected a document. The Task Force processes have been validated for repeatability and tested to produce predictable results.

The Army has been conducting funerals and memorial services at Arlington for over 147 years. Over that time, various systems and processes – from handwritten logbooks to two different computerized systems – have been utilized to maintain accountability. In many cases, reports and forms created to definitively document interment services were not uniformly applied or completed. Each attempt to update the paper recordkeeping system had the potential to create confusion and cause unintended errors. Indeed, the Task Force has found that human error and differing standards associated with each of these systems and the transition from one system to the next likely led to many of the inconsistencies discovered to date. Moreover, it is important to acknowledge that interment or other errors may well be identified in the future that may not be obvious from the records. If found, the Army is committed to resolving these as quickly as possible. Importantly, current procedures recently enacted are designed to prevent similar mistakes in the future.

Among our national cemeteries, ANC is unique. It alone routinely holds graveside services and provides full military honors for eligible veterans. It is a national and active military shrine, hosting 4.1 million visitors annually, as well as ceremonial functions involving heads of foreign countries and other high level dignitaries. Far and above other veterans' cemeteries, ANC works with all the military services to provide honor platoons, bands, a horse-drawn caisson and, where appropriate, the ceremonial riderless horse.

Throughout the GATF's work, experts provided additional support. The Army Analytics Group and the Army Audit Agency (AAA) were involved from the beginning assisting in the development of repeatable processes and predictable outcomes that provided transparency to the Task Force's results. AAA placed analysts within the Task Force and assisted in developing auditable processes. They then reviewed data twice, first during early efforts when rules were in development and, later, when the work force was more experienced and applying a much more robust and mature set of business rules. The Government Accountability Office also assessed the Task Force's operations as part of its reporting requirements.

Moreover, the Army Inspector General completed additional reviews during this time, finding that "significant progress has been made in all aspects of the Cemetery's performance, accountability and modernization."

- d. Key Task Force Findings. During the comprehensive analysis detailed throughout this report, the GATF counted 259,978 gravesites in the Cemetery. The Task Force examined each of the gravesites, analyzing images of grave markers against over 510,000 records. Based upon its review, as of 20 December 2011, the Task Force has validated 195,748 cases. In accordance with the plan of action, ANC is currently conducting more thorough research for 64,230 cases.
- e. Conclusion. With the critical support of Congress and the American people, the GATF worked diligently to provide a full accounting of gravesites at ANC. To accomplish this goal, a large, diverse and dedicated team methodically counted the gravesites in the Cemetery, photographed the grave markers, and compared all the available records for each case to



verify that graves are properly labeled, identified and occupied. Once all the outstanding cases have been thoroughly researched, the Army will have the most comprehensive accounting of gravesites in the history of the Cemetery.

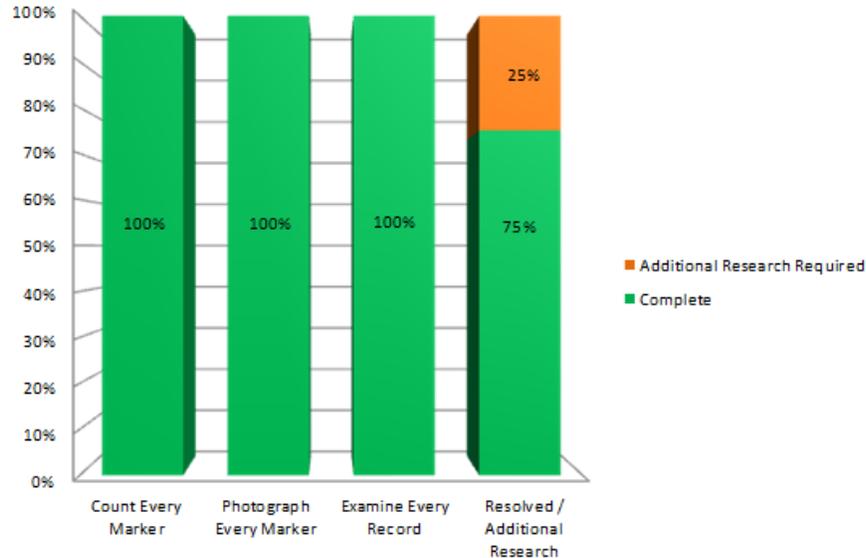


Figure 1 Full Accountability

As a result of this study, the Army has a far better understanding of the Cemetery's records and history than ever before. The gravesite accountability initiative illuminated the complexities of standardizing data that developed over more than 14 decades, in a place that started as a wartime burial ground during the Civil War and evolved into a national military shrine. Research showed not only that mistakes were made and compounded over time, it also provided a better understanding of how, why and when these mistakes occurred. The Army is gaining ever greater fidelity over the data as the analysis continues, and will be able to further apply these lessons to Cemetery operations going forward.

The gravesite accountability initiative underscores the importance of having standardized and documented business processes and robust training and technology to ensure quality control and cope with organizational and technological change. Throughout the entire accountability study, the Task Force developed repeatable standards, processes and business rules to govern its activities. With these procedures in place, the next era at Arlington National Cemetery will be defined as one of modernization, transparency and accountability, better connecting family and guests to the Cemetery's rich living history and honoring all those who rest on its grounds in quiet repose.



2. Report to Congress on Gravesite Accountability Study Findings

2.1 Introduction

The Army Inspector General (IG) noted in his 23 September 2011 Report on Arlington National Cemetery (ANC or Cemetery) that “significant progress has been made in all aspects of the Cemetery’s performance, accountability and modernization.”¹ This finding stems from the success of a series of comprehensive reforms directed by Secretary of the Army John M. McHugh after several Army investigations discovered significant lapses in management and oversight at the Cemetery, including improperly marked gravesites.

The Army’s extensive examination culminated with the IG investigation and inspection, which was completed on 9 June 2010. The following day, Secretary McHugh replaced ANC’s failed leadership and immediately issued Army Directive 2010-04, which mandated sweeping changes to the management, structure and operations of the Cemetery. Under Secretary McHugh’s guidance, the new leadership team has made wide-ranging improvements over the last 18 months. The Cemetery staff is now effectively providing and maintaining strict stewardship over all gravesites at ANC, and is restoring accountability over interment and inurnment records compiled over the Cemetery’s 147-year history.

Congress has provided critical support to the Army’s efforts, most notably in the enactment of Public Law (PL) 111-339 on 22 December 2010. Reinforcing the Secretary’s directive, PL 111-339 required the Army to conduct an accountability study of the gravesites at the Cemetery, and to report its findings, as well as a plan of action to resolve issues.

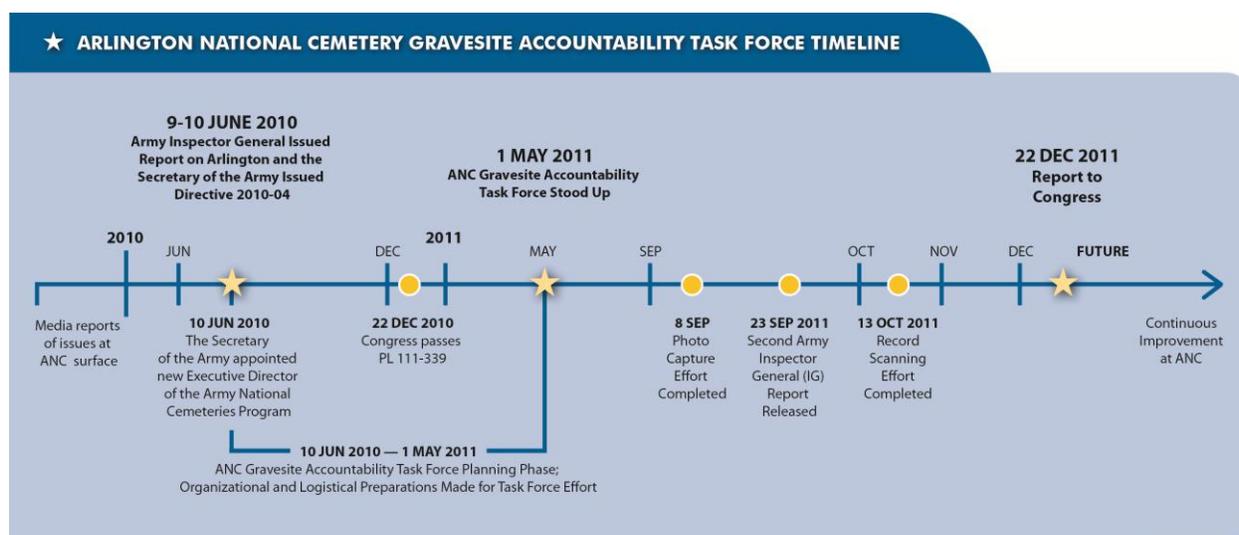


Figure 2 Arlington National Cemetery Gravesite Accountability Task Force Timeline

Anyone who has visited Arlington National Cemetery and viewed the vast rows of neatly lined headstones stretching to the horizon can appreciate both the importance of the accountability

¹ U.S. Army Inspector General Agency and Department of the Army Inspector General, Inspection of the Army National Cemeteries Program & Arlington National Cemetery (2011).



mission and the enormous number of gravesites to be validated. To achieve this goal, the Army established the large, multi-disciplinary Gravesite Accountability Task Force (GATF or Task Force) to digitally photograph 259,978 gravesite markers in the Cemetery, scan in excess of 510,000 Cemetery records, compare the records against the photos to identify any potential inconsistencies in the information, and build the tools needed to support these activities. The Task Force had to standardize the Cemetery's burial data, an extraordinarily complex task considering that burial practices and the information collected have changed several times since the Army established ANC in 1864. These historical variations significantly impacted the work of the GATF.

Throughout the entire accountability effort, the new leadership at the Cemetery developed standards, processes, business rules and training to govern Task Force activities. By applying good governance from the beginning, the Task Force produced a set of repeatable processes delivering predictable results. This management approach will better maintain accountability into the future. Operations at the Cemetery will continue to be modernized and improved. Through documentation and implementation of improved business processes, lessons learned from the Task Force initiative and the fielding of other innovative projects, such as the Geospatial Information System, ANC will have the ability to effectively manage the Cemetery and frequently update its mapping and location information. Ultimately, family members and the American public will be able to locate and view gravesites online via the newly revamped public website. The Army has made significant changes that now ensure dignity and respect for all those laid to rest on the Cemetery's hallowed grounds.

The Army is instituting standardized, repeatable processes and procedures to prevent the kinds of mistakes that occurred in the past. The Task Force has taken great care to complete a comprehensive review of records and markers at the Cemetery. For the first time, every grave, niche and memorial will be documented and tracked in a single authoritative database. There is a limit, however, of what can be discovered purely through the review of existing records and physical inventory. The possibility remains that errors in the interment process could exist, even though they have not manifested as either an incorrect or missing record or marker. Accordingly, despite all efforts put forth by the Task Force, the discovery of burial errors cannot be ruled out. If discovered, such errors will be immediately reported to the Secretary of the Army, the appropriate Congressional Committees and, with consultation of next of kin, resolved as quickly as possible.



2.2 Background of Arlington National Cemetery

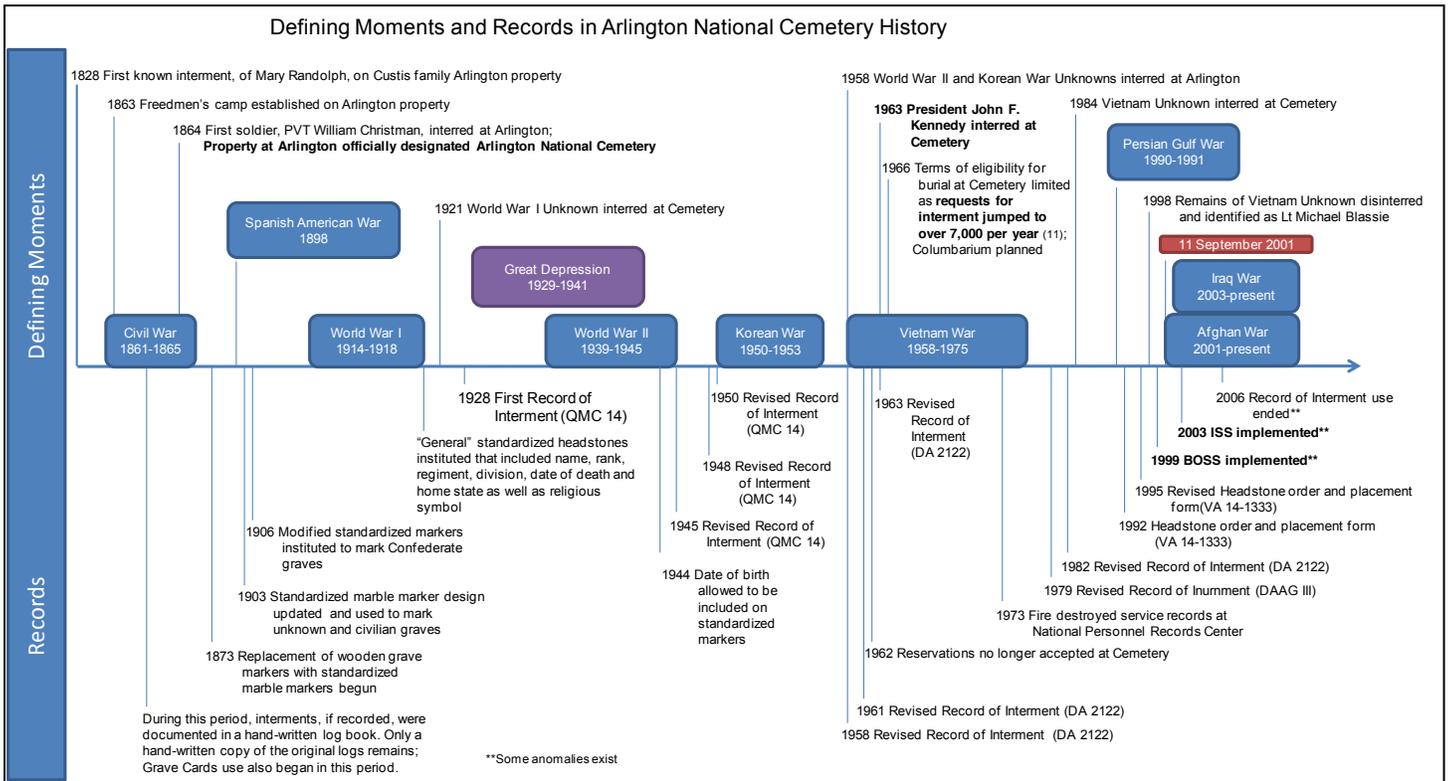


Figure 3 Defining Moments and Records in Arlington National Cemetery History

The history of the Cemetery as a final resting place dates back to at least 1828, when Mary Randolph, a descendent of Pocahontas and cousin of Thomas Jefferson, was interred on the Custis family’s property. The first interment of a soldier at the Cemetery, that of Private William Christman in 1864, began the evolution of the Cemetery into the national shrine it is today. Since the 1800s, ANC has expanded considerably and now conducts more than 7,000 funeral services per year.

In the Cemetery’s early years, it was common for other civilians to be interred as well. During the Civil War, the Union Army appropriated the Arlington property and a community of freed slaves established themselves on a section now referred to as Freedman’s Village. As community members passed away, they were interred in a segregated section.²

² For more information on these and other early civilian interments, see Section 2.3.5 “The Complexities of Validating Cases at Arlington National Cemetery.”



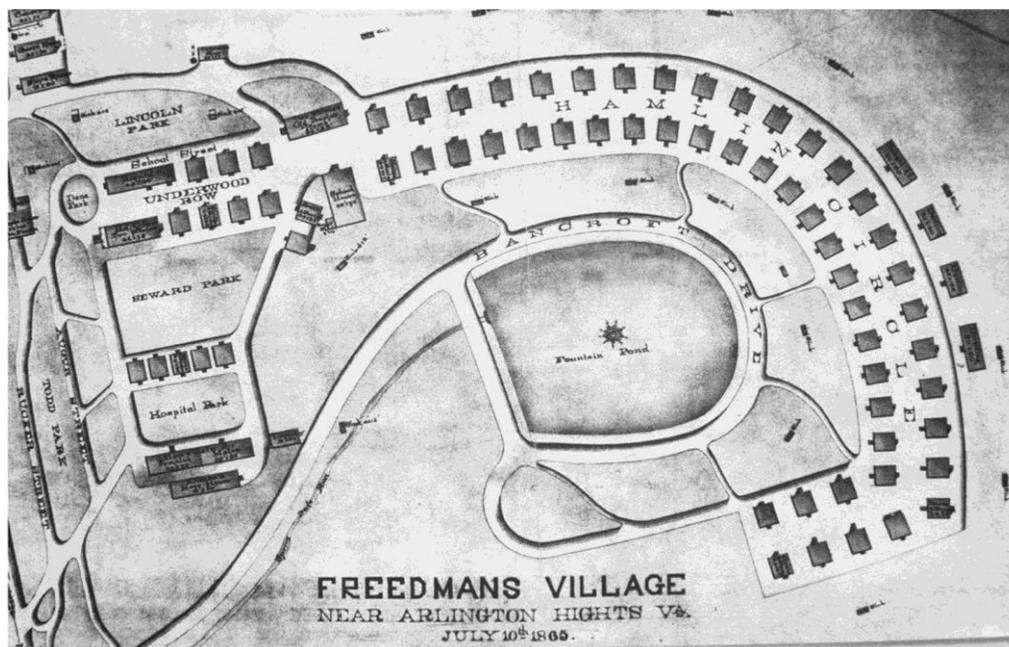


Figure 4 A Map of Freedman's Village from 1865

During this early period, only wooden headboards, which rapidly deteriorated, marked the graves, and interments were manually recorded in a log book. The original log books were lost at some point in the Cemetery's history, and only a single, hand-copied version from the early 1900s remains. Just as the records needed replacement, so, too, did the markers. In 1873, Congress appropriated funds to replace wooden headboards with standard marble markers. The first marker replacement initiative did not, however, apply to the gravesites of slaves, freedmen or Confederates interred at Arlington. Instead, their markers were replaced during a second initiative, which began in 1902. Also during this period, the families of wealthier decedents, especially officers, often furnished their own grave markers, including, for example, an actual cannon. Most of these early high-ranking and wealthy decedents were interred in Section 1.

The chaos of war and its aftermath significantly impacted the Cemetery and its records, creating many complex cases.³ In a case of particular note, a soldier has two graves in the Cemetery. The soldier's amputated leg was interred in one grave and, upon passing away years later, the soldier was laid to rest in a separate grave. Additionally, over 4,000 of the individuals interred at ANC during and soon after the Civil War remain unknown. Many decedents were also laid to rest in group burials, including one site that contains the remains of more than 2,000 soldiers. At the same time, some soldiers, especially Confederates, were disinterred from the Cemetery to permit reburial closer to their families' homes. Other individuals were disinterred and moved to different sections of the Cemetery. In the early 1900s, the Confederate soldiers remaining in ANC were eventually moved to Section 16 near the Confederate Memorial. However, two Confederate soldiers, one known and the other unknown, remain in Section 13, often referred to as the Field of the Dead.

With the end of the Civil War, teams searched for battlefield graves with the goal of returning the deceased to their families or at least providing them an honorable interment. The work of these

³ For additional information on case complexities, see Section 2.3.5 "The Complexities of Validating Cases at Arlington National Cemetery."



teams set a standard for the recovery and identification of decedents for future wars. Furthermore, such efforts inspired the Army to require the use of dog-tags in 1913 to lower the number of unidentifiable soldiers. Many Soldiers who fell on foreign battlefields in later wars were repatriated and came to rest in ANC. Among them are the Unknowns of World War I, World War II and the Korean War.⁴

Until 1 January 1962, ANC allowed eligible veterans to reserve specific burial space prior to time of need. The practice of accepting new reservations for initial interments was terminated as it became clear that the Cemetery would run out of space too soon. After the interment of President John F. Kennedy in 1963, Arlington quickly became one of the most prestigious cemeteries in the United States, and eligibility requirements were reevaluated in an effort to extend its viability.

Due to the increased number of funeral requests, veterans must meet certain criteria for interment.⁵ Service and other records help verify a decedent's eligibility for burial at the Cemetery. However, a 1973 fire at the National Personnel Records Center in St. Louis destroyed approximately 16-18 million Official Military Personnel Files. These include about 80 percent of Army records for those discharged between 1 November 1912 and 1 January 1960, and about 75 percent of Air Force records for those with names alphabetically after Hubbard, James E. and discharged between 25 September 1947 and 1 January 1964.⁶

This loss underscores the need for electronic recordkeeping and presents a challenge for the Cemetery's staff to confirm certain individuals' eligibility. Nevertheless, efforts to afford decedents the respect and honor they deserve will continue as ANC evolves and integrates improved recordkeeping systems. Digitization of all available records constitutes one of the primary improvements to the Cemetery's recordkeeping and will ensure that the organization maintains greater transparency and accountability in the future.

2.2.1 Eras in Arlington National Cemetery Recordkeeping

The history of recordkeeping at ANC helps shed light on the evolution of the Cemetery as a whole. Records generally pertain to one of three eras, defined by the available resources and cultural norms of their times. Broadly stated, the three eras are: Early, Standardized and Digitized Recordkeeping.

Era 1: Early Paper-Based Recordkeeping (Civil War to c. 1928)

- Handwritten log books contain the most extensive record of interments from the 1800s until c. 1928.
- Little information was available regarding decedents; many

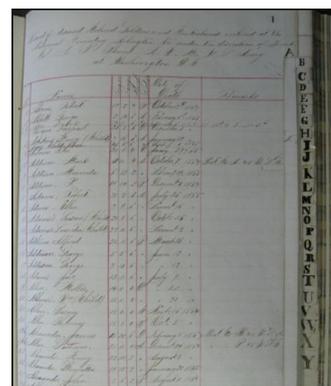


Figure 5 Page from Civil War Era Log Book

⁴ The task of guarding the Tomb of the Unknowns falls to the Tomb Sentinel of The Old Guard, 3^d U.S. Infantry Regiment. When thinking of ANC, the image that comes to mind is often of the young soldier standing vigil over his brothers-in-arms.

⁵ The Cemetery recently released an updated and improved Burial Guide to assist families in understanding eligibility and the honors available. United States, Arlington National Cemetery, Administrative Guide to Information and Burial at Arlington National Cemetery (2011).

⁶ <http://www.archives.gov/st-louis/military-personnel/fire-1973.html>



died on the battlefield without sufficient identifying information, especially during the Civil War.

- The ledger-based system lacked any recordkeeping standards and is not cross-referenced between decedent name and place of burial.
- Manual processes with no discernible quality control caused errors to remain undetected.
- No documentation is available regarding procedures that may or may not have been in place during this era for accepting, tracking and maintaining a chain of custody over remains.

Era 2: Standardized Paper-Based Recordkeeping (c. 1928 to c. 1999)

- In the 1900s, Arlington National Cemetery incorporated a recordkeeping system that used standardized paper Record of Interment and Grave Card forms.
 - **Record of Interment:** The Record of Interment was a printed form that was indexed alphabetically by decedent name and used at ANC beginning around 1928. Accordingly, each decedent interred during that time should have an individual record. The Record of Interment usually contained information about the decedent such as name, date of birth, date of death, branch, unit, military awards and next of kin. This document underwent at least eight revisions during its time in use. As the form changed, the specific information collected also changed. For example, date of birth was not collected until 1945. Moreover, data may have been incorrectly transcribed from one version to another. Even with standard data fields on the forms, the data actually captured was not always consistent.

DATE OF DEATH		DATE OF INTERMENT		GRAVE MARK		REMARKS Date of discharge and number of Prisoner Certificates, Citations, etc.
Month	Day	Year	Month	Day	Year	
Jan.	6	1935	Jan.	8	1935	Enrolled 11/24/17. Released 12/5/17 for active duty. Discharged 4/5/19 from active duty. Disch. from S.R.F. 9/30/31.

Shipping point for headstones: Norfolk, Virginia

Figure 6 Example of an ROI form from 1935

- **Grave Card:** The most common type of record used at ANC, these 3x5 index cards usually contained name, rank, section and grave number and date of interment. Grave Cards were the only type of record that could contain information for multiple decedents interred in the same grave, *e.g.*, husband and wife; parent and child. In this era, no Grave Cards were kept for inurnments at the Columbarium. Grave Cards were indexed by place and cross-referenced by name. The cards assigned the status for an individual gravesite: Occupied, Available, Obstructed or Reserved.
- **Daily Logs:** To confirm eligibility for burial at ANC, families must provide documentation such as a military service record and a death certificate. The Cemetery currently maintains these documents in paper form stored in files called the Daily Logs, which are organized by date of interment. The Daily Logs



are still in use today in paper form, though the paper format will be completely phased out with the implementation of new automated systems. No Daily Logs exist prior to 1948. The Cemetery's burial records have already been scanned, and the Daily Log files will also be scanned in the near future as part of the broader digitization of all the Cemetery's records.

- Like the data in the paper records, the information recorded on gravesite markers changed over time. Many markers associated with early interments lack certain facts such as date of birth, as apparently such information was not always available or considered necessary. During the Great Depression, for example, it was common practice not to include a wife's name on the marker when she was interred with her husband.⁷ The Task Force considered these differences in information to be discrepancies and applied contemporary policy to the proper identification and labeling of graves.

Era 3: Digitized Recordkeeping (c.1999 to Present)

- A transition to a digital recordkeeping system began in 1999.
- The transition involved the implementation of two systems, the Department of Veterans Affairs' Burial Operation Support System (BOSS) and the Interment Scheduling System (ISS).
 - **Burial Operations Support System:** The BOSS record has been used at the Cemetery since 1999, when the Cemetery began transitioning to electronic recordkeeping. BOSS is a Department of Veterans Affairs electronic record used for ordering government markers, and usually contains the same type of data as that found in a Record of Interment. ANC's unique services require additional functionality not available in BOSS for scheduling funerals and coordinating military honors, leading to the development of ISS. BOSS data is stored separately from ISS. While there are currently no automated data updates between the two systems, future plans include such synchronization.
 - **Interment Scheduling System:** ISS is ANC's system of record for electronic scheduling. ISS has been used to schedule services and coordinate resources, including honor guards, chaplains and ceremonial events such as military flyovers, since 2003. While not initially designed or intended as a repository of authoritative data, numerous enhancements have been made in recent years to add new features and improve usability. ISS features prominently in the ANC leadership's plan to continue modernizing recordkeeping and business practices.⁸
- The transition continues today as the Cemetery staff works to digitize its older records and build automated interfaces that synch data between ISS and BOSS.
- The process of modernization will be ongoing as digital records and updated recordkeeping systems are maintained.
- Example: When someone is now interred at ANC, the Cemetery staff creates digital ISS and BOSS records for the decedent and gravesite, capturing a standardized set of

⁷ For more information, see Section 2.3.5 "The Complexities of Validating Cases at Arlington National Cemetery," Example 7.

⁸ Discussed in detail in Section 2.5 "Plan of Action for Maintaining Accountability in the Future."



information, including section and grave number, name, date of birth and death, religion, military service and next of kin.

In the map below, the sections of the Cemetery are identified by the median date of death for those interred. Using these associated dates, the sections are grouped by colors corresponding with the Cemetery’s recordkeeping eras. This way of dating also reveals the growth of the Cemetery over time. The blue sections represent the Early Paper-Based Recordkeeping Era from the 1800s to 1928. The purple sections represent the Standardized Paper-Based Recordkeeping Era from 1928 to 1999. The green sections represent the Digitized Recordkeeping Era from 1999 to the present.

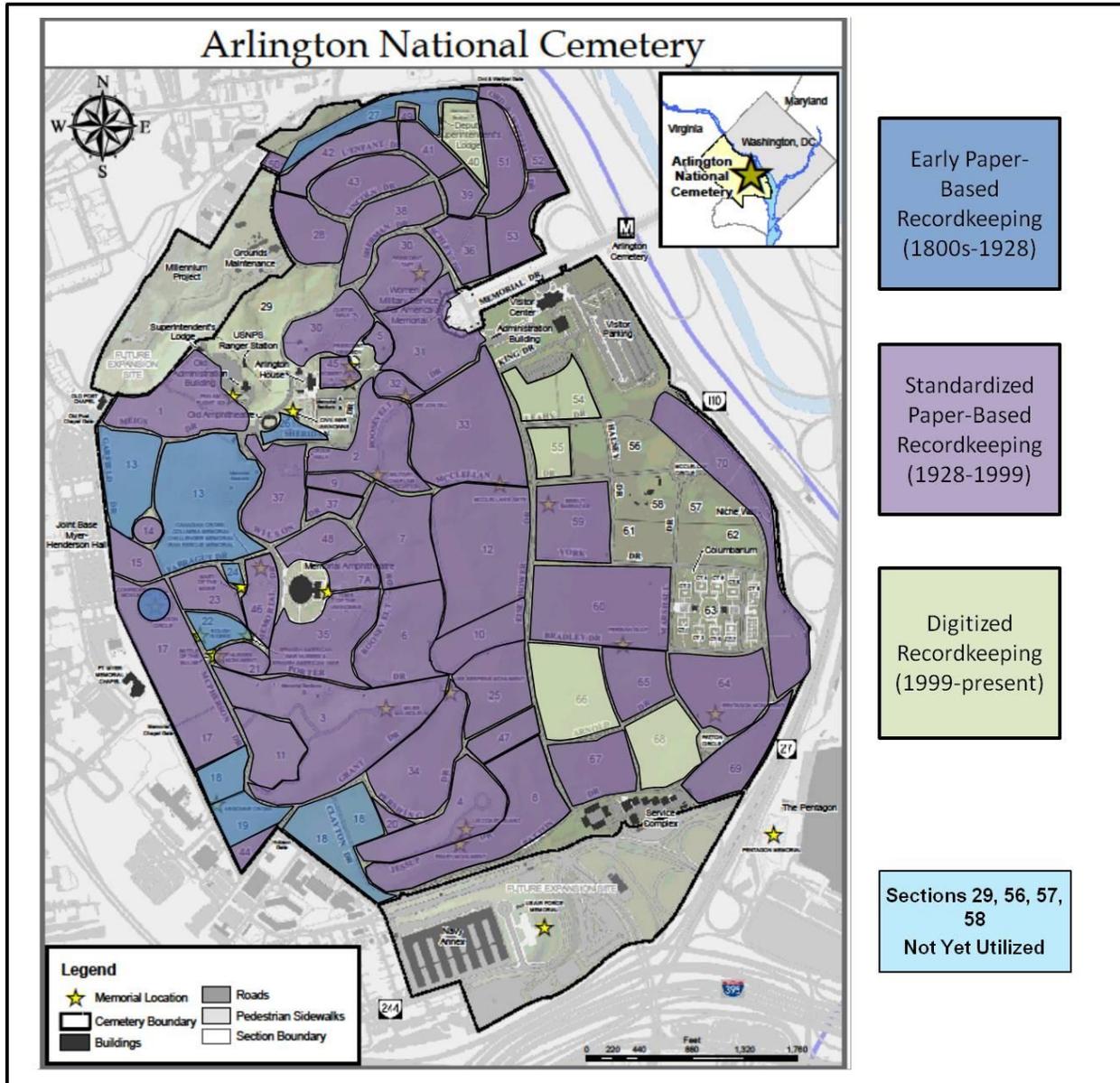


Figure 7 A Map of Arlington National Cemetery Showing the Sections Organized by Median Date of Death for All Three Recordkeeping Eras



2.3 Gravesite Accountability Task Force Strategy

2.3.1 Legislative Requirements and Task Force Objectives

PL 111-339 required the Army to submit a report to Congress that specifies “whether gravesite locations at Arlington National Cemetery are correctly identified, labeled and occupied; and set[s] forth a plan of action, including the resources required and a proposed schedule, to implement remedial actions to address deficiencies identified pursuant to the accounting.”⁹

The GATF used the following definitions:

“Identified”: Every marker, whether headstone, footstone, private monument or niche cover has been counted, photographed and given a unique geospatial coordinate on the ground in the Cemetery.

“Labeled”: Gravesites at ANC, along with all associated records available, have been validated against an appropriately commemorated marker, whether headstone, footstone, private monument or niche cover.

“Occupied”: A full and complete review and accounting of all available records and data identifies a particular individual or individuals interred or inurned at each gravesite or niche location.

2.3.2 Task Force Scope

Arlington National Cemetery is as unique as it is expansive. The second largest cemetery in the country, ANC oversees approximately 27-30 funeral services per day, five days a week. Additionally, on Saturdays, the Cemetery has recently begun to hold services for which military honors are not required or requested.

⁹ For more information regarding actual findings, see Section 2.4 “Gravesite Accountability Study Findings.”



To illustrate the scope of the GATF's mission, the following photograph shows just one of ANC's 66 active sections.

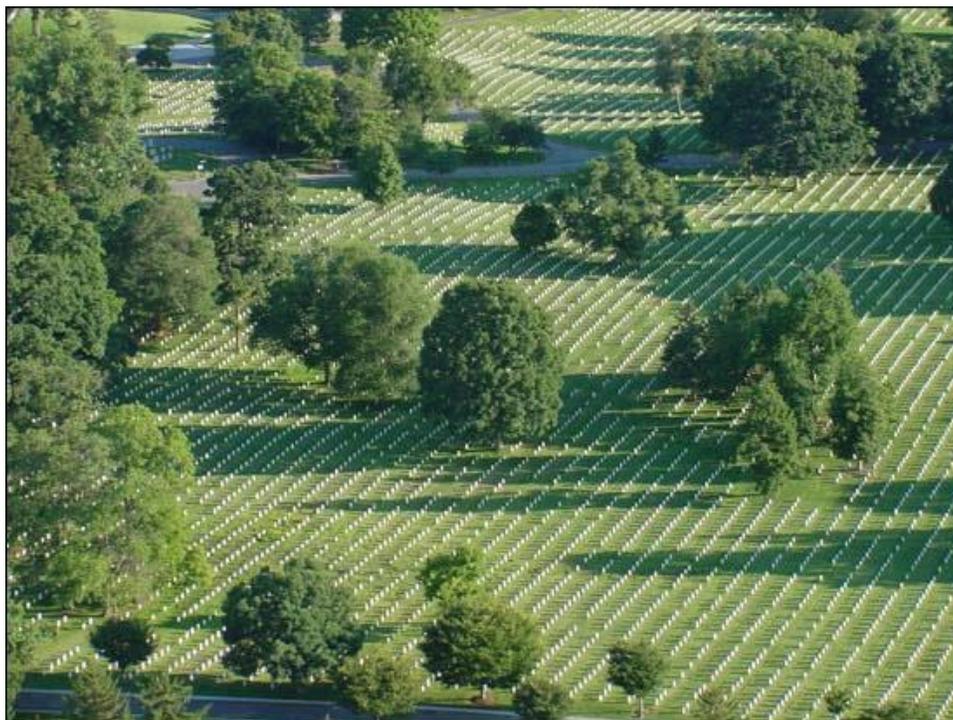


Figure 8 Photo of a Section of Gravesites at Arlington National Cemetery

To achieve the goal of providing accountability, the Task Force matched the pictures for 259,978 gravesites against over 510,000 records. Due to a lack of authoritative data and standard records, this was an enormous and complex task. Accordingly, the Army mobilized a large, multidisciplinary team of 194 Army Soldiers and civilians. Obtaining an accurate count of ANC's gravesites was a significant undertaking because most of the Cemetery's records and maps were in paper form. While the Army's initiative to modernize the Cemetery's recordkeeping and create a digital map using Geospatial Information System technology will soon resolve this issue, establishing the initial case count required a comprehensive effort.

The GATF derived this count in three ways. First, a team walked each section and row of the Cemetery and physically counted the gravesites.¹⁰ Next, Soldiers from The Old Guard generated a second count by taking digital photos of each gravesite using a specially designed Smartphone application. Finally, the Validation Team identified any cases where records existed that were not otherwise associated with a marker photo. The team then researched the issue and, if appropriate, established new cases. After reconciling this enormous amount of data, the Task Force has produced the most accurate count of the total number of gravesites in ANC's history.¹¹

¹⁰ To ensure accuracy, each team member used a stadium counter.

¹¹ For more details, see Section 2.4 "Gravesite Accountability Study Findings."



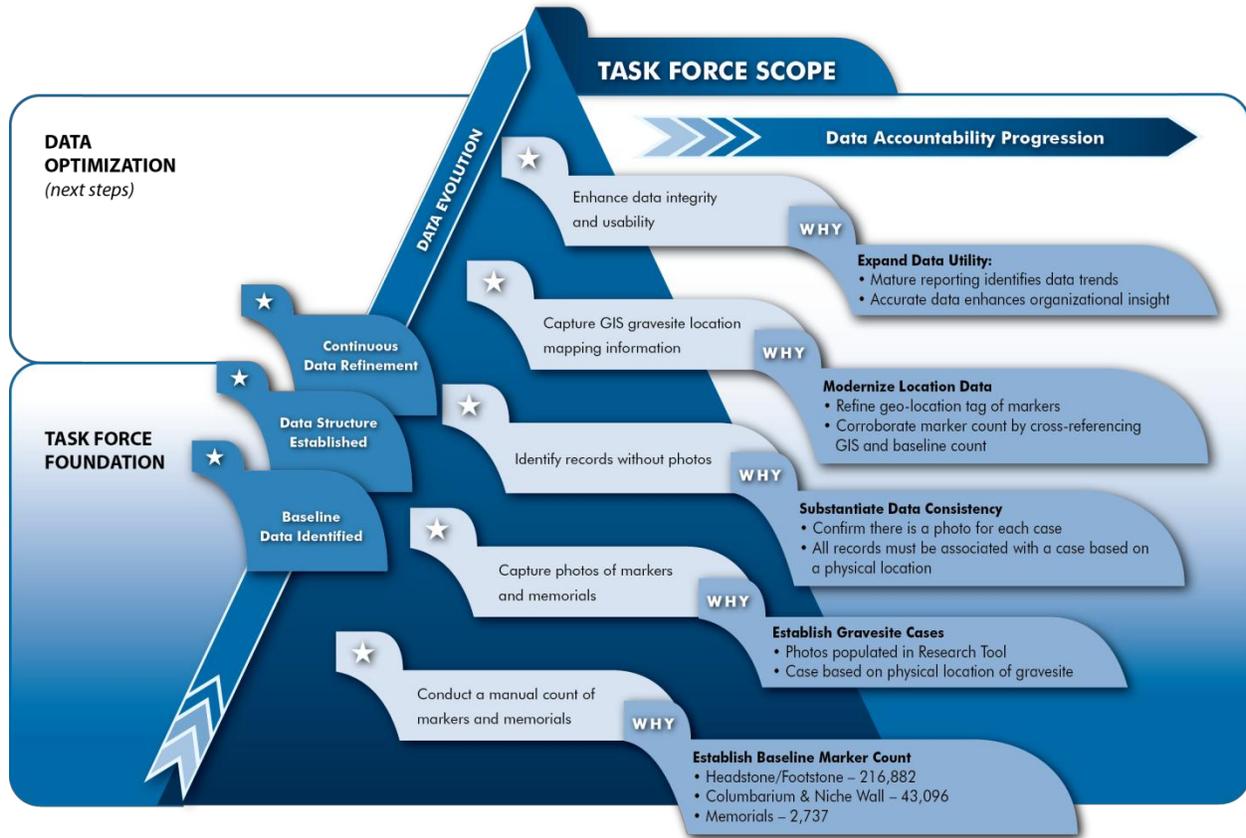
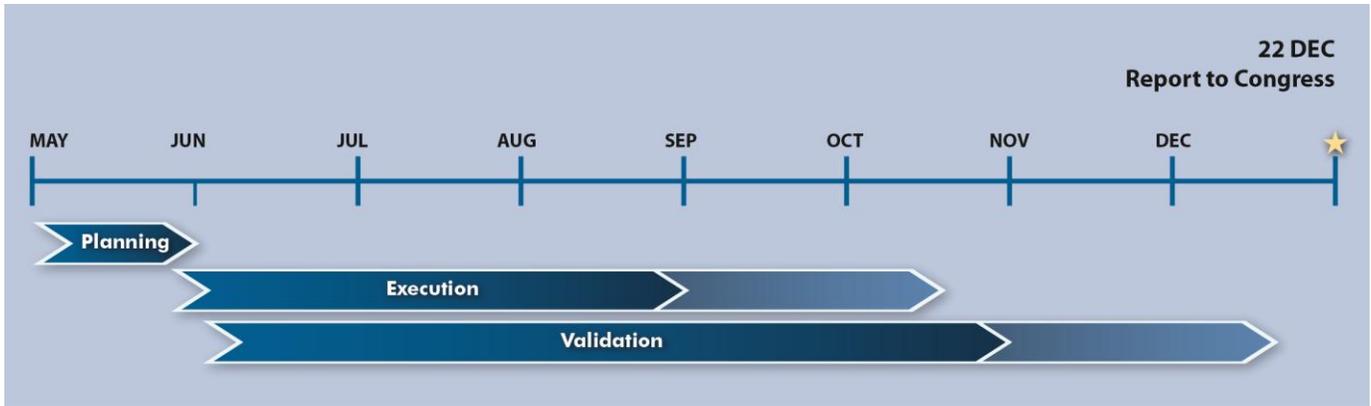


Figure 9 Establishing the Scope of the Task Force Mission

2.3.3 Task Force Strategy

The GATF used a three-phased approach to accomplish its mission: Planning, Execution and Validation. Throughout each phase of the strategy, Task Force leaders emphasized governance and program management; defined standard and repeatable business processes; implemented robust training; established performance metrics and reporting procedures to track progress and milestones; and identified best practices that are scalable to other parts of the Army National Cemeteries Program. The Task Force also partnered with the Army Audit Agency (AAA) to provide an independent, holistic review of the validation processes. Activities in each of the three phases are detailed below.





ARLINGTON NATIONAL CEMETERY ACCOUNTABILITY TASK FORCE APPROACH

TASK FORCE GOVERNANCE & OVERSIGHT: Establish governance structures and roles, provide a framework for consistent application of business rules, make key decisions and conduct progress reviews, monitor performance and take corrective actions

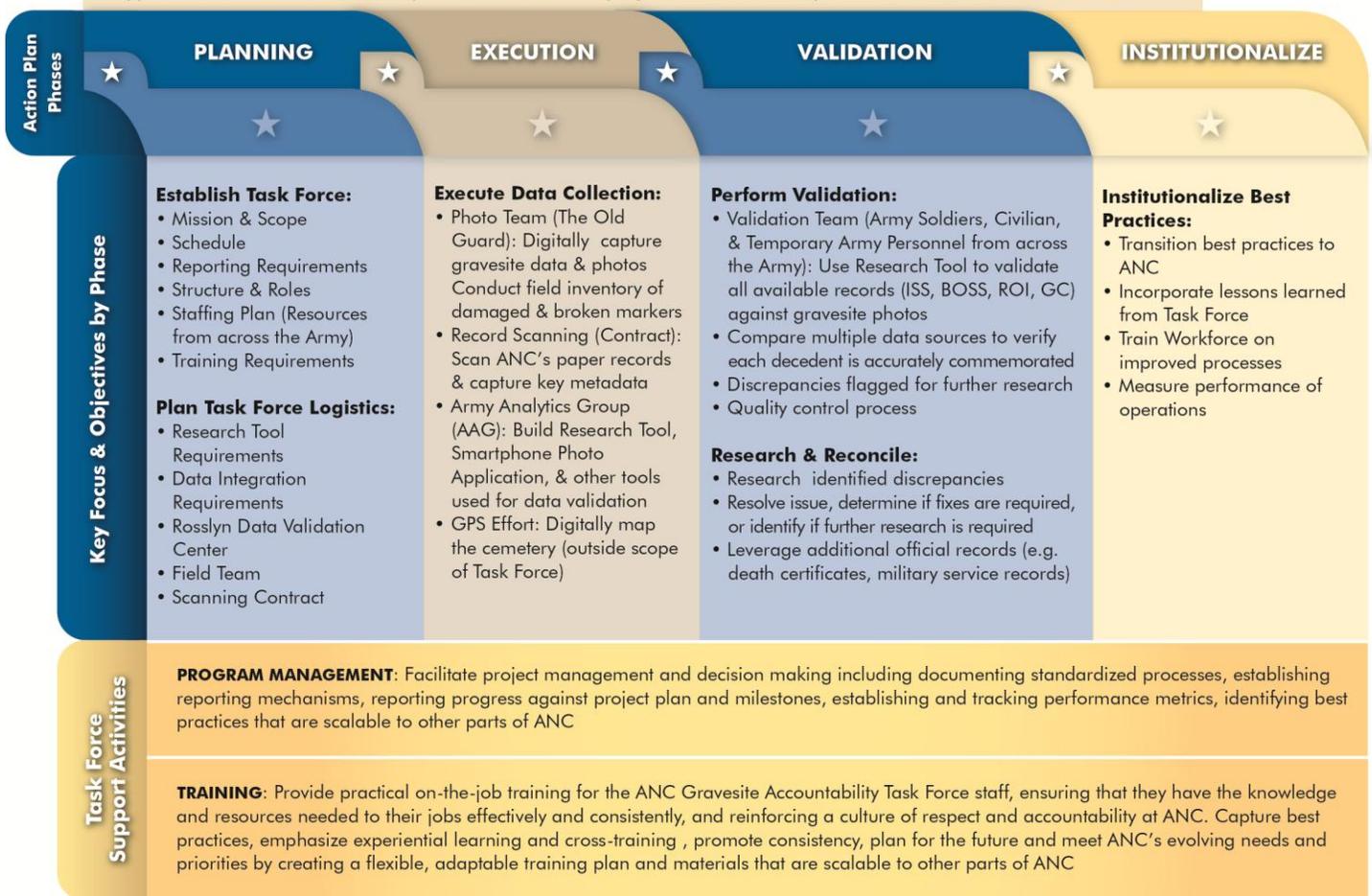


Figure 10 Arlington National Cemetery Gravesite Accountability Task Force Approach





Figure 11 Arlington National Cemetery Gravesite Accountability Task Force Major Milestones

Phase 1: Planning

The Executive Director and her staff began to address the root causes of the previous failures through the following: restructuring ANC's organization; reevaluating operational and contracting practices; improving customer service by partnering with the Army Information Technology Agency to establish a new call center; and planning for the creation of the GATF.

During the Planning Phase, Cemetery leaders worked with partners from across the Army to identify the resources, technology, contracts and program support required for the GATF to complete its mission. The Executive Director and Task Force Co-chairs outlined the scope of the mission and assessed the staffing, financial, technical and information requirements needed for the effort. They also defined the GATF strategy, schedule and reporting requirements and delineated roles and responsibilities in a staffing plan that mobilized resources from across the Army.

Two Army "taskers" – a formal Army procedure designating personnel and resources to a particular initiative – were dispatched to organizations across the Army to solicit support for the Task Force, culminating in the assignment of more than 67 Soldiers and civilians. The Army also hired 67 additional personnel to support the GATF. The Military District of Washington assigned The Old Guard – best known as the Army's elite ceremonial unit that guards the Tomb of the Unknown Soldier and oversees military funerals – to conduct the photo capture task. The Old Guard assigned the equivalent of an entire infantry company, roughly 60 Soldiers, to the Task Force.

The following diagram depicts the four work streams and various sources of information that were involved in the Task Force accountability effort:



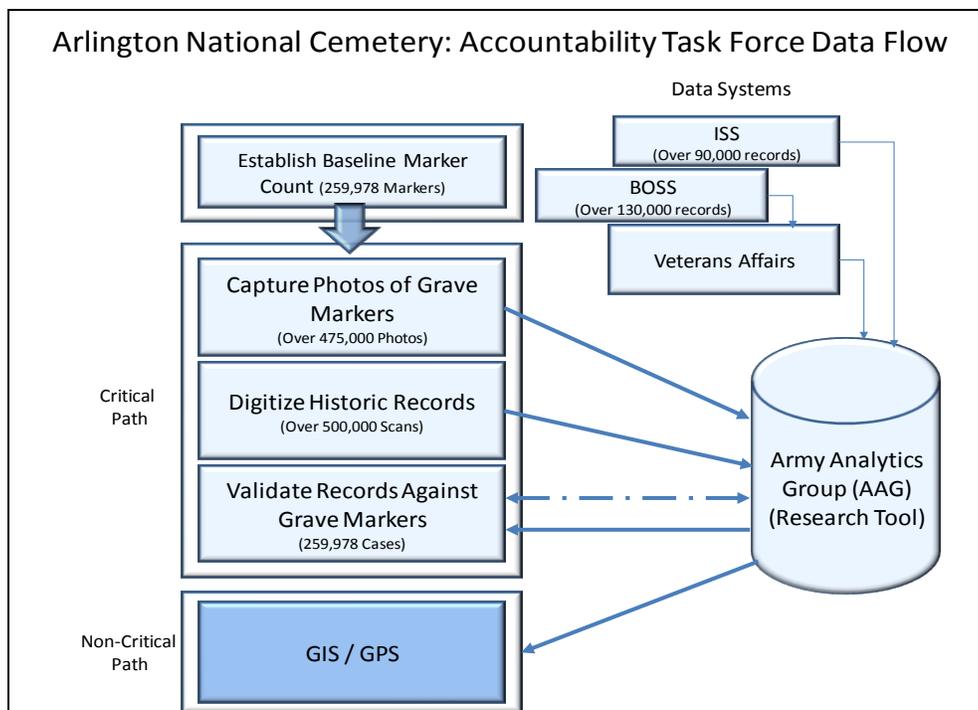


Figure 12 Arlington National Cemetery Gravesite Accountability Task Force Data Flow Chart

The co-chairs organized the Task Force into four work streams to accomplish the following tasks:

- **Building the Task Force tools** including a Smartphone application to capture headstone images and other custom designs, facilitating data-gathering and analysis (Army Analytics Group)
- **Capturing photos and a count** of gravesite markers (Field and Photo Team: Army interns and The Old Guard)
- **Digitizing paper records** (Scanning contract)
- **Validating all available records** against photos of gravesite markers (Validation Team)

Each of these efforts performed a critical function and provided or analyzed information that enabled the validation of the gravesites in the Cemetery.¹² In the Planning Phase, Task Force leaders anticipated information requirements and organized each of the four work areas in preparation for the Execution and Validation Phases.

Phase 2: Execution

During the Execution Phase, the GATF launched new technology solutions and conducted a massive data-gathering effort, scanning hundreds of thousands of paper records and recording photos of gravesite markers. In May 2011, in collaboration with the Army Analytics Group (AAG), the Army deployed a customized program, the “Task Force Research Tool” (TFRT), to facilitate gravesite and niche validation. The TFRT enabled the review of each marker’s photo, cross-checking them against Cemetery records.

Armed with Smartphones and a custom application developed by AAG, the Soldiers of The Old Guard spent much of the summer of 2011 walking the Cemetery, methodically taking photos of

¹² For more information about how the Validation process worked, see Sections 2.3.4 “Overview of the Research Tool and How the Task Force Conducted Validation Activities.”



gravesite markers. During this process, the Soldiers also conducted quality control, identifying any damaged or unreadable markers or sunken graves. If issues were discovered, the Cemetery immediately took corrective action. The initial photo capture task was completed on 8 September 2011, with quality assurance retakes continuing through December 2011.

While Soldiers were taking photos, the paper records that had been used at the Cemetery until the early 2000s were digitized. This effort included scanning over 510,000 Record of Interment forms, Grave Cards, reservation cards and disinterment packages. The 2011 contract for scanning these paper records concluded on 13 October 2011. These high-quality scans contrasted with an earlier unsuccessful attempt to digitize the Cemetery's records in 2005, as shown in the example below. The AAG uploaded the newly scanned records and marker photos into the TFRT in preparation for the Validation Phase. Cases are now created and maintained digitally, marking the end of paper-based recordkeeping at ANC.

Figure 13 Comparison of ROI Scans from the first (left) and second (right) scanning contracts

Phase 3: Validation

The GATF Validation Team analyzed the data collected by the photo and record-scanning teams as it was delivered. The TFRT was used to validate each gravesite marker image against the associated records. Potential inconsistencies in “Tier I” were identified and, where appropriate, passed to a “Tier II” Team for further research. Finally, ANC’s leadership team adjudicates “Tier III” cases to resolve any outstanding issues. On the advice of the Army Audit Agency, a Task Force Quality Assurance/Quality Control Team reviewed ten percent of all closed cases for accuracy.¹³

Developing Repeatable Processes with Predictable Results

A key part of the Validation Team’s efforts included developing repeatable business rules, processes and standards to shape and document validation activities. The Task Force created detailed process maps to formally document how work was performed and decisions made.¹⁴ The GATF also recorded the decisions reached and codified business rules in formal documents. The formalization of these processes will allow future ANC personnel to understand why decisions were made and to apply contemporary rules as appropriate.

The business rules and procedures also formed the backbone of the training program, which was established to ensure Task Force staff had the knowledge and resources necessary to do

¹³ For detailed information on the Validation process, see Section 2.3.4 “Overview of the Research Tool and How the Task Force Conducted Validation Activities.”

¹⁴ To ensure that all Validation Team members received the same information, the Task Force held town hall and daily morning meetings to discuss process updates, best practices and observations about the data and Research Tool.



their jobs efficiently, effectively and consistently. New staff attended both a Validation Team orientation and formal training sessions, followed by hands-on training with a subject matter expert. The diagram below depicts the Task Force's four strategies: Capture Best Practices, Emphasize Experiential Learning and Cross-Training, Promote Consistency and Plan for Change.

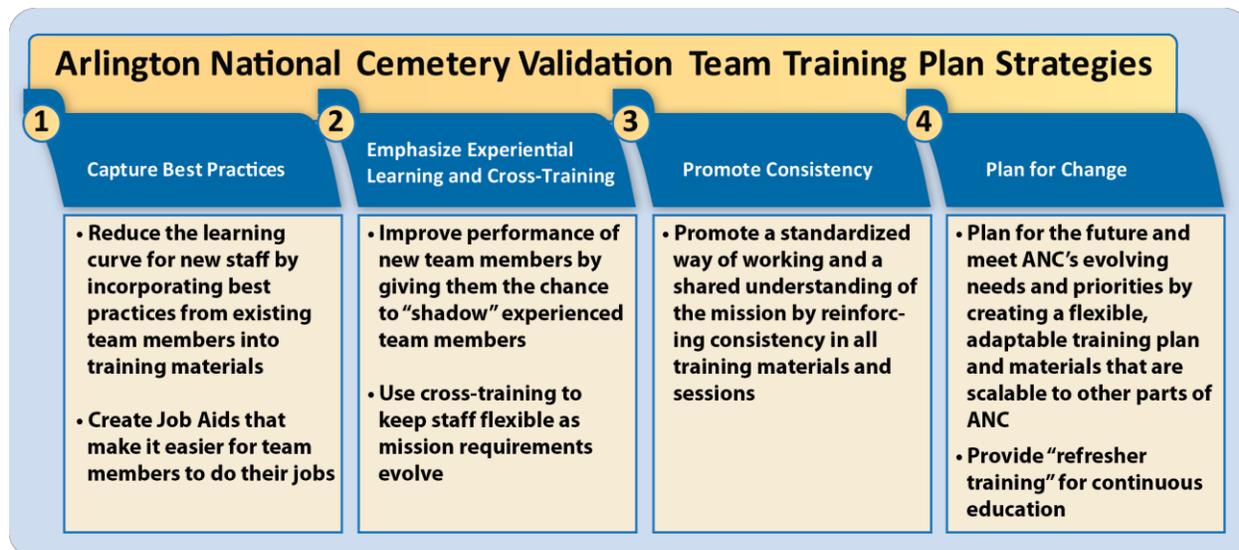


Figure 14 Arlington National Cemetery Validation Team Training Plan Strategies

Ultimately, the training program reduced the learning curve for new staff; generated consistency, standardization and efficiency in business practices; captured and transferred best practices; and shaped the workplace culture to reinforce ethics, respect and accountability. ANC leadership can now use these lessons learned, as well as leverage the Army's partnership with the Department of Veterans Affairs, to enhance training opportunities within the organization. The GATF's approach to project management, process definition, communication and training has established a repeatable methodology that will be used to further improve Cemetery operations well into the future.

Partnering with the Army Audit Agency (AAA)

As part of an overarching assessment of the Validation Team's efforts, the Executive Director and the Army Auditor General agreed to conduct a joint review of the GATF's business processes. Initially, the audit team interviewed Task Force leadership and analysts to examine the maturity of the processes and the integration of information across different work streams. It also reviewed the Task Force's process maps, training materials and documented business rules.

The Auditor General provided three auditors to work full time with the Task Force as analysts to complete the accountability effort. Furthermore, as part of their assessment, AAA established a team to work as a separate part of the GATF's Quality Assurance process.¹⁵ The audit team used the Task Force's business rules and processes and examined 200 random cases to test the Quality Assurance process and ensure that analysts were following business rules consistently. This allowed the auditors to gain an internal perspective and hands-on understanding of the validation activities.

¹⁵ For more information, see Section 2.3.4 "Overview of the Research Tool and How the Task Force Conducted Validation Activities."



AAA determined that the Task Force's evolving business rules and training efforts ensured high levels of accuracy. Within its random sample, the audit team passed 163 out of 200 cases. It found 20 cases with misspelled names or conflicting date of birth or date of death, and 16 cases with conflicting rank, branch of service or religion. Auditors found only one case where an analyst inappropriately associated a record to the wrong headstone. Based upon the auditors' recommendations, the Task Force clarified its business rules and immediately implemented retraining sessions for all analysts. After implementing these process changes, the Task Force invited the AAA team to review the revised business rules, which is an ongoing effort.

The early partnership with AAA helped the Task Force develop documented, repeatable processes and internal controls to manage information proactively. The partnership also provided a holistic and independent review of processes, standards and training resources established for the analysts.

2.3.4 Overview of the Research Tool and How the Task Force Conducted Validation Activities

As noted earlier, to more effectively manage and analyze voluminous amounts of data, the Army Analytics Group (AAG) built a customized application called the Task Force Research Tool (TFRT or Research Tool), which enabled the GATF to systematically compare gravesite photos to ANC's digital and scanned records.

Once gathered and properly inserted into the application, photos and records were considered an individual "case." An analyst then reviewed each case, either validating accuracy or, if inconsistencies were noted, flagging the file for further research. The TFRT facilitated the prioritization of each flagged case based on the type of inconsistency and enabled further research and the addition of any necessary data to correct the issue. For example, the TFRT allowed analysts to modify metadata associated with scanned records or attach scans of supporting documentation.¹⁶ QA/QC was also performed to ensure the quality and accuracy of each case.

¹⁶ This feature also provides transparency and auditability over all changes made to a case and specifically tracks the analysts who made them.



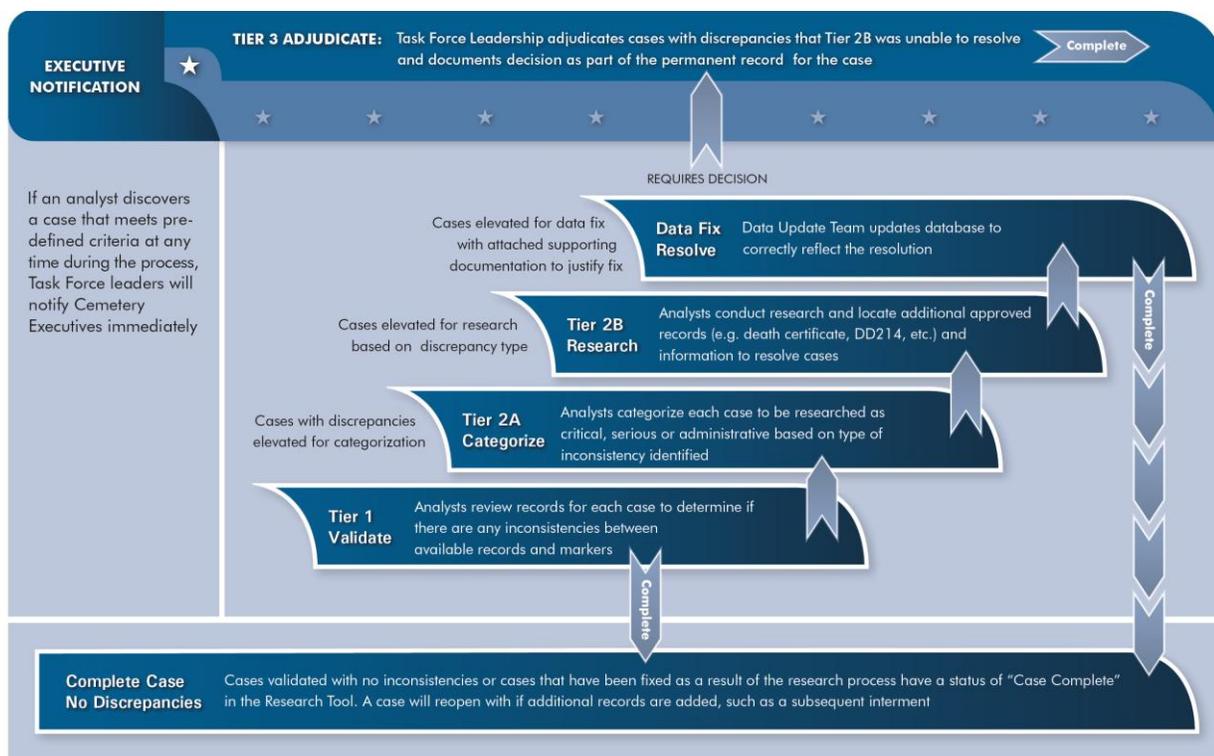


Figure 15 Validation Team Data Flow Chart

Tier I

Using the TFRT, analysts review each case, cross-checking the gravesite photos against available records. ANC has used four types of records during its long history: Grave Cards, Records of Interment, BOSS and ISS.

Tier I analysts review a mix of these four records to validate each case. If there is an inconsistency between records, or between records and the gravesite marker, the analyst flags the case and elevates it to Tier II for further research. If all records match, the analyst validates and closes the case.

Tier II

Tier II consists of two sub-processes: Tier IIA and Tier IIB. After a Tier I analyst flags a case for further research, it is assigned to the first sub-process, Tier IIA. In Tier IIA, analysts prioritize the cases, choosing from three levels: Critical, Serious and Administrative.

- **Critical:** These include cases where a record exists for a decedent, but his or her information is not reflected on the marker; the record does not match the gravesite location; or an analyst requires an additional record to close the case.
- **Serious:** These include name errors (misspellings) and incorrect dates of birth or death.
- **Administrative:** Any discrepancy that requires an update to a record. These include rank, service, religion or any other data from pre-determined fields that does not require extensive research.



Discrepancy Type	Field/s	Example
Critical	Not on headstone	A record exists for a decedent but they are not shown on the stone.
	Record doesn't match grave location	The record indicates that decedent is interred/inurned in a location different than that of the marker.
	Missing Record	A record is missing.
Serious	Name	Name on marker reads "Jane A. Doe," but name on record reads "Jane K. Doe."
	Date of Birth	Date of Birth on marker reads "June 10, 1905," but on record it reads "September 10, 1905."
	Date of Death	Date of Death on marker reads "January 16, 1910," but on record it reads "August 16, 1905."
Admin	Religion	Record reads "03 - Judaism (Star of David)," but marker reads "18- Hindu."
	Rank/Service Branch	Marker reads "Navy," but record reads "Army."
	Wars Fought	Record reads "World War II," but marker reads "Spanish American War."
	Awards/Honors	Record reads "Silver Star," but marker reads "Navy & Marine Corps Medal."

Figure 16 Table Showing Discrepancy Categories

The second sub-process is Tier IIB, in which analysts research further information pertaining to the flagged and prioritized cases. Tier IIB analysts use additional records available in the Cemetery’s Daily Logs, such as death certificates and military service records, to determine whether and where fixes can be made. If the Tier II analyst is not able to resolve the issue, or finds conflicting data from official sources, the case is elevated to Tier III.

Tier III

As part of ANC’s plan of action to complete the research and resolution of cases, the Cemetery leadership instituted the Tier III process. In this phase, cases include all pertinent records, photos and supporting data collected by the Tier II analysts. ANC leadership reviews and adjudicates each case and properly documents the outcomes.

Quality Assurance/Quality Control

To confirm the quality and accuracy of the Validation Team’s analysis, the GATF implemented a quality assurance/quality control (QA/QC) process to review closed cases from both Tier I and Tier II. On the guidance of AAA, the Task Force QA/QC team conducts a manual check of 10 percent of all closed cases on an ongoing basis, ensuring that the analysts are properly following the appropriate business rules and training. For Tier II cases, the manual review contains an additional step. The QA/QC analyst confirms that the discrepancy identified in Tier I was corrected properly in Tier II, and that the case contains the required supporting documentation. Cases that fail the QA/QC process are immediately sent to Tier II for action. The Task Force also reviews QA/QC statistics, which support the retraining of analysts if necessary.

The images below show how Tier I and Tier II analysts typically interface with the TFRT to examine a case. In Tier I, the analyst can see the picture of the gravesite marker along with a tab for each record type. In Tier II, the analyst can access the same information, as well as any notes made by the Tier I analyst.



Additionally, the TRFT provides the Tier II analyst with functions needed to properly prioritize and, if possible, make corrections to and then close a case.

The screenshot displays the 'Tier 1 Headstone' interface. At the top, there are two photographs of headstones. Below them, the status is 'Open Tier 1 Review' with 'BOSS' highlighted. The 'Reviewing' section includes radio buttons for 'All Records Found' (selected), 'Records Not Expected', and 'Missing Records'. A table lists records for Jane H Doe and John H Doe. A search section is visible with filters for Name, Grave, and Columbarium, and a search button. A yellow sidebar on the right contains details for 'VA-BOSS', including Section #, Grave #, Name (John H Doe), Birth/Death dates, ID (0000000), and Service (EMCS - US NAVY).

Assoc	Assoc w/ Discr	Discr. Notes	Not On Stone	Not Assoc	Associated By/On	Dup. Discard	Boss Detail	First Name	Middle	Last Name	Suffix	Born/ Died	Sec./ Grave	Court/ Sec./ Col./ Niche	Record Doesn't Match Location
<input type="radio"/>	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>		<input type="checkbox"/>		Jane	H	Doe		b. 00/00/00 d. 00/00/00	#		
<input type="radio"/>	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>		<input type="checkbox"/>		John	H	Doe			#		

Figure 17 Example of Tier I Headstone Case in Research Tool



Back to Search
Tier 2 Headstone




Tier 1 All Tabs Status: Pending Tier 2 Investigation Grave Site
Section: # Grave: #

Tier 2 All Tabs Status: Open Tier 2A Triage No Headstone (Critical)

Ignore ROI1 in All Tabs Status Calc
 Ignore GC1 in All Tabs Status Calc

ISS
BOSS
ROI1
ROI2
GC1
GC2
NGL

Next Open Case

Tier 1: Discrepancies
Updated: 12/05/00/00:00:00 PM

Tier 2a: Reviewing
Updated: Dec 00/00/00 00:00 AM

Tier 1 Review

All Records Found

Records Not Expected

Missing Records

Tier 2A Triage

All Records Found Done Reviewing

Records Not Expected

Missing Records (Critical)

Save

T2A Discr/Max Level	T2A Assoc	T2A Dis-assoc	T2A Assoc. By/On	T2 Dup. Discard	T1 Assoc w/ Discr.	T1 Discr. Notes	T1 Not On Stone	T1 Associated By/On	T1 Dup. Discard	T1 ROI1 Detail	First/Middle/Last Name	Rank/Branch	Serv/ Died	Location	Record Doesn't Match Location
Edit	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Jane Doe 00/00/00	<input type="checkbox"/>	<input checked="" type="checkbox"/>	DOI No scan copy of ROI and no DOI	<input checked="" type="checkbox"/>	Jane Doe 00/00/00	<input type="checkbox"/>		John H Doe	MAJOR 63RD PENNA INF	d. 00/00	# #	<input type="checkbox"/>

GEORGE MC CULLOCH Discrepancies

Severity	Fields	Headstone Issue	ROI1 Issue	ROI1 Data
Critical	Not on headstone: A record exists for a decedent but they are not shown on the stone	<input type="checkbox"/>	<input type="checkbox"/>	
Critical	Record doesn't match grave location: the record indicates that decedent is interred/interred in another location	<input type="checkbox"/>	<input type="checkbox"/>	
Serious	First Name	<input type="checkbox"/>	<input type="checkbox"/>	John
Serious	Middle Name	<input type="checkbox"/>	<input type="checkbox"/>	II
Serious	Last Name	<input type="checkbox"/>	<input type="checkbox"/>	Doe
Serious	Suffix Name	<input type="checkbox"/>	<input type="checkbox"/>	no suffix
Serious	Date of Birth	<input type="checkbox"/>	<input type="checkbox"/>	
Serious	Date of Death	<input type="checkbox"/>	<input type="checkbox"/>	5051864 (text)
Administrative	Religion	<input type="checkbox"/>	<input type="checkbox"/>	
Administrative	Rank/Service Branch	<input type="checkbox"/>	<input type="checkbox"/>	RANK: MAJOR ORGANIZATION: 63RD PA INF
Administrative	Wars Fought	<input type="checkbox"/>	<input type="checkbox"/>	OTHER_WARS=CIVIL WAR
Administrative	Award/Honors	<input type="checkbox"/>	<input type="checkbox"/>	
Administrative	Headstone does not match BOSS headstone data	<input type="checkbox"/>	<input type="checkbox"/>	N/A on this ROI1 tab.
Administrative	Other	<input type="checkbox"/>	<input type="checkbox"/>	(enter more information in Tier 2B Notes)

Tier 2B Notes

Save and Close

Note for Tier 2B for "Missing Records":

Escalate Tier 3

Search By: Name Grave Columbarium

First Name: Starts With

Last Name: Starts With

Birth Date:

Search

Figure 18 Example of Tier IIA Headstone Case in Research Tool

2.3.5 The Complexities of Validating Cases at Arlington National Cemetery

The Cemetery's recordkeeping and burial practices have varied considerably over time, creating some particularly complex cases. The following examples demonstrate some of the challenges faced by the Task Force.¹⁷

Example 1: Civilian Burials from Freedman's Village and Fort Myer

Veterans and their family members are not the only individuals laid to rest at ANC. Several other groups of civilians were also buried at the Cemetery, particularly during the 1800s. For example, the original owners of the estate, the Custis family, created a family cemetery on the property in 1828. Additionally, a portion of Section 27 was reserved for the former slaves, called "Citizens" or "Civilians," who lived on the property in Freedman's Village during and after the Civil War. The Cemetery also acquired land from Fort Myer, which included a cemetery formerly used by the Fort Myer hospital to bury deceased patients.



Figure 19 Headstone for Citizen Anthony Thomas from Freedman's Village

Historically the records and grounds in these sections were not maintained to the same standards as the rest of the Cemetery. Often, little information is available about these gravesites; records may have been poorly kept, transcribed multiple times, or lost; and sections are sometimes organized or numbered differently than others in the Cemetery, as described in Example 2.

Example 2: Inconsistencies in Naming Conventions and Gravesite Numbering

In addition to the fact that various records captured data inconsistently, the naming convention for the sections of the Cemetery also changed over time from a formal name such as "Fort Myer Section" to a numbered format, *e.g.*, "Section 15." The translation from a name to a number was not seamless and did not follow a discernible pattern. Furthermore, an individual section might have subsections identified on the map (15A, 15B, etc), but that subsection was not listed on the Grave Card or Record of Interment. Failure to include sub-section information sometimes led to different people appearing to be interred in the same gravesite (15-123), when they were actually each buried in different sub-sections (15A-123, 15B-123, 15C-123).

Factors such as the varying section-naming conventions were likely seen in their day as efforts to improve the Cemetery, but over time they have actually complicated the records. The Task Force's efforts to research and clarify the Cemetery's history and records should ultimately resolve the inconsistencies compounded by past attempts at improvement and establish processes and systems to maintain order into the future.

¹⁷ For further information, see Section 2.2 "The Background of Arlington National Cemetery."



Sec	Old Name	Sec	Old Name
1	Western	14	Sylvan Hall
2	Eastern	15	Fort Myer
3	Southern	16	Confederate
4	Four	17	White Enlisted
5	Five	18	White World War
6	Six	19	Colored World War
7	Seven	20	Enlisted
8	Eight	21	Nurses
9	Nine	22	Spanish American
10	Ten	23	Colored Enlisted (old)
11	Fort McPherson	24	Maine
12	Plaza	25	Colored Enlisted (new)
13	Field of Dead	26	Garden Plot
		27	Lower Cemetery

Figure 20 Table Showing Conversion of Cemetery Section Numbers to Names

Example 3: Unreadable Markers

Another challenging factor is the hundreds of headstones in ANC that are virtually unreadable because of varying quality of the stones, harsh weather conditions and various cleaning techniques employed over the years. On some headstones, specific dates or portions of names are no longer readable. On others, all the letters or numbers may be eroded, requiring the Task Force to rely on existing records to determine the individual interred in that gravesite.

Example 4: Private Markers

In certain sections of the Cemetery, at their expense, families have the option of placing a private marker on their loved one's grave. When the practice was more common, many wealthier officers and their families often chose this option. Some sections, such as Sections 1 and 26, are well-known for the remarkable variety of headstones and monuments, ranging from government-issued markers to grand angels and obelisks. Many of these markers presented complications for the Task Force, including the challenge of taking photos of each side of some of the larger and more complex monuments.

Given that families are responsible for ordering the stone, determining that the information on it is correct and making updates, older private markers can be particularly challenging. In some cases, these private markers might contain misspellings, inaccuracies or may be missing information that is now required. For these cases, Task Force analysts document the discrepancies in the TFRT, but the process for fixing these errors is more complex than for standard government-provided markers. Typically, personnel from ANC contact the family to notify them of any errors and convey that they may order a new grave marker or footstone with the corrected information. In each case, the Cemetery staff will ensure that the records are as accurate as possible. Currently, ANC enforces new standards for private markers that prescribe information that must be included on the stone.



Figure 21 Example of an Unreadable Headstone





Figure 22 Examples of Private Markers

Example 5: Memorial Markers

Throughout the Cemetery, but especially in Section 3, there are 2,737 so-called memorial markers. Memorials are used to commemorate a veteran at ANC who is eligible for ground burial at the Cemetery, but who cannot be interred for a variety of reasons. For example, if a service member’s remains are not recoverable or were buried at sea, the family may request the placement of a memorial marker at the Cemetery. Given that these memorials do not contain actual remains, the Task Force did not include them in the count for the overall number of gravesites in the Cemetery. However, the Task Force did review all the available records for memorials to ensure their accuracy.



Figure 23 Example of a Memorial Marker

Example 6: Evolving Burial Practices for Second Interments – Harry and Mary

ANC’s burial practices were shaped in part by the amount of space available in the Cemetery at any given time. For example, until the mid 1900s, a Soldier and his or her spouse were usually buried in separate graves side by side. As space limitations became more apparent in the 1960s, ANC began interring multiple decedents in the same gravesite. This practice presented challenges when the Task Force reviewed the gravesite records for decedents whose interments spanned different time periods, as shown in the example below.



While photographing markers, the Soldiers of The Old Guard discovered two headstones bearing the same name. The headstones were next to each other, but only one of them had a spouse commemorated on the back. The investigation that followed examined various interment procedures used by the Cemetery over several decades. In this case, Harry was buried first, during the era when spouses were usually interred side-by-side in separate graves. His wife Mary was buried in a later era under different rules, which stipulated a second interment in the same grave. Since Mary had an existing reservation under Harry's eligibility, she was interred next to him. The headstone, however, was ordered using contemporary rules, meaning the veteran's name on the front and the spouse on the back. That was inconsistent with the practice when Harry was interred, leading to two markers both with Harry's name on the front. Additionally, during the validation process the analyst noted that the date of birth on Harry's original stone was incorrect.

In sum, two mistakes by two ANC clerks in two different decades, who were applying rules as they understood them at the time, required the current Cemetery leadership to replace two markers in order to properly label these gravesites. The staff ordered a new marker listing only Mary's name and placed it at her gravesite and then ordered a new marker for Harry, listing his correct date of birth, and placed it at his gravesite.

Example 7: Burial Practices for Spouses

Under current policies, the husband or wife of a service member eligible for burial at Arlington National Cemetery can be buried with his or her spouse at the Cemetery. Both people are commemorated on the grave marker, but, at certain times in the Cemetery's history, that was not the case.

WAR DEPARTMENT Q. 36, C. Form No. 14 Revised Oct. 6, 1925									
Interment in the <u>Arlington</u> National Cemetery To—The Quartermaster General, Washington, D. C.									
NAME			RANK	COMPANY	REGIMENT OR VESSEL			DIVISION, IF WORLD WAR SOLDIER	
Doe, Jane			Widow of		John Doe	Number	State	Arm	
					Com. Sergt., Co. A, 1st North Carolina Volunteer Inf.				
DATE OF DEATH			DATE OF INTERMENT			GRAVE MARK		REMARKS	
Month	Day	Year	Month	Day	Year	Section	Grave No.	Date of discharge and number of Prisoner Certificate, Disasters, etc.	
Dec.	26	1943	Dec.	31	1943	X	XXX	Husband died 3/30/28 - buried in this grave. Stone not required.	
Phila., Pa.									
Shipping point for headstones					Cameron, Virginia				
Superintendent									

Figure 24 Example of a Record of Interment Form Showing that a Headstone was not Required for a Spouse

Between the 1920s and the 1940s, it was apparently a culturally acceptable practice to inter a spouse in the same grave with her husband without including her name on the headstone. At first, the Task Force annotated these instances as Critical discrepancies, as there were full records for two individuals, but only one annotated on the headstone. However, a close look at some of the service members' records revealed that the decision to omit the spouse's information on the headstone was deliberate, as shown in the sample Record of Interment above. As the Task Force encountered these cases, the Validation Team forwarded them to ANC leadership for action. The Cemetery will either replace existing headstones or order a footstone commemorating the wives of these service members. Even though this practice



appears to have been fully acceptable at the time, Cemetery leadership is committed to ensuring that everyone resting on the grounds is properly commemorated.

As shown by the seven aforementioned examples, the accountability effort involved significant complexities due to diverse recordkeeping and burial practices used throughout ANC’s long history. Although these complexities present challenges for standardizing and validating the data, resolving them has been critical to the Cemetery’s modernization and accountability efforts.

2.4 Gravesite Accountability Study Findings¹⁸

Through the comprehensive analysis described above, the GATF compared the photos for 259,978 cases in the Cemetery against over 510,000 records. The lack of authoritative data and standard records contributed to the complexity of the mission. Based upon its review, as of 20 December 2011, the Task Force has validated 195,748 cases, and in accordance with the plan of action, ANC is thoroughly researching 64,230 cases requiring additional review. A breakdown of the study’s scope and results is provided below.

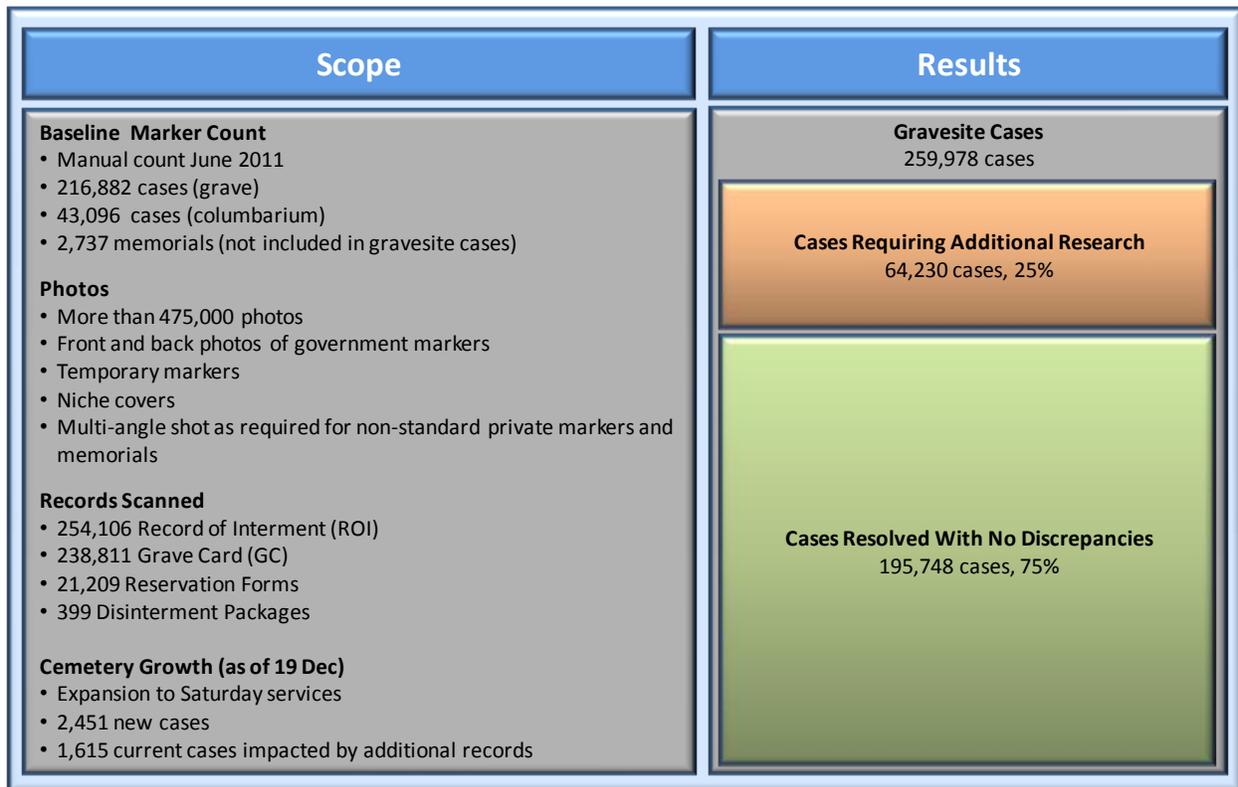


Figure 25 Results of Arlington National Cemetery Gravesite Accountability Initiative

¹⁸ Considering the history of the Cemetery, it is important to again note that interment or other discrepancies may be discovered in the future, which may not be apparent from analysis of the records. If such errors are discovered, the Army is committed to resolving them as quickly as possible. Importantly, as previously noted, current procedures, recently enacted, will prevent the creation of similar mistakes in the future.



2.4.1 Summary of Findings by Historical Eras

The Task Force also developed a trend analysis to help Cemetery staff better understand when and how discrepancies arose throughout ANC's history. These trends are cross-referenced with the median date of death for each section and analyzed against events in history that may have influenced discrepancy rates.

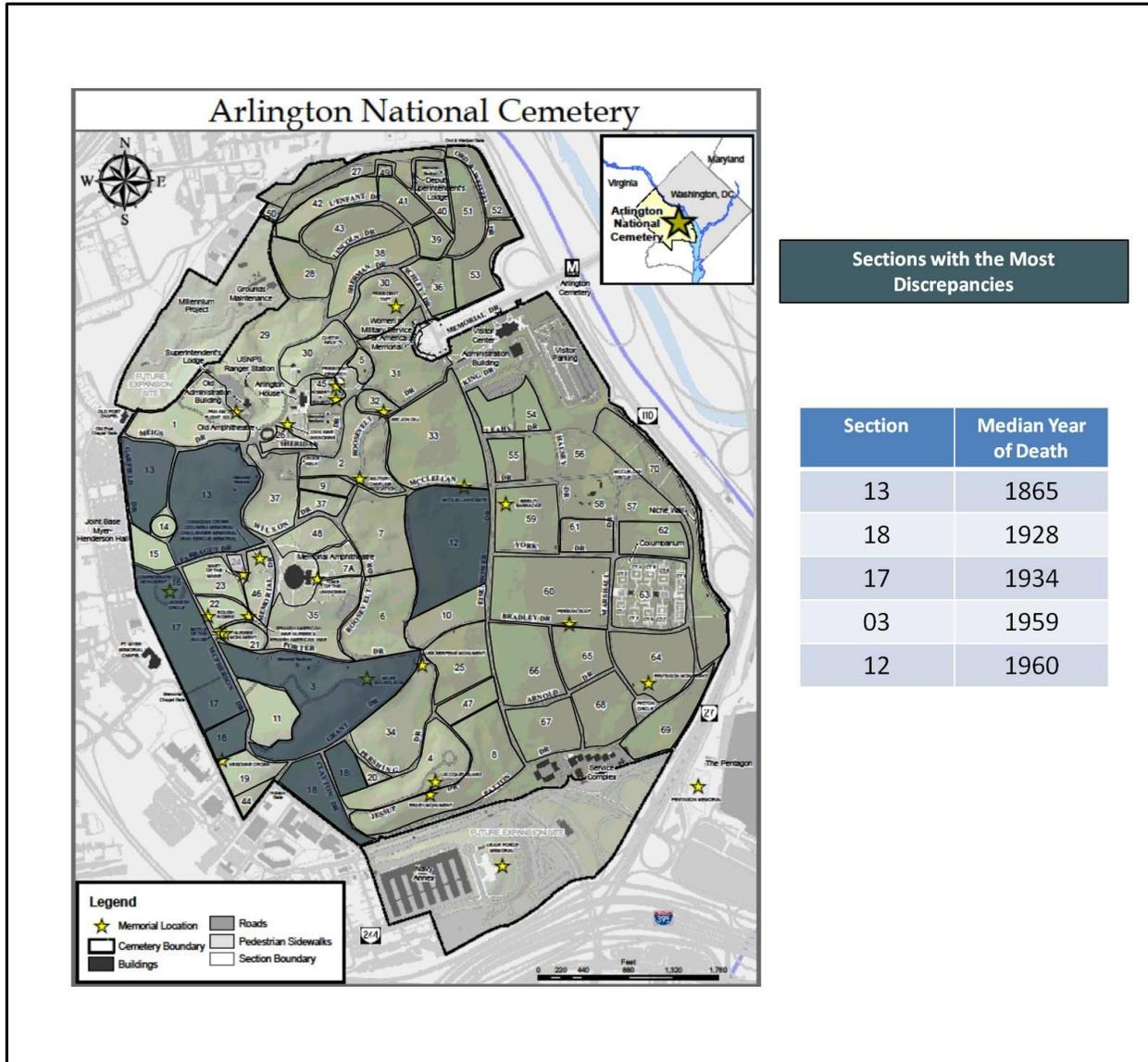


Figure 26 Map of Five Sections in the Cemetery with the Greatest Number of Discrepancies

Section 13 dates to the Civil War and Reconstruction period when the chaos of war and lack of information about decedents appear to have combined with the use of handwritten log books and wooden grave markers to create inconsistencies. Section 18 dates to 1928, the year ANC first implemented the Record of Interment form, and Section 17 dates to the era of the Great Depression. Sections 03 and 12 date to the late 1950s and early 1960s, when the Record of Interment form changed often in a short period of time. The historical events and changes in recordkeeping in the time periods associated with these sections likely contributed to the inconsistencies.



This historical analysis has provided great insight into the complicated history of the Cemetery and emphasizes the importance of properly managing technological and organizational change through robust business processes, training and governance. ANC leadership plans to use this trend analysis as it institutionalizes and refines the GATF's best practices throughout the broader organization.¹⁹

2.4.2 Resolving Cases

In many cases, analysts must obtain and review outside documentation such as birth certificates or service records, contact external agencies or conduct a physical site inspection of the gravesite to determine the correct information.²⁰ The example below demonstrates how the Tier IIB Validation Team was able to resolve a particular discrepancy through extensive research. Analysts are using the same process to research the rest of the remaining open cases.

Example: Researching a Discrepancy – The Kiner-Keiner Case

During Tier I Validation, an analyst reviewed a gravesite for Mr. Christian Keiner and his eligible spouse Caroline, who passed away in 1915. Caroline's Record of Interment form lists her last name as "Kiner." However, her husband Christian's last name was listed on his grave marker as "Keiner" when he passed away in 1919. A version of his Record of Interment form from 1945 also lists his last name as "Keiner." To complicate the case, the grave marker only lists the husband's name, which was fairly common at the time. The analyst identified two discrepancies: a Serious discrepancy due to the potential misspelling in the name, and a Critical discrepancy, because Caroline was not commemorated on the marker.



Figure 27 Photos Showing the Front and Back of Mr. Keiner's Grave Marker

¹⁹ For further information, see Section 2.5 "Plan of Action for Maintaining Accountability in the Future."

²⁰ For further information, see Section 2.3.4 "Overview of the Research Tool and How the Task Force Conducted Validation Activities."



INTERMENT IN THE ARLINGTON NATIONAL CEMETERY			
TO: THE QUARTERMASTER GENERAL, WASHINGTON 25, D. C.		RELIGIOUS EMBLEM (Check One) <input type="checkbox"/> LATIN CROSS <input type="checkbox"/> STAR OF DAVID	
NAME (Last, first, middle initial) KINER, Caroline (Wife of Christian Kiner)		SERVICE DATA (Company, regiment, or other organization or branch of service and division, if any.) Co E. 29th New York Vol. Inf. Civil War	
RANK Pvt.		SERIAL NO.	
DATE OF BIRTH	DATE OF DEATH	DATE OF INTERMENT	GRAVE LOCATION
MONTH DAY YEAR	MONTH DAY YEAR	MONTH DAY YEAR	SEC. OR PLOT GRAVE OR LOT NO.
	July 26 1915		17 18606
REMARKS (Authority for interment, pension or claim number, disinterment, etc.) Died at Washington, D. C. Husband to buried in same grave at his death		DATES OF SERVICE ENLISTMENT DIED ON A. D. DISCHARGE RETIREMENT	
SHIPPING POINT FOR HEADSTONES		SIGNATURE OF SUPERINTENDENT OF NATIONAL CEMETERY OR QM OF POST OR POW CEMETERY	
RAILROAD STATION FOR FREIGHT		(SIGNATURE)	
POST OFFICE ADDRESS		(SIGNATURE)	
QMC FORM REV 1 AUG 45 14 Previous editions may be used		(See instructions on reverse side) 16-48500-1	

INTERMENT IN THE ARLINGTON NATIONAL CEMETERY			
TO: THE QUARTERMASTER GENERAL, WASHINGTON 25, D. C.		RELIGIOUS EMBLEM (Check One) <input type="checkbox"/> LATIN CROSS <input type="checkbox"/> STAR OF DAVID	
NAME (Last, first, middle initial) KEINER, Christian		SERVICE DATA (Company, regiment, or other organization or branch of service and division, if any.) Co E. 29th New York Vol.	
RANK Pvt.		SERIAL NO.	
DATE OF BIRTH	DATE OF DEATH	DATE OF INTERMENT	GRAVE LOCATION
MONTH DAY YEAR	MONTH DAY YEAR	MONTH DAY YEAR	SEC. OR PLOT GRAVE OR LOT NO.
	May 11 1919		17 18606
REMARKS (Authority for interment, pension or claim number, disinterment, etc.) Died at Washington, D. C.		DATES OF SERVICE ENLISTMENT DIED ON A. D. DISCHARGE RETIREMENT	
SHIPPING POINT FOR HEADSTONES		SIGNATURE OF SUPERINTENDENT OF NATIONAL CEMETERY OR QM OF POST OR POW CEMETERY	
RAILROAD STATION FOR FREIGHT		(SIGNATURE)	
POST OFFICE ADDRESS		(SIGNATURE)	
QMC FORM REV 1 AUG 45 14 Previous editions may be used		(See instructions on reverse side) 16-48500-1	

Figure 28 Record of Interment Forms for Caroline “Kiner” (top) and Christian “Keiner” (below)

To resolve the name discrepancy, the Tier IIB analyst checked the usual sources for additional records listed in the Tier IIB standard operating procedure, but Daily Logs only go back to 1948. Using a genealogical research website that sources government documents, the analyst did find several sources to verify the correct spelling of the last name. A 1900 census roster shows that Caroline and her husband Christian did indeed spell their last name as “Keiner.” Furthermore, the analyst found additional documents showing that Christian's last name was spelled correctly, including a regimental muster log and pension slip that listed him as a Civil War soldier.



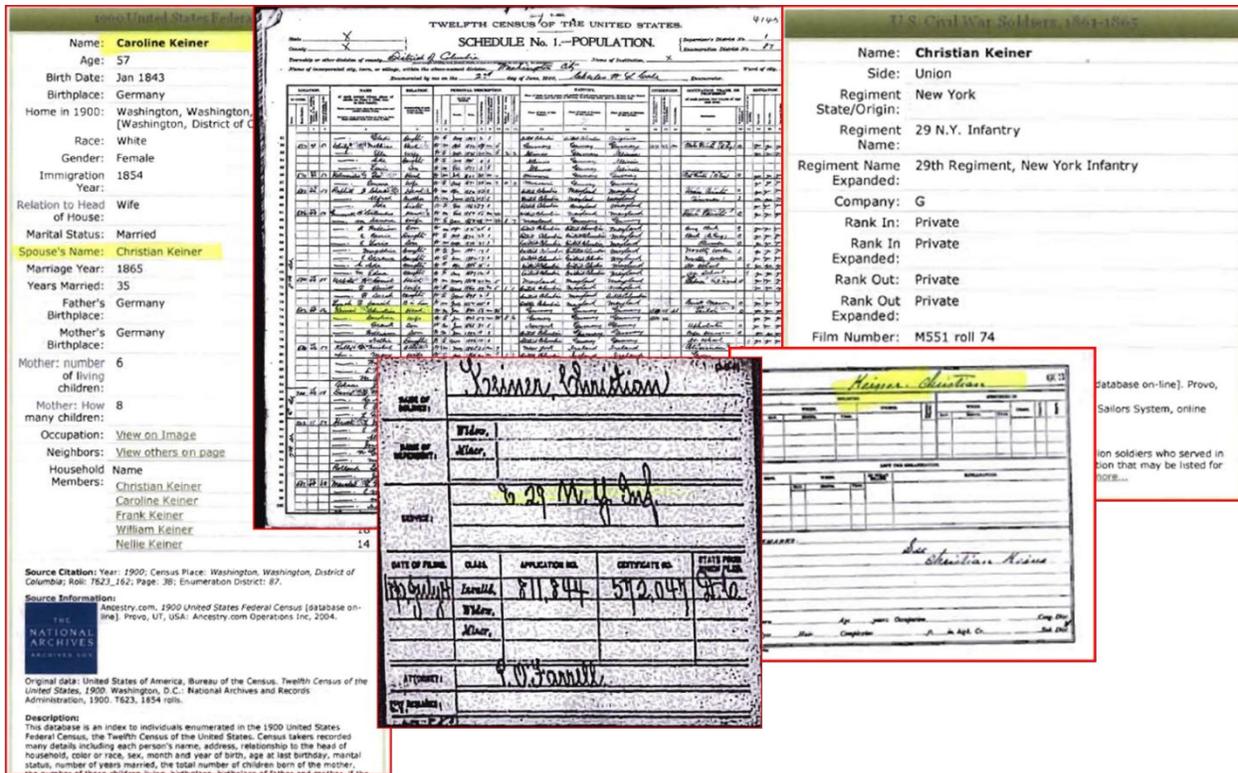


Figure 29 Clockwise from top left: Text from 1900 Census Report for Caroline Keiner, Actual Census Entry for Caroline Keiner, Civil War Service Data for Christian Keiner, Actual Muster Slip for Christian Keiner and Pension Slip for Christian Keiner

These sources verify that Caroline’s last name was misspelled in her Record of Interment form. To fix this case, analysts scanned the supporting documents and attached them to the case in the TFRT. Caroline Keiner’s last name will be updated in the Cemetery’s records and a new grave marker or footstone ordered to properly commemorate her.

The same process is being used to research the remaining open cases. After analysts complete researching the case, ANC personnel annotate the findings in the TFRT, fix the errors in the Cemetery’s records and, when necessary, replace the gravesite markers with new ones or add footstones reflecting the correct information. Should ANC personnel discover a case where an individual is believed to have been buried in an incorrect gravesite, Cemetery leadership will make every effort to contact the decedent’s surviving next of kin and take corrective action. The Army expects all remaining cases will be completed by summer, 2012.

The Army has developed a plan of action to complete the modernization of the Cemetery’s recordkeeping practices, business processes and technology to ensure both accountability and transparency.

2.5 Plan of Action for Maintaining Accountability in the Future

One of the Army’s most important missions is ensuring ANC remains a sacred space where America’s veterans and their family members can rest in peace with dignity and respect. To maintain the trust and confidence of the American people, the Army is strengthening both accountability of gravesites and oversight of Cemetery operations, identifying discrepancies and administrative errors and taking immediate corrective action. The Army has defined new accountability processes, standards and technology, established a rigorous training program



and gathered valuable best practices and lessons learned that are now being integrated into the Cemetery's daily operations.

This study revealed the complexities of standardizing data in a cemetery that started as a wartime burial ground during the Civil War and developed over 147 years into one of the Nation's most sacred shrines. Recordkeeping and burial practices evolved considerably and mistakes were made and compounded over time, resulting in the discrepancies identified in this report. ANC leaders are not only correcting these errors, but, more importantly, are implementing robust processes, training and technology to maintain accountability into the future.

2.5.1 The Plan of Action

The Army has created a plan of action to complete the modernization of the Cemetery's operations, business processes, recordkeeping practices and technology.²¹ This plan outlines a "bridging strategy" for integrating the tools, processes and standards established by the GATF into the organization's daily operations.

The plan includes four phases: Plan, Bridge, Transition and Institutionalize and Continuous Improvement and Modernization, as depicted in the following diagram. Many of the activities listed in the plan may overlap with multiple phases.

²¹ The Task Force emphasized the importance of developing repeatable business processes with predictable results, implementing governance and program management to prioritize activities and establishing a comprehensive training program for Task Force staff. These activities will remain critical as the Army continues Arlington National Cemetery's modernization effort, so these concepts will carry throughout the entire plan.



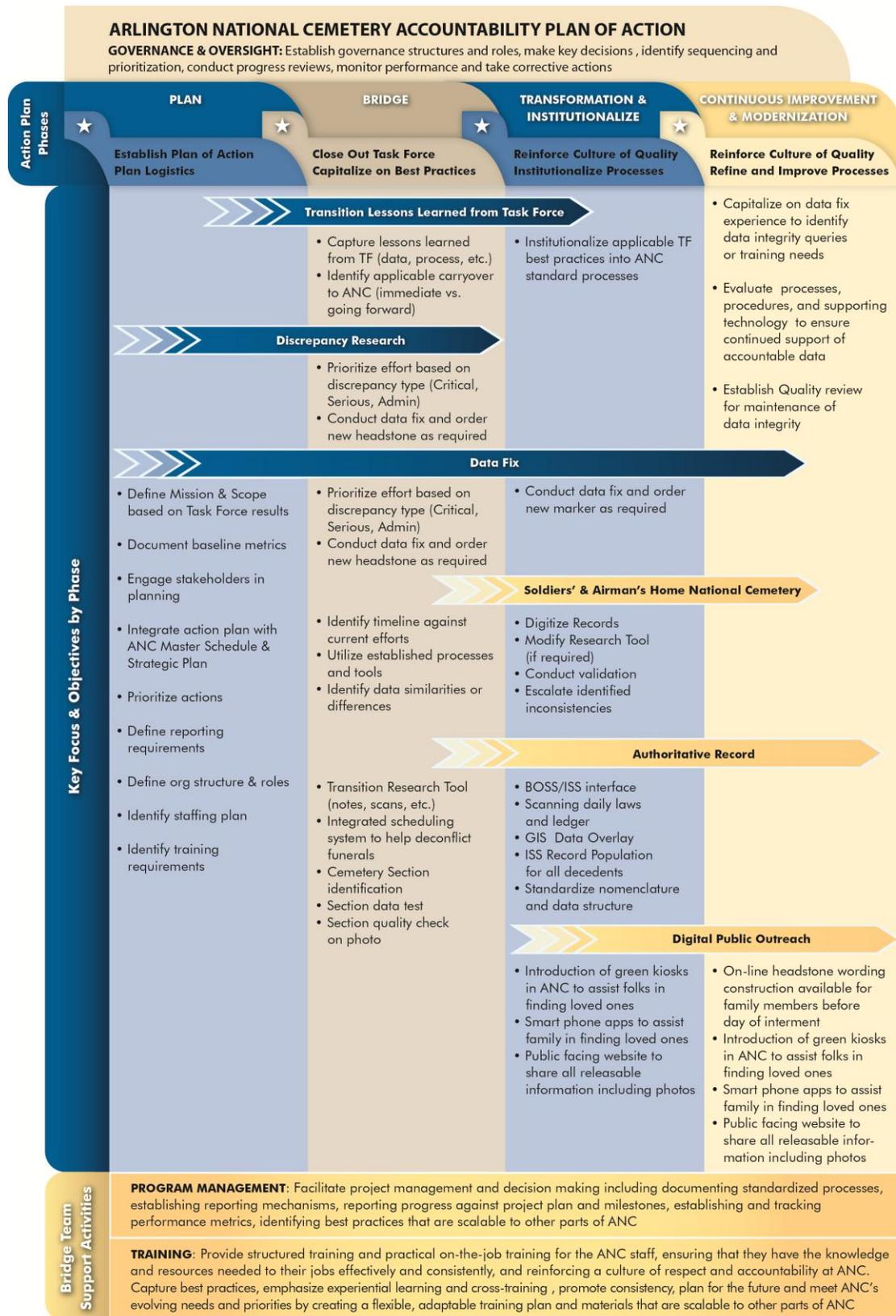


Figure 30 Arlington National Cemetery Accountability Bridging Approach



Phase 1: Plan

This phase will include defining the mission and scope based on the GATF's findings; prioritizing and sequencing activities and tasks; establishing tracking and reporting requirements; and defining the organizational structure and staffing, as well as the training for ANC staff. These activities will lay the foundation for subsequent phases of the plan.

Phase 2: Bridge

The second phase involves transitioning the Task Force's activities and accountability tasks into ANC's daily operations. This phase will also include thoroughly researching and resolving the remaining open cases identified in the accountability study. After completing the research, ANC staff will then correct any errors in existing records and order new grave markers when needed. Throughout this process, the Army will continue refining and standardizing the Cemetery's data, which will position ANC for new modernization initiatives in Phases 3 and 4.

ANC staff will also capture the lessons learned and best practices from the Task Force and transfer them into the broader Army National Cemeteries Program, including the Task Force's documented business processes and project management approach.

Phase 3: Transition and Institutionalize

During this phase, the Army will institutionalize applicable best practices identified in Phases 1 and 2 into ANC's standard processes. Cemetery management will also work on two other specific initiatives – establishing accountability over gravesites at the Soldiers' and Airmen's Home National Cemetery and populating an authoritative database of records.

The same processes and procedures from the initial gravesite accountability study will be employed at the Soldiers' and Airmen's Home National Cemetery. From taking photos and scanning the Cemetery's records to identifying and researching any potential inconsistencies, ANC staff will utilize the same approach and business rules to provide accountability over the gravesites.

Phase 4: Continuous Improvement and Modernization

The last phase of the plan features several innovative initiatives that will greatly advance the Cemetery's modernization and accountability efforts, as well as the experiences of guests and families. Through new technology, the Army will enhance the experience for those who come to Arlington to honor and remember the fallen or explore the hallowed grounds. Additionally, it will allow those unable to visit the Nation's capital to experience the Cemetery from anywhere in the world.

Specific improvements include:

- **Geospatial Information System:** An effort is currently underway to create the first-ever digital map of ANC to support Cemetery operations, visitors and tourism. When fielded in the spring of 2012, the Geospatial Information System will enable families to search a database electronically using a Smartphone and find the headstone, exact location and directions to their loved ones' graves, as well as other points of interest on the grounds. The introduction of new solar-powered kiosks at the Cemetery will also help visitors find their loved ones' gravesites. This sophisticated system will be user-friendly and will allow any number of applications to be added, such as a virtual tour. The goal is to provide families and guests the information they need to better explore the grounds and remember their loved ones. More accessible information will allow visitors to explore the grounds at their own pace.



- **Field Operations:** Information technologies will improve scheduling and recordkeeping at the Cemetery to ensure accurate digital assignment of gravesites and maintain strict accountability into the future. New geospatial tools will enable the Cemetery caretaker to check headstones to ensure that the information on each is accurate prior to placement. These tools will also help the backhoe operator know what to expect prior to excavation and allow field technicians assigning gravesites to select records electronically with knowledge of the status of every grave in the Cemetery. Cemetery staff can check each marker upon order, receipt and setting. Every step of the process will be auditable and facilitate updates to master records in real time. This will provide an accurate digital map and a single authoritative data base for all Cemetery operations.
- **Public Outreach:** To improve ANC's public presence, in September 2011, the Army completely revamped the Cemetery's public website, accessible at www.arlingtoncemetery.mil. This was a crucial step in developing an on-line presence aligned with the Army's vision of creating a better experience for the American public to honor, remember and explore the Cemetery's hallowed grounds. Future improvements to the website will include a new capability for families to view the location and photos of their loved ones' grave markers online from anywhere in the world. The Army also plans to launch a self-service capability to link families and guests to the information they need to plan their visit or schedule a funeral service.

On 31 December 2011, the GATF will transition duties to ANC day-to-day operations. All of the procedures, processes and case work will be integrated across the Cemetery's organization. The Army has the resources – including staff, technology and project management support – to close every case and combine all authoritative data into a single database by the summer of 2012. Additionally, the Army will institutionalize those policies and procedures necessary to maintain accurate recordkeeping, as well as vigorously conduct self-inspections and internal audits.

2.5.2 Conclusion- Looking Forward to Continuous Improvement at Arlington National Cemetery

With the support of Congress and the American people, the GATF worked diligently to provide a full accounting of gravesites at ANC. To accomplish this goal, a dedicated team methodically counted the gravesites in the Cemetery, photographed the grave markers, and compared all the available records for each case to verify that graves are properly labeled, identified and occupied. Once all the outstanding cases have been thoroughly researched, the Army will have the most comprehensive accounting of gravesites in the history of the Cemetery.



Figure 31 A Bugler Plays Taps at Arlington National Cemetery in the Winter

As a result of this study, the United States Army has a far better understanding of Cemetery records and history than ever before. The gravesite accountability initiative illuminated the



complexities of standardizing data that developed over more than 14 decades, in a place that started as a wartime burial ground during the Civil War and evolved into a national military shrine. Research showed not only that mistakes were made and compounded over time, it also provided a better understanding of how, why and when these mistakes occurred. The Army is gaining ever greater fidelity over the data as the analysis continues, and will be able to further apply these lessons to Cemetery operations going forward.

The gravesite accountability initiative underscores the importance of having standardized and documented business processes and robust training and technology to ensure quality control and cope with organizational and technological change. Throughout the entire accountability study, the Task Force developed repeatable standards, processes and business rules to govern its activities. Arlington National Cemetery's focus now shifts to its plan for the future. With this plan in place, the next era at Arlington National Cemetery will be defined as one of modernization, transparency and accountability, better connecting family and guests to the Cemetery's rich living history and honoring all those who rest on its grounds in quiet repose.



Appendix

A. Terms of Reference

TERM	DEFINITION
Adjudicate	At Tier III level, all available evidence is reviewed and a determination made as to the correctness of the record. This is the highest level of review and is fully documented so further information may be incorporated as it becomes available.
Administrative Error	Any discrepancy that requires an update to a record. These include rank, service, religion or any other data from pre-determined fields that do not require extensive research.
Burial Operations Support System (BOSS)	The BOSS record has been used at the Cemetery since 1999, when the Cemetery began transitioning to electronic recordkeeping. BOSS is a Department of Veterans Affairs electronic record used for ordering government markers, and usually contains the same type of data as that found in a Record of Interment. ANC requires additional functionality not available in BOSS for scheduling funeral services and coordinating military honors, which is why ANC developed ISS.
Case	Marker with decedent's name and records. A case can have multiple decedents.
Critical Error	These include cases where a record exists for a decedent but they are not shown on the stone, record does not match gravesite location or a case that requires another record to be verified.
Daily Logs	To confirm eligibility for burial at Arlington National Cemetery, families provide documentation such as a military service record and a death certificate. Starting in the mid-1900s, the Cemetery collected these documents in paper form and stored them in files called the Daily Logs, which are organized by date of interment. The Daily Logs are still in use today in paper form, though the paper format is being phased out with the implementation of new automated systems.
Decedent	Individual person interred or inurned.
Discrepancy	A difference or inconsistency between and/or among records and the marker related to a decedent and/or gravesite. Examples include, but are not limited to, name, date of birth, date of death, war record, religious affiliation, medals, missing record, missing name on a marker, etc.
Grave Card	The most common type of record used during most of ANC's history. These 3x5 index cards usually contained name, rank, section and grave number and date of interment.



Interment Scheduling System (ISS)	ISS is ANC's system of record for electronic scheduling. The ISS is used to schedule services and coordinate resources, including honor guards, chaplains and ceremonial events such as military flyovers, data fields not available in the VA BOSS system.
Investigation Required	After being prioritized in Tier IIA, a case passed to Tier IIB for further review.
Marker	Headstone, footstone, private monument or niche cover that denotes a gravesite or commemorates an individual by location. One marker may commemorate one or more decedents. Group markers are common with eight or more decedents.
Metadata	Literally, "data about data." Though ANC's scanning effort produced a digital image of each record, the Cemetery's systems cannot automatically read the scanned files. Therefore, during the scanning effort a person entered the information from the scanned records into a database, such as name, section and grave, date of birth, etc. This information is called the metadata for the records.
Open Case	A case that has been opened by an analyst but has not been associated with the marker or other records.
Previous Scanning Efforts	Previous efforts to scan records produced a database of images and tagged information of varying quality and accuracy. These scans did not provide data surety, so a second scanning effort produced new scans using best practices.
Record of Interment (ROI)	The Record of Interment (ROI) was a printed form, indexed alphabetically by decedent name, and used at ANC from 1928 to 2006. The ROI usually contained information about the decedent such as name, date of birth, date of death, branch, unit, military awards and next of kin, but required information often varied by era.
Record	A record within ISS, BOSS, ROI (1 or 2), GC (1 or 2) or the National Grave Locator. A decedent typically has multiple records.
Task Force Research Tool (TFRT)	A SharePoint relational database created by the Army Analytics Group (AAG) capable of associating multiple records of decedents to a headstone sharing section and grave number.
Serious Error	These include name errors (misspellings), or errors in information such as date of birth and/or date of death.
The Old Guard	The Third US Infantry (The Old Guard) is the ceremonial unit assigned to the Military District of Washington. They are a fully trained infantry unit and perform a variety of ceremonies.
Unassigned Case	A case approved for picture quality, loaded into the TFRT, ready for review, but not yet opened by an analyst.
Validation	Key term identifying the process of matching at least two different authoritative records.



B. List of Acronyms

ACRONYM	EXPLANATION
AAA	Army Audit Agency
AAG	Army Analytics Group (formerly Army Data Center-Fairfield)
ANC	Arlington National Cemetery
BOSS	Burial Operations Support System
GATF	Gravesite Accountability Task Force
GIS	Geospatial Information System
IG	Army Inspector General
ISS	Interment Scheduling System
PL	Public Law
QA/QC	Quality Control/Quality Assurance
TFRT	Task Force Research Tool



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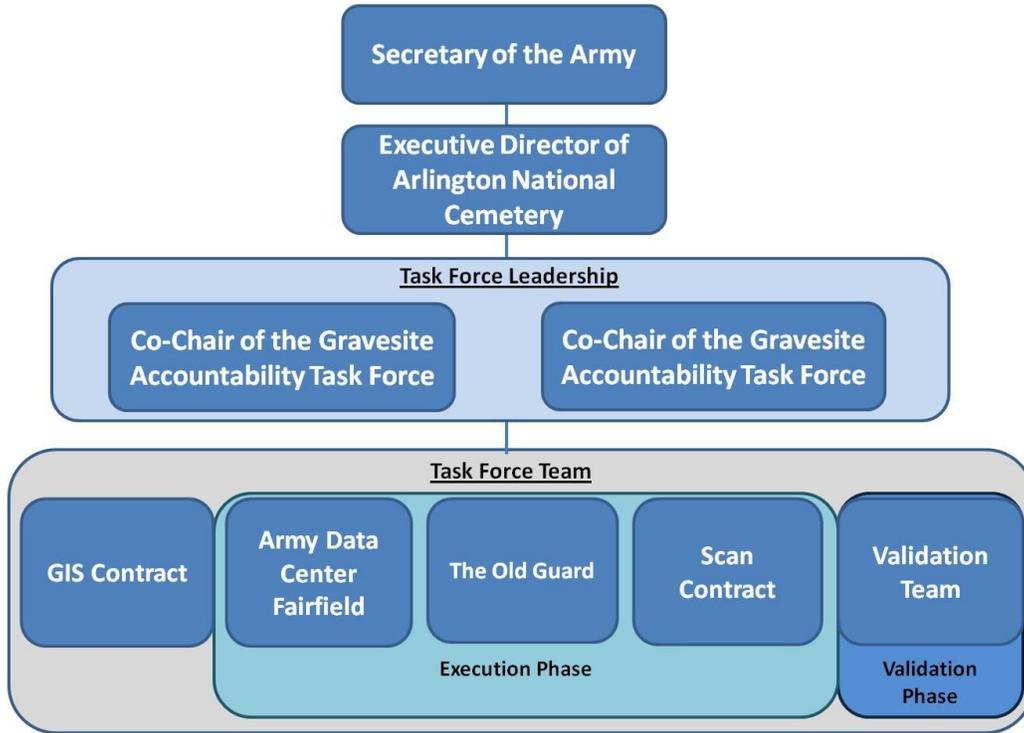


D. Reference Documents

	Document	Use	Source
1	United States, Army Inspector General Agency and Department of the Army Inspector General, <i>Inspection of the Army National Cemeteries Program & Arlington National Cemetery (2011)</i>	2.1 Introduction	Army Inspector General Agency and Department of the Army Inspector General
2	Poole, Robert M. <i>On Hallowed Ground: The Story of Arlington National Cemetery</i> . New York: Walker & Company, 2010.	2.2 Background of Arlington National Cemetery	
3	http://www.archives.gov/st-louis/military-personnel/fire-1973.html	2.2 Background of Arlington National Cemetery	National Archives
4	United States. Arlington National Cemetery. <i>Administrative Guide to Information and Burial At Arlington National Cemetery</i> . 2011. http://www.arlingtoncemetery.mil/docs/FuneralInfo_AdminGuide2InfoBurial_A NC.pdf	2.2 Background of Arlington National Cemetery	Arlington National Cemetery
5	Public Law 111-339	2.3.1 Legislative Requirements and Task Force Objectives	Public Law



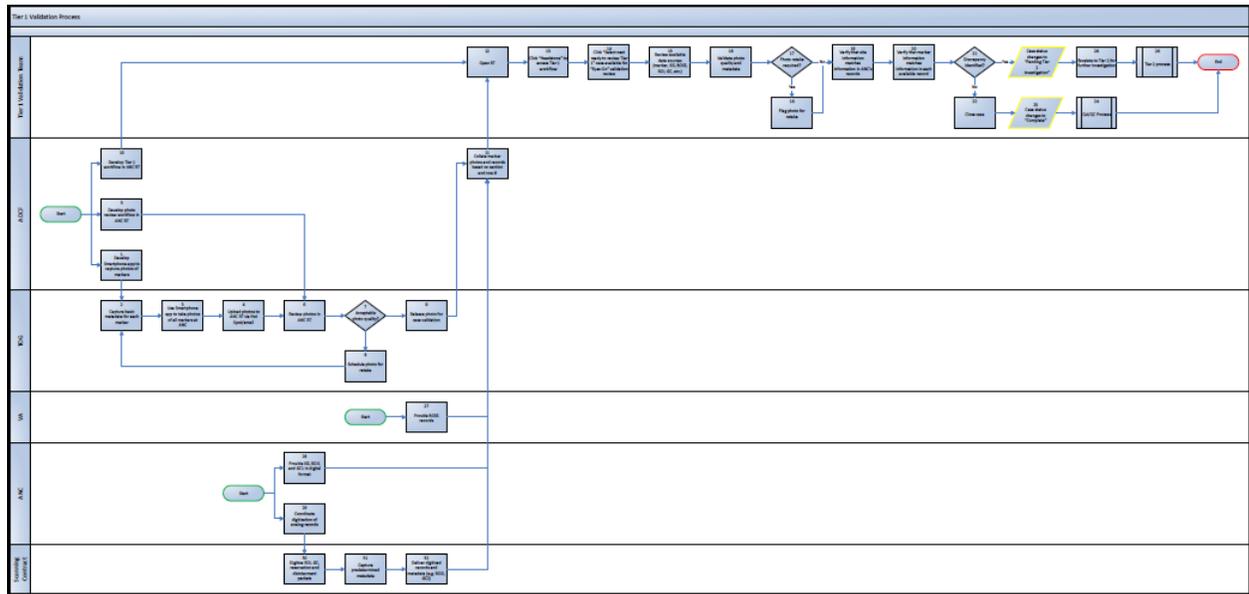
E. Arlington National Cemetery Gravesite Accountability Task Force Organization Chart



F. Task Force Process Maps

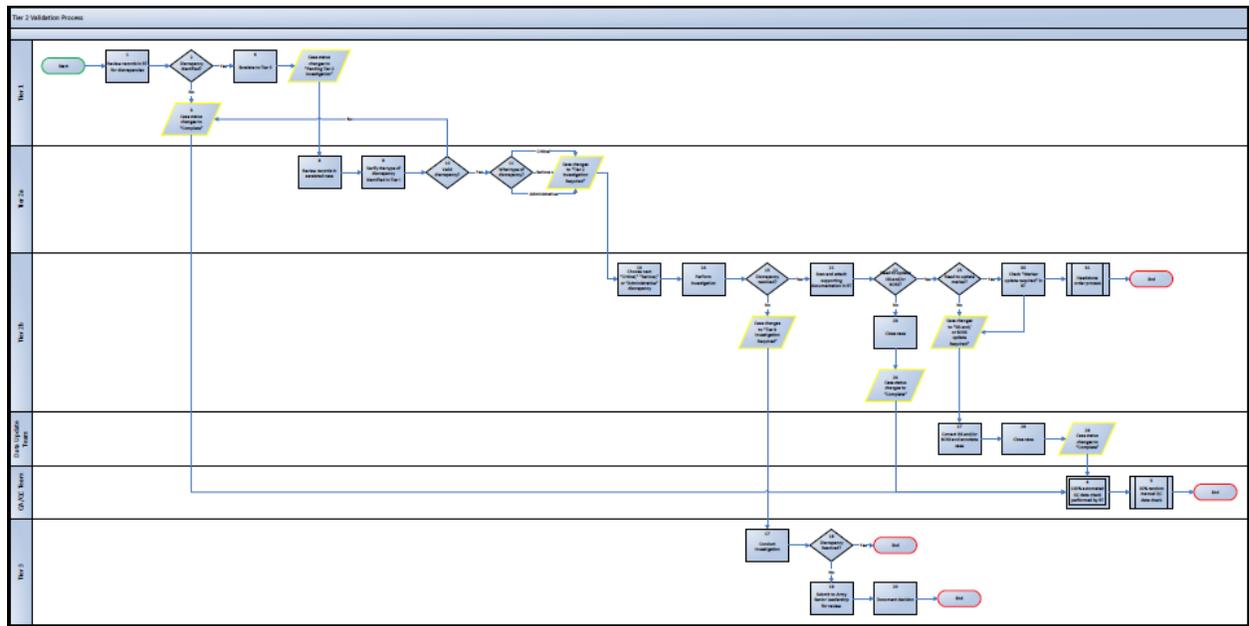
Tier I

The Tier I process map illustrates the Tier I process from workflow development and data gathering to case analysis. The Army Analytics Group created workflows and tools necessary to gather acceptable photos taken by The Old Guard and digitize records. The Task Force Tier I Validation Team analyzed the data collected in the Research Tool to close cases in which all the information was accurate and escalate those with inconsistencies to Tier II.



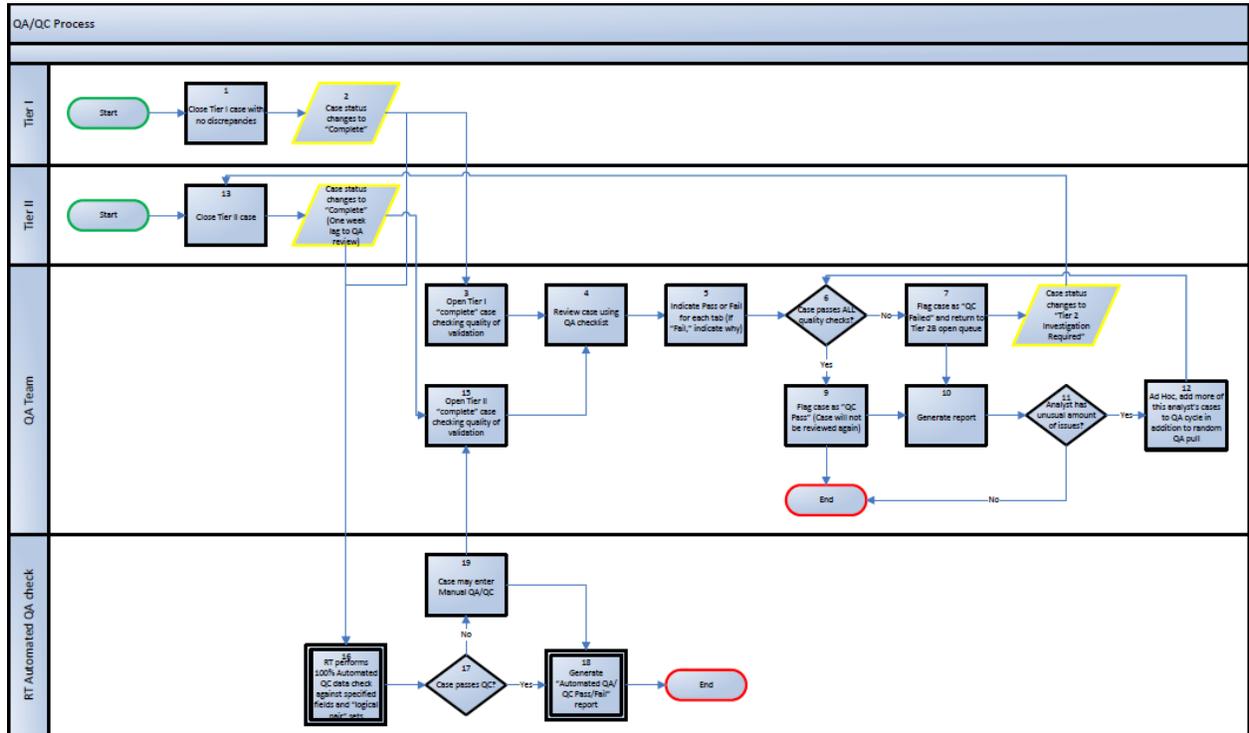
Tier 2

If the Tier I Validation Team analyst identified a discrepancy and escalated the case to Tier II, the Tier IIA Validation Team analyst verified and categorized the discrepancy, escalating it to Tier IIB for review. Some critical cases, however, passed immediately to Tier III for review. The Tier IIB analyst then researched the case, attaching relevant documents and either closing the case, marking the case with “update required” or passing the case to Tier III, if the case could not be resolved.



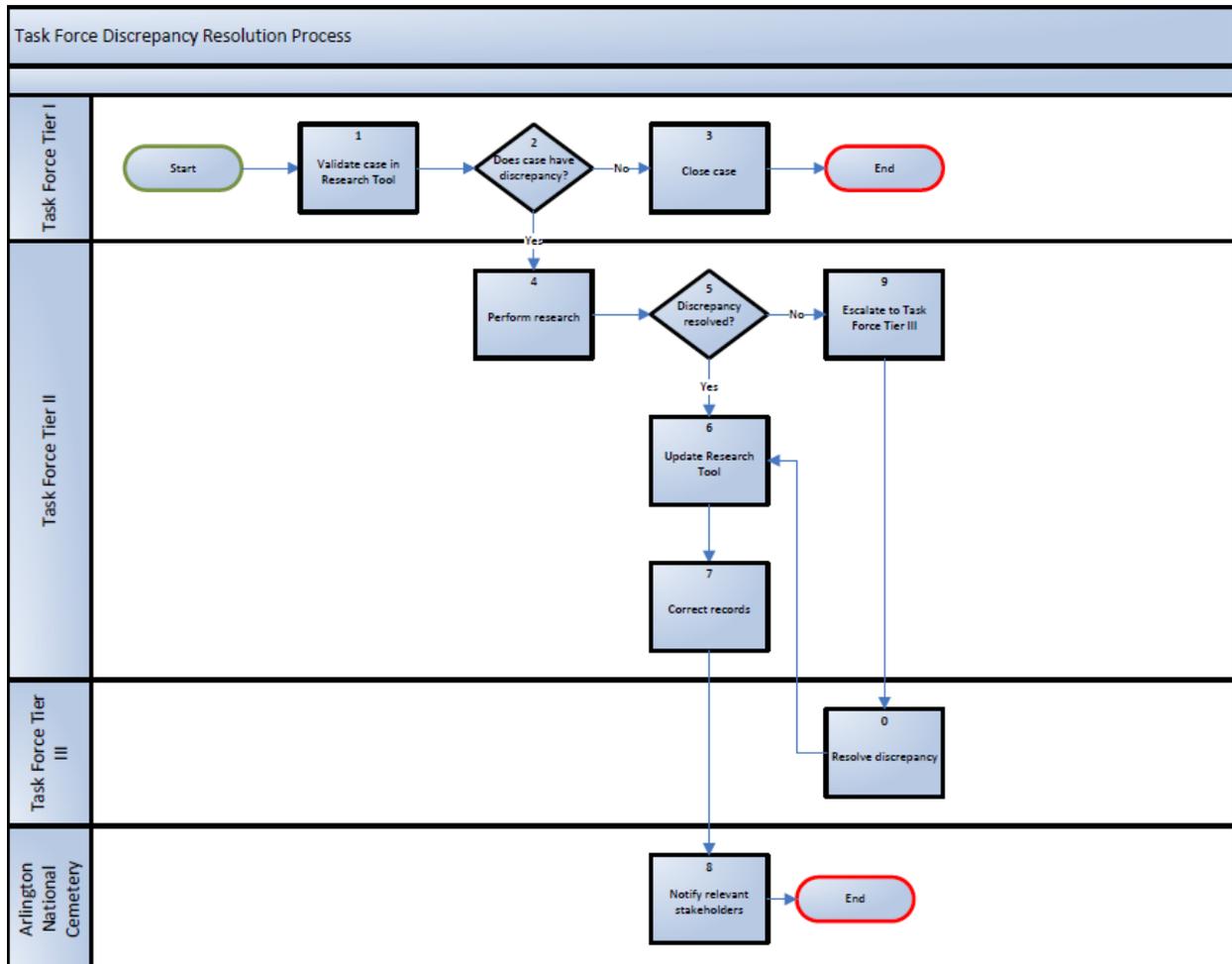
QA/QC

Once a Tier I or Tier II analyst closed a case, the Quality Assurance Team reviewed ten percent of all the cases. If the Research Tool or Quality Assurance Fail analyst discovered inconsistent data, the case failed QA/QC and passed to Tier II for further research. Periodic reports collected pass/fail rates and other data to facilitate retraining when needed.



Case Resolution Process

After analysts determine the correct information, ANC personnel properly annotate the findings in the Task Force Research Tool, fix any errors in the Cemetery’s records and, if necessary, replace the gravesite markers with new ones or add footstones reflecting the correct information.

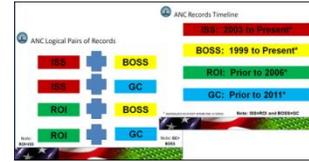


G. Gravesite Accountability Task Force Documentation Inventory

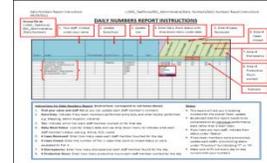
Orientation and Training



- Field Team Orientation
- Validation Team Orientation
- Tier I Research Tool Training Guide
- Tier I Validation Process Steps
- Survey Smartphone App Training

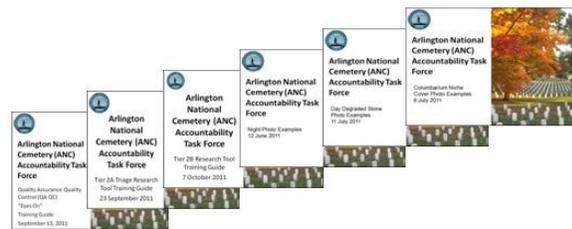


Logical Pairs Chart and Records Timeline

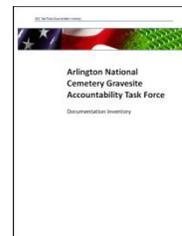


Daily Numbers Report Instructions

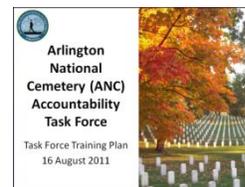
Program Management



- Tier I Quality Assurance/Quality Control Training Guide
- Tier 2A Triage Training Guide
- Tier 2B Research Training Guide
- Night Photo Examples
- Day Degraded Stone Photo Examples
- Niche Cover Photo Examples

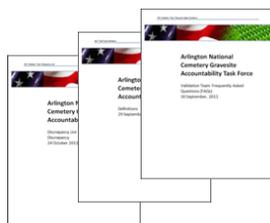


Task Force Documentation Inventory



Task Force Training Plan

Job Aids



- Business Rules for Case Validation
- Task Force Definitions
- Validation Team Frequently Asked Questions

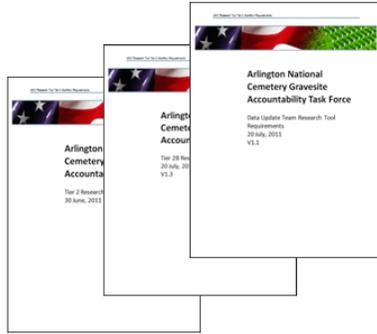
User Requirements Documentation



Requirements for Updated Weekly Revised Research Tool Metrics Report: Discussion Document



User Requirements Documentation Continued

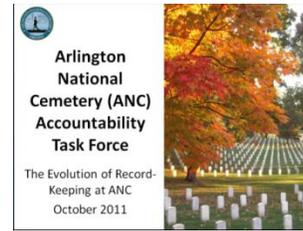


- Tier 2 A and B Research Tool Requirements
- Tier 2B Research Tool Requirements
- Data Update Team Research Tool Requirements

Other



Task Force Brochure



Evolution of Recordkeeping Brief

