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Report to the Chairman, Subcommittee on Benefits, Committee on Veterans' Affairs, House of Representatives

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NATIONAL CEMETERY SYSTEM

Opportunities to Expand Cemeteries' Capacities

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Health, Education, and
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The Honorable Jack Quinn
Chairman, Subcommittee on Benefits
Committee on Veterans' Affairs
House of Representatives

Dear Mr. Chairman:

The National Cemetery System (NCS) of the Department of Veterans Affairs (VA) provides interment of eligible veterans and their families upon demand in national cemeteries. In fiscal year 1996, VA provided burial benefits to about 72,000 veterans and their family members and had an appropriation of about $73 million for interments and related program services.[1] With the aging of World War II veterans, the numbers of veteran deaths and interments performed by NCS continue to grow each year and are projected to peak between 2005 and 2010. In addition, due to the depletion of available grave sites, over half of the national cemeteries will be unable to accommodate casket burials of "first family members" before then.[2] Therefore, it is important that NCS develop long-range plans for addressing veterans' future burial needs.

This letter responds to your concerns about NCS' ability to accommodate the increasing demand for burial benefits. Specifically, you requested that we (1) assess NCS' plans for addressing veterans' future burial demands; (2) determine the relative 30-year costs of three types of cemeteries: one providing only casket interment, another providing only interment of cremated remains in columbarium niches, and a third providing only in-ground interment of cremated remains;[3] and (3) identify what NCS can do to extend the service period of existing national cemeteries.

To address your request, we met with NCS officials responsible for planning, expanding, and constructing national and state veterans'

[1]In addition to burying eligible veterans, NCS manages three related programs: Headstones and Markers; Presidential Memorial Certificates; and State Cemetery Grants, which provides financial aid to states establishing, expanding, or improving state veterans' cemeteries. (See the background section for a discussion of each of these programs.)

[2]Currently, veterans who choose casket burial are allotted one plot that can hold two caskets, one above the other. The first eligible family member who dies and is buried in such a plot, which may or may not be the veteran, is called the first family member; the second family member who dies and is buried in such a plot is called the subsequent family member.

[3]Columbarium niches are recessed compartments within a structure—called a columbarium—that hold cremation urns. In-ground cremated remains (cremains) sites are small burial sites, generally 3 feet by 3 feet.

cemeteries. We reviewed legislation, regulations, operating procedures, strategic plans, and program management reports. We also prepared an analysis of the costs for three types of national cemeteries and provided a comparison of the present value of the estimated costs for each type of cemetery.[4] (See app. I for a detailed discussion of the methodology and data used in the cost analysis.)

In addition, we visited the NCS area office in Atlanta, Georgia, and national cemeteries in four localities—San Diego, Riverside, and Los Angeles, California, and Seattle, Washington—to obtain information on planned burial site development projects; the use of cremation within the cemetery service area; and the construction and maintenance costs of casket graves, columbaria, and in-ground cremains sites. We selected the national cemeteries in the first three localities because they offered interment of cremains in both columbaria and in-ground sites during fiscal year 1996. Moreover, the Los Angeles National Cemetery operates and maintains the oldest columbarium in the system. Tahoma National Cemetery, in the fourth locality, is the most recently constructed national cemetery, and its cost figures are the basis for our 30-year cost estimates. We did our work between November 1996 and July 1997 in accordance with generally accepted government auditing standards.

Results in Brief

As veteran deaths increase, NCS projects that demand for veterans' burial benefits will also increase. For example, NCS projects the number of annual interments will increase over 40 percent between 1995 and 2010. NCS has adopted a 5-year strategic plan for fiscal years 1996 through 2000 with the goal of ensuring that burial in a national or state veterans' cemetery is an available option for all veterans and their eligible family members. Strategies outlined in NCS' plan include (1) establishing five new national cemeteries, (2) developing available space for cremated remains, (3) acquiring contiguous land at existing cemeteries, and (4) encouraging states to provide additional burial sites through participation in the State Cemetery Grants Program. However, the strategic plan does not tie its goal to external factors, such as the mortality rate for veterans and veterans' relative preferences for various burial options, that will affect the need for additional VA and state cemetery capacity. In addition, it is unclear how NCS will address the veterans' burial demand during the peak years (2005 through 2010), when pressure on it will be greatest, since NCS has not

[4]"Present value" is defined as the current worth of money expected to be spent at a future date. A dollar available at some date in the future is valued at less than a dollar available today because the latter could be invested at interest in the interim. Unless otherwise noted, when we refer to "30-year costs" in this report, we mean present value.

developed a strategic plan for the period beyond the year 2000.[5] According to NCS' Chief of Planning, beyond 2000, NCS will continue using the basic strategies outlined in its current 5-year plan. For example, NCS plans to encourage states to establish veterans' cemeteries in areas where it does not plan to operate national cemeteries. However, since the grant program's inception in 1978, fewer than half of the states have established veterans' cemeteries. States also have shown limited interest in a legislative proposal designed to increase state participation by increasing the share of federal funding.

In connection with NCS' plans to develop land to achieve its goal, we estimated the present value of the costs of three types of cemeteries, each with 50,000 burial sites, over a 30-year period. Our analysis showed that planning, designing, constructing, and operating a cemetery of casket grave sites and no other burial options would be the most expensive interment option available.[6] Moreover, the costs for a cemetery that offered only a columbarium and one that offered only in-ground cremains sites would be about the same. Thus, while the cost of a casket-only cemetery would be over $50 million, the cost of a cremains-only cemetery would be about $21 million. This cost difference is primarily attributable to the lower operating and land development costs of cremains cemeteries.[7]

Finally, while the majority of veterans and eligible family members prefer a casket burial, cremation is an acceptable interment option for many, and the demand for cremation, which varies by region, continues to increase. Moreover, as annual interments increase, cemeteries will reach their burial capacity, thus increasing the importance of making the most efficient use of available cemetery space. To identify feasible approaches to extending the service period of existing cemeteries, we analyzed the impact of adding burial sites to an acre of land in an existing cemetery.[8] Our analysis of three interment options showed that columbaria offer the most efficient interment option because they would involve the lowest average burial

[5]NCS recently drafted a strategic plan to cover fiscal years 1998 through 2003; however, like the current plan, it does not address how NCS plans to deal with the veterans' burial demand during the peak years.

[6]We also evaluated the three types of cemeteries over a 50-year period (see app. I). We found that differences in the relative costs of using caskets and cremation are roughly the same over a 50-year period as over a 30-year period.

[7]Land development costs include site preparation (for example, grading, landscaping, providing irrigation, building roads, and providing for storm drainage) and site furnishing (for example, providing benches and flagpoles).

[8]We assumed an acre of land composed of parcels of land not contiguous to each other.

cost and would significantly extend a cemetery's service period. For example, the average cost for a burial in a columbarium would be less than half the cost of a casket burial and slightly less than an in-ground cremains burial. Our analysis also showed that the total service period of a cemetery offering only columbaria could be about 50 years longer than the service period of a cemetery offering only casket or in-ground cremains burials.

Background

The National Cemeteries Act of 1973 (P.L. 93-43) authorized NCS to bury eligible veterans and their family members in national cemeteries. NCS operates and maintains 114 national cemeteries located in 38 states and Puerto Rico. In fiscal year 1996, NCS performed about 72,000 interments and maintained more than two million burial sites and over 5,600 acres of land developed for interment purposes.

NCS offers veterans and their eligible family members the options of casket interment and interment of cremated remains in the ground (at most cemeteries) or in columbarium niches (at nine cemeteries). NCS determines the number and type of burial options available at each of its national cemeteries. The standard size of casket grave sites, the most common burial choice, is 5 feet by 10 feet, and the grave sites are prepared to accommodate two caskets stacked one on top of the other. A standard in-ground cremains site is 3 feet by 3 feet and can generally accommodate one or two urns. The standard columbarium niche used in national cemeteries is 10 inches wide, 15 inches high, and 20 inches deep. Niches are generally arrayed side by side, four units high, and can hold two or three urns, depending on urn size. Figure 1 shows a columbarium and in-ground cremains sites at national cemeteries.

Figure 1: Columbarium and In-Ground Cremains Sites at National Cemeteries

Columbarium
Fort Rosecrans National Cemetery
San Diego, California

In-Ground Cremains Sites
Riverside National Cemetery
Riverside, California

Armed forces members who die while on active duty and certain veterans are eligible for burial in a national cemetery. Eligible veterans must have been discharged or separated from active duty under other than dishonorable conditions and have completed the required period of service.[9] People entitled to retired pay as a result of 20 years' creditable service with a reserve component of the armed services are also eligible. U.S. citizens who have served in the armed forces of a government allied with the United States in a war may also be eligible. The benefit of burial in a national cemetery is further extended to spouses and minor children of eligible veterans and of active duty members of the armed forces. A surviving spouse of an eligible veteran who later marries a nonveteran, and whose remarriage is terminated by death or divorce, is also eligible for burial in a national cemetery.

Burial in a VA cemetery includes, at no cost to the veteran, one grave site for the burial of all eligible family members. Also included are the opening and closing of the grave, perpetual care of the site, and a government headstone or marker and grave liner. Veterans' families are required to pay for services provided by funeral directors and additional inscriptions on the headstone or marker. Generally grave sites may not be reserved; space is assigned at the time of need on the basis of availability.

In addition to burying eligible veterans and their families, NCS manages three related programs: (1) the Headstones and Markers Program, which provides headstones and markers for the graves of eligible people in national, state, and private cemeteries; (2) the Presidential Memorial Certificates Program, which provides certificates to the families of deceased veterans recognizing their contributions and service to the nation; and (3) the State Cemetery Grants Program, which provides aid to states in establishing, expanding, or improving state veterans' cemeteries.

In 1978, Public Law 95-476 authorized NCS to administer the State Cemetery Grants Program, under which states receive financial assistance to provide burial space for veterans and eligible dependents. State veterans' cemeteries supplement the burial service provided by NCS. The cemeteries are operated and permanently maintained by the states. A grant may not exceed 50 percent of the total value of the land and the cost of improvements. The remaining amount must be contributed by the state. The State Cemetery Grants Program has funded the establishment of 28

[9]Veterans who entered active duty as enlisted persons before Sept. 7, 1980, or as officers before Oct. 17, 1981, are eligible for burial in a national cemetery. Veterans who entered active duty after these times, with certain exceptions, must have served for a minimum of 24 months or the full period for which they were called to active duty.

veterans' cemeteries, including three cemeteries currently under development, located in 21 states, Saipan, and Guam. The program has also provided grants to state veterans' cemeteries for expansion and improvement efforts.

While VA strongly encourages states to adopt the eligibility criteria applied to national cemeteries, states have been allowed to establish eligibility criteria for interments that differ from VA-established criteria, but only if their criteria are more restrictive than those established for national cemeteries. In other words, state veterans' cemeteries cannot be used for the interment of people who are not eligible for burial in a national cemetery. Most states have a residency requirement, and some states restrict eligibility to veterans who were honorably discharged, had wartime service, or both.

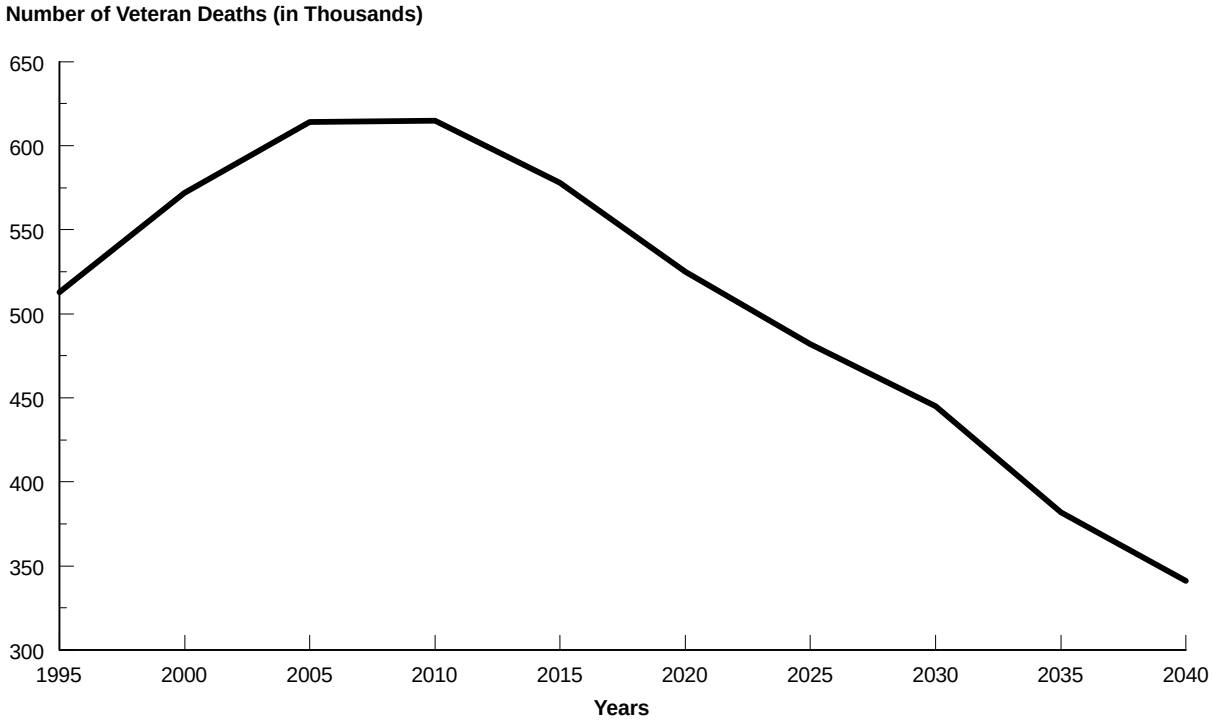
NCS Strategic Plan Does Not Address Long-Term Burial Demand

As the veteran population ages, NCS projects the demand for burial benefits to increase. NCS has a strategic plan for addressing the demand for veterans' burials up to fiscal year 2000, but the plan does not tie its strategic and performance goals to external factors such as veterans' mortality rates and preferences for burial options—that is, caskets, in-ground cremains, or columbaria niches. In addition, NCS' strategic plan does not address long-term burial needs—that is, the demand for benefits during the expected peak years of veteran deaths, when pressure on the system will be greatest. Beyond the year 2000, NCS officials said they will continue using the basic strategies contained in the current 5-year plan.

Demand for Veterans' Burial Benefits Projected to Increase

With the aging of the veteran population, veteran deaths continue to increase each year. For example, NCS projects annual veteran deaths will increase about 20 percent between 1995 and 2010, from 513,000 to 615,000, as shown in figure 2. Moreover, NCS projects that veteran deaths will peak at about 620,000 in 2008. The demand for veterans' burial benefits is also expected to increase. For example, NCS projects annual interments will increase about 42 percent between 1995 and 2010, from 73,000 to 104,000. NCS projects that annual interments will peak at about 107,000 in 2008.

Figure 2: Estimated Number of Veteran Deaths, 1995-2040



Source: NCS national data.

Five-Year Plan Has Multiple Strategies

According to its 5-year strategic plan (1996-2000), one of NCS' primary goals is to ensure that burial in a national or state veterans' cemetery is an option for all eligible veterans and their family members. The plan sets forth four specific strategies for achieving this goal. First, NCS plans to establish, when feasible, new national cemeteries. NCS is currently establishing five new national cemeteries, which are in various stages of development, and projects that all will be operational by 2000.[10]

A second strategy for addressing veterans' burial demand is to develop available space for cremated remains. NCS plans to survey national cemeteries to determine what space is available for use as in-ground cremains sites, construct additional columbaria at eight existing cemeteries, and include columbaria at the five new cemeteries.

[10]New national cemeteries will be located in or near Albany, New York; Chicago, Illinois; Cleveland, Ohio; Dallas/Fort Worth, Texas; and Seattle, Washington.

Third, NCS plans to acquire land through purchase or donation. NCS plans to use this land to extend the burial capacity and service period of national cemeteries currently projected to run out of available grave sites.

Fourth, NCS plans to encourage states to provide additional burial sites for veterans through participation in the State Cemetery Grants Program. According to the plan, NCS plans to identify and prioritize those states most in need of a veterans' cemetery; design a marketing strategy for those states; visit a minimum of four of those states annually until all prioritized states have been visited; and participate in the state conferences of at least three veterans' service organizations (for example, the American Legion and the Veterans of Foreign Wars) each year.

In addition to the strategic and performance goals, the plan also discusses assumptions, such as veterans' demographics (the projected increases in veteran deaths and interments), and external factors, such as resource constraints, that could delay achievement of the plan's performance goals. However, the plan does not tie the strategic and performance goals to its assumptions. For example, while the plan includes some data on demographic trends in the veteran population, it does not explain how these data were used in setting strategic goals, or how they will be used to measure progress in achieving these goals. Neither does the plan tie its strategic and performance goals to external factors—such as preferences for VA, state, or private cemeteries and preferences for casket, in-ground cremains, or columbaria niche burial—that will affect the need for additional VA and state cemetery capacity. NCS tracks actual burial practices in national cemeteries, monitors trends in the private cemetery sector, and in 1992 surveyed veterans to determine their preferences for type of cemetery (national, state, or private) and burial option (casket or cremation burial).[11]

Despite NCS plans to ensure that burial in a national or state veterans' cemetery is an available option, officials acknowledge that large numbers of veterans currently do not have access to a veterans' cemetery within a reasonable distance of their place of residence.[12] For example, NCS estimates that of the approximately 26 million veterans in 1996, about 9 million (35 percent) did not have reasonable access to a national or state veterans' cemetery. According to NCS officials, most underserved areas are

[11]VA, National Center for Veteran Analysis and Statistics, VA National Survey of Veterans (NSV9503) (Washington, D.C.: Apr. 1995).

[12]According to NCS, a national or state veterans' cemetery within 75 miles of a veteran's place of residence would provide reasonable access.

major metropolitan regions with a high concentration of veterans. With the completion of the five new cemeteries, NCS officials estimate that the percentage of veterans who will have reasonable access to a veterans' cemetery will increase from about 65 percent in fiscal year 1996 to about 77 percent in fiscal year 2000.

How NCS Plans to Address Burial Demand Beyond the Year 2000 Is Unclear

Although NCS has a 5-year strategic plan for addressing veterans' burial demand during fiscal years 1996 through 2000, it is unclear how NCS plans to address the demand beyond 2000. For example, NCS has not developed a strategic plan to address veterans' burial demand during the peak years of veteran deaths, when pressure on the system will be greatest. According to NCS' Chief of Planning, although its strategic plan does not address long-term burial needs, NCS is always looking for opportunities to acquire land to extend the service period of national cemeteries. For example, NCS is working to acquire land for one of its west coast cemeteries that is not scheduled to run out of casket sites until the year 2011. Also, to help address long-range issues, NCS compiles key information, such as mortality rates, number of projected interments and cemetery closures, locations most in need of veterans' cemeteries, and cemetery-specific burial layout plans. In addition, the planning chief pointed out that the Government Performance and Results Act requires a strategic plan to cover only a 5-year period. However, the Results Act allows an agency to extend its strategic plan beyond a 5-year period to address future goals. Although NCS' strategic plan notes that annual veteran deaths are expected to increase about 20 percent between 1995 and 2010, the plan does not indicate how the agency will begin to position itself to handle this increase in demand for burial benefits. A longer planning period would provide the opportunity to develop strategies for obtaining funds, acquiring land, assessing veterans' preferences, or all three.

While NCS does not have a formal strategic plan to address veterans' burial demand beyond the year 2000, NCS officials said they will continue using the basic strategies contained in the current 5-year plan. For example, NCS plans to enhance its relationship with states to establish state veterans' cemeteries through the State Cemetery Grants Program. According to NCS' Chief of Planning, NCS will encourage states to locate cemeteries in areas where it does not plan to operate and maintain national cemeteries. Since the State Cemetery Grants Program's inception in 1978, fewer than half of the states have established veterans' cemeteries primarily because, according to NCS officials, states must provide up to half of the funds needed to establish, expand, or improve a cemetery, as well as pay for all

equipment and annual operating costs. Furthermore, the Director of the State Cemetery Grants Program told us that few states, especially those with large veteran populations, have shown interest in legislation that VA proposed in its 1998 budget submission in order to increase state participation. This legislation would increase the federal share of construction costs from 50 to 100 percent and permit federal funding for up to 100 percent of initial equipment costs. In fact, according to the Director, state veterans' affairs officials said that they would rather have funding for operating costs than for construction.

In addition, VA does not plan to request construction funds for more than the five new cemeteries, which will be completed by the year 2000, because of its commitment to deficit reduction. Officials said that even with the new cemeteries, interment in a national or state veterans' cemetery will not be "readily accessible" to all eligible veterans and their family members. According to NCS officials, most underserved areas will be major metropolitan areas with high concentrations of veterans, such as Atlanta, Georgia; Detroit, Michigan; and Miami, Florida.

Traditional Casket Cemetery Would Be Twice as Expensive as Cremains Cemeteries

As demand for burial benefits increases, cemeteries become filled, thus reducing the burial options available to veterans and their families. We developed a model to analyze the relative costs of three types of cemeteries. The analysis showed that over 30 years, the traditional casket cemetery would be the most expensive interment option. Our analysis also showed that there would be no significant difference in the costs of columbarium and in-ground cremains cemeteries. Although the development and construction costs are higher for a columbarium cemetery, operating costs are higher for an in-ground cremains cemetery. Table 1 compares the 30-year costs of these three types of cemeteries. (See app. II for a detailed cost comparison of the three types of cemeteries.)

Table 1: Comparison of 30-Year Present Value Costs of Three Types of Cemeteries With 50,000 Burial Spaces, in 1997 Dollars

Cost factors[a]	Casket cemetery	Columbarium cemetery	In-ground cremains cemetery
Total development and construction	$12,100,000	$12,800,000	$4,400,000
Total operations and maintenance	38,400,000	10,200,000	16,500,000
Nonlabor and equipment	20,000,000	1,800,000	5,100,000
Labor	18,400,000	8,400,000	11,400,000
Total	**$50,500,000**	**$23,000,000**	**$20,900,000**

[a]App. I defines all cost factors.

Source: GAO analysis of NCS cost data.

Traditional Casket Burial Most Expensive Interment Option

A cemetery providing only casket burials would be the most expensive interment option, costing, on average, over twice as much as columbarium or in-ground cremains cemeteries. We estimated that over a 30-year period, the casket cemetery would cost over $50 million, compared with about $21 to $23 million for either of the two cremation cemeteries. The difference in costs is due primarily to the higher land development and operations/maintenance costs of a casket cemetery. Specifically, providing 50,000 grave sites for 30 years would require developing about 115 acres at a cost of $8.4 million, compared with 34 acres for an in-ground cremains cemetery and 14 acres for a columbarium cemetery, costing about $2.5 million and $1 million, respectively.

Over 30 years, the total operations and maintenance cost for a casket cemetery is three times as much as that for a columbarium cemetery and over twice as much as that for an in-ground cremains cemetery. As table 1 shows, providing burial services and maintenance activities for a 115-acre casket cemetery would result in higher nonlabor and labor costs.[13] For example, it requires about 39 full-time staff to operate and maintain a casket cemetery, compared with about 21 full-time staff for an in-ground cremains cemetery and 14 full-time staff for a columbarium cemetery.

[13]Burial services include scheduling services; attending committal services; opening and closing grave sites or niches; interring remains; setting headstones, markers, or niches; and restoring burial sections. Maintenance activities include groundskeeping, facilities maintenance, and equipment maintenance.

Costs Vary Slightly for Columbarium and In-Ground Cremains Interments

Over 30 years, it would cost about the same to plan, design, construct, operate, and maintain a columbarium and an in-ground cremains cemetery with 50,000 burial spaces: $23 and $21 million, respectively. The development and construction cost is higher for a columbarium cemetery, but its operations and maintenance cost is lower than that of an in-ground cremains cemetery. As table 1 shows, over 30 years the development and construction cost for a columbarium cemetery would be, on average, about three times as much as that for an in-ground cremains cemetery. This difference in costs is primarily due to the cost of building the columbarium structure. The operations and maintenance cost of an in-ground cremains cemetery is almost twice as much as that of a columbarium cemetery. This cost difference can be attributed to the fact that columbarium cemeteries have fewer acres to maintain, resulting in lower nonlabor and labor costs.

Columbarium Option Offers Opportunity for Extending Service Period of Existing Cemeteries

As existing national cemeteries reach their capacity, columbarium burial offers the most efficient option for extending cemetery service periods. We developed a model to analyze the cost of three interment options on the basis of the cost of developing a total of 1 acre of land, composed of parcels of land not contiguous to each other, in a cemetery nearing exhaustion of available casket grave sites. The analysis showed that the average burial cost would be lowest and the service delivery period the longest using columbarium interment. The analysis also showed that the average cost per burial would be about the same for columbarium niches as for in-ground cremains sites. However, columbarium interment would extend the service period by about 50 years, while in-ground cremains interment would extend the service period about 3 years and casket burials, about half a year. Casket burials would be the most expensive per burial and would have the shortest service period.

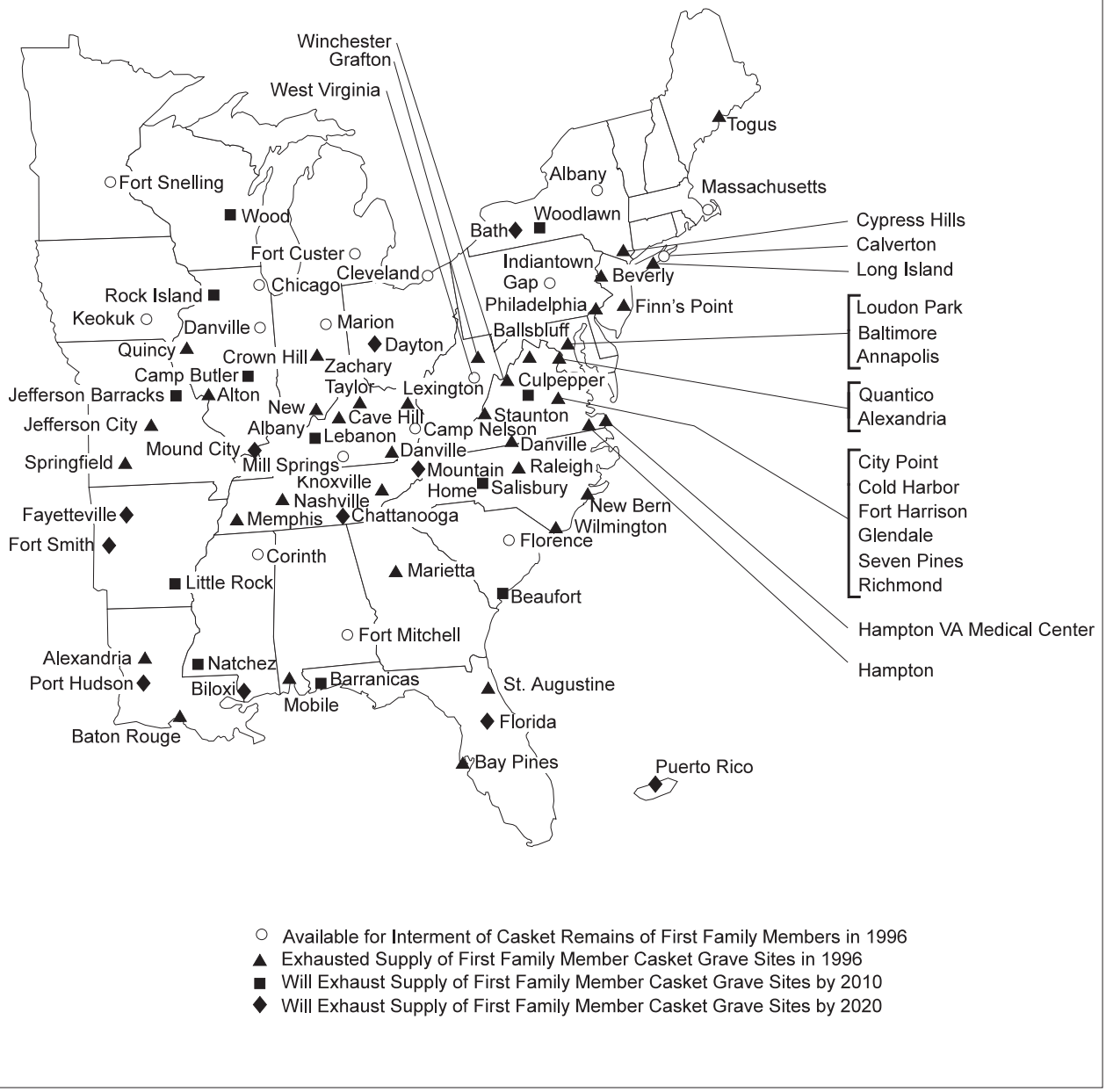
Many National Cemeteries Have Reached Capacity for Casket Burials

At the end of fiscal year 1996, 57 of VA's 114 national cemeteries had exhausted their supply of casket grave sites available to first family members, as shown in figure 3. Of these 57 cemeteries, 38 could accommodate casket burial of subsequent family members and interment of cremated remains of both first and subsequent family members. Nineteen could accommodate only subsequent family members—for either casket or cremated remains interment. According to NCS' Chief of Planning, unless NCS acquires additional land, it projects that 15 cemeteries will totally deplete their inventory of casket grave sites for first family members by 2010, and another 16 cemeteries will do so by 2020. In total,

by 2020, NCS projects that 88 of the 119 national cemeteries (74 percent) will no longer be able to accommodate casket burials of first family members.[14]

[14]With the projected completion of five new national cemeteries by 2000, the total number of national cemeteries will increase from 114 to 119.

Figure 3: Casket Grave Site Availability at National Cemeteries, 1996, 2010, and 2020

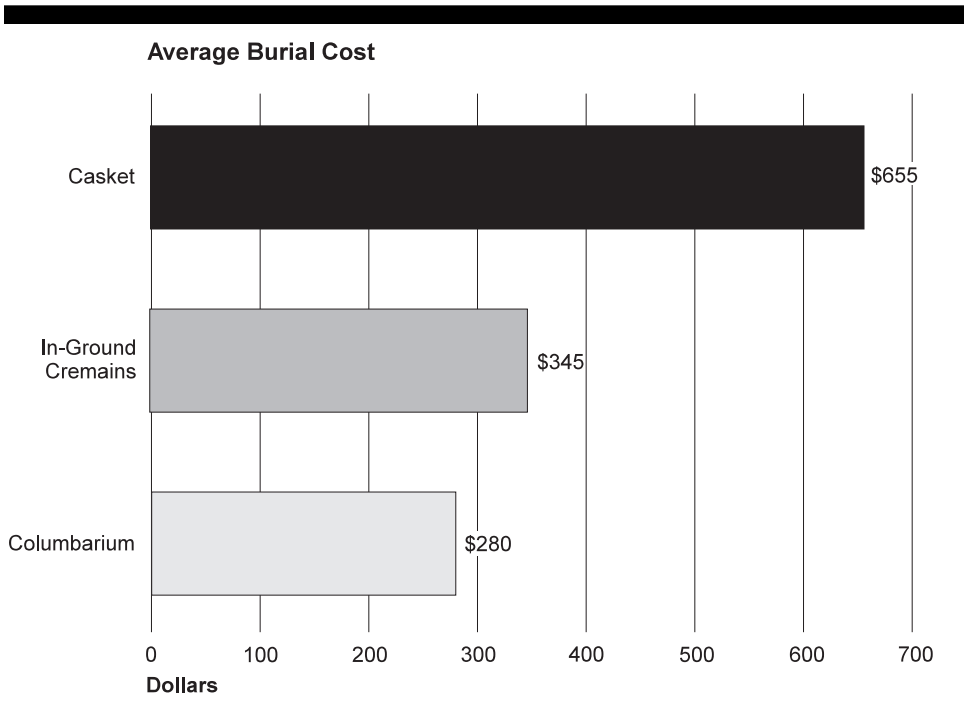


Source: NCS national data.

Columbarium Burial Offers Most Efficient Option for Extending the Service Period of Existing Cemeteries

As less burial space is available, columbarium burial offers the most efficient interment option for extending the service period of existing cemeteries. Our analysis of the costs of three interment options, based on the development of 1 remaining acre of land, pieces of which were not contiguous to each other, showed that the average burial cost would be lowest using columbarium interment. For example, the average columbarium interment cost would be about $280, compared with about $345 for in-ground cremains burial and about $655 for casket burial, as shown in figure 4.

Figure 4: Estimated Average Burial Costs of Three Interment Options

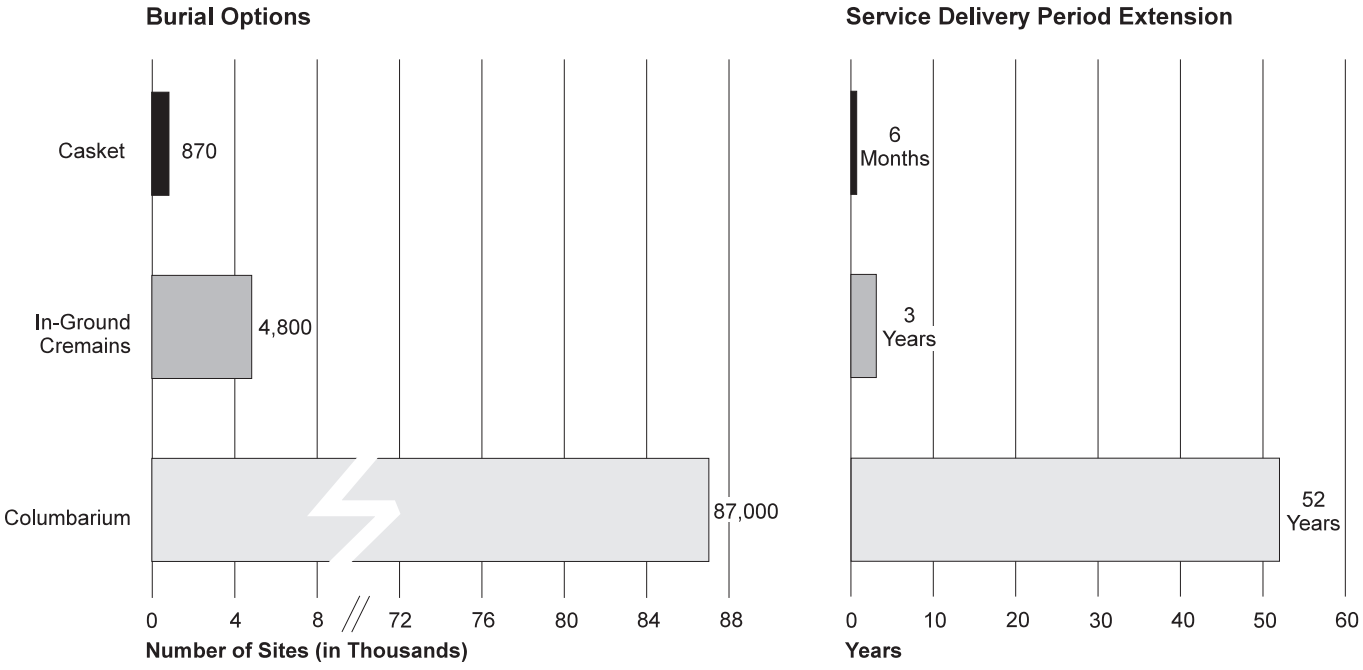


Source: GAO analysis.

Our analysis also showed that the service delivery period would be extended the most using the columbarium. For example, a total of 1 acre of land could accommodate about 87,000 columbarium niches and could extend the service delivery period for over 52 years, compared with about

3 years for about 4,800 in-ground cremains sites and about 1/2 year for about 870 casket sites, as shown in figure 5.

Figure 5: Estimated Additional Sites and Service Delivery Period Extension for Three Interment Options



Source: GAO analysis.

Although NCS officials acknowledge that the columbarium option could extend the service delivery period of existing cemeteries, they said that it has been used to do so at only one national cemetery, which is located on the west coast. Furthermore, at the end of fiscal year 1996, only 9 of the 114 national cemeteries offered interment in a columbarium, while the majority of cemeteries provided casket and in-ground cremains sites. According to NCS officials, NCS has not made greater use of columbaria primarily because of their substantial up-front construction costs. Officials said they generally develop casket and in-ground cremains sites first because they believe the initial costs are less. However, our analysis

showed that the total cost per burial would be lower for a columbarium because of its low operations and maintenance costs.

Columbaria would be particularly useful in metropolitan areas where interment rates are high; past or projected cremation demand is significant; land is scarce, expensive, or both; and no state veterans' cemetery exists to compensate for the lack of available national cemetery grave sites. For example, at one midwestern cemetery, NCS plans to add about 8,000 casket sites, but no cremation sites, to its last acres. With the additional casket sites, the cemetery is projected to deplete all burial spaces about the time veteran deaths peak, and no state veterans' cemetery exists to compensate for the lack of burial spaces. However, by incorporating columbaria into 1/2 acre of land, this cemetery could continue to provide a burial option to thousands of additional veterans, who otherwise would have no burial option available to them within a reasonable distance of their homes, and keep the cemetery open well beyond the peak years.

While historical data imply that the majority of veterans and eligible dependents prefer a casket burial, NCS national data show that the demand for cremation at national cemeteries is increasing. For example, while about 70 percent of veterans prefer a casket burial, veterans choosing cremation increased from about 20 percent of the veteran population in 1990 to nearly 30 percent in 1996, and NCS officials expect demand for cremation to continue to increase in the future. At cemeteries offering both types of interments, the ratio of casket to cremation interments varies significantly. For example, cremation accounts for over 40 percent of interments at some cemeteries and less than 5 percent at others. In addition, according to cemetery directors, veterans choosing cremation do not strongly prefer either in-ground burial or interment in a columbarium niche.

The incidence of cremation also continues to increase in the general population. For example, cremation was chosen for about 14 percent of nationwide burials in 1985 and about 21 percent in 1995. The Cremation Association of North America (CANA) projects that cremations will account for about 40 percent of all burials by 2010.[15] Like other interment options, cremation is an individual's decision and is subject to influences such as culture, religion, geographic area of the country, and age and generational preferences. According to CANA, people choose cremation primarily

[15]Projected cremation demand is based on actual statewide cremation data compiled by CANA, the only organization that compiles such data. The 2010 projected cremation rate is based upon the average actual increase in cremation between 1985 and 1995.

because it is perceived as less expensive and simpler than traditional casket burial, it uses less land, and it offers more options for memorialization.

Conclusion

Long-range planning is crucial to addressing veterans' burial needs during the peak years and beyond. Although NCS has a 5-year strategic plan, it does not address veterans' burial needs beyond the year 2000, when the demand for burial benefits will be greatest. Specifically, while the World War II veteran population is entering its peak years of need, many national cemeteries are depleting their inventory of available casket grave sites. As a result, additional burial sites are needed to help meet future burial demand. In some cases, state veterans' cemeteries could reduce the negative impact of the loss of available casket spaces from a national cemetery. However, it does not appear that state veterans' cemeteries will be able to accommodate all veterans seeking interment. Therefore, NCS needs to rely more on extending the service periods of its existing national cemeteries. Columbaria can more efficiently utilize available cemetery land at a lower average burial cost than the other interment options and can also extend the service period of existing national cemeteries. Using columbaria also adds to veterans' choice of services and recognizes current burial trends. Although cremation will not be the preferred burial option for all veterans, identifying veterans' burial preferences would enable NCS to better manage limited cemetery resources and more efficiently meet veterans' burial needs.

Recommendation

To better serve the American veteran, we recommend that the Secretary of Veterans' Affairs instruct the director of the National Cemetery System to

- extend its strategic plan to address veterans' long-term burial demand during the peak years of 2005 to 2010;
- collect and use information on veterans' burial preferences to better plan for future burial needs; and
- identify opportunities to construct columbaria in existing cemeteries, for the purpose of increasing burial capacity and extending the cemeteries' service periods.

Agency Comments and Our Evaluation

In commenting on a draft of this report, the Director of NCS stated that our recommendations appeared valid and represented the vision and performance of NCS in meeting the burial needs of veterans. He also said

that NCS is currently executing many of the practices recommended by our report. For example, the NCS Director concurred with our recommendation that NCS develop plans to address veterans' long-term burial demand during the peak years and stated that NCS is already performing long-term planning, as evidenced by numerous strategies and activities. We recognize that NCS has developed valuable information from such sources as the Management and Decision Support System and cemetery master plans to help it address long-range issues, but even with this information, NCS is unable to specify the extent to which veterans will have access to a national or state veterans' cemetery during the peak years. NCS' estimates of the percentage of veterans who will have access to a veterans' cemetery stop at the year 2000.

NCS needs to develop a strategic plan that links information such as mortality rates and the number of projected interments and cemetery closures, obtained from various sources, to its strategic goals, performance measures, and mitigation plans over the next 15 years. For example, one of NCS' goals is to ensure that a burial option is available to all eligible veterans. Although NCS' current strategic plan estimates a 20-percent increase in annual veteran deaths between 1995 and 2010, it does not indicate how NCS will begin to position itself to handle this increase in demand for burial benefits. Because of the lead time required to acquire land and develop some types of interment spaces, NCS needs to develop strategies that address such issues as (1) how many burial spaces will be needed at each cemetery to accommodate the projected demand for burial benefits during the peak years; (2) how NCS will acquire the additional burial spaces—for example, by purchasing adjacent land or maximizing existing land by using columbaria; and (3) when and how NCS will obtain funds, acquire land, and assess veteran preferences.

In addition, while one of NCS' strategies for meeting the projected burial demand includes encouraging states to build cemeteries, the Director of the State Cemetery Grants Program told us that few states, especially those with large veteran populations—such as New York, Florida, Texas, Ohio, and Michigan—would be swayed by proposed legislation that would increase the federal share of construction and equipment costs. NCS officials also acknowledged that their ability to persuade states to participate in the program is limited, because the states must take the initiative to request grant funds. We revised our previous recommendation to encourage NCS to extend its strategic plan to address veterans' long-term burial demand during the peak years of 2005 to 2010.

The NCS Director also concurred with our recommendation to collect and use information on veterans' burial preferences to better plan for future burial needs. While the Director stated that NCS carefully tracks actual burial practices in national cemeteries and monitors trends in the private cemetery sector, and that these indexes offer a reliable method of planning for the future, he said that additional data on veterans' preferences would assist NCS in its planning efforts. Therefore, he stated that NCS will include questions pertaining to personal burial preferences in the next VA National Survey of Veterans.

Finally, the Director of NCS concurred with our recommendation to identify opportunities to construct columbaria in existing cemeteries for the purpose of increasing burial capacity and extending the service delivery period of these cemeteries. He asserted that NCS is already accomplishing what our recommendation was intended to achieve in that it (1) plans to add columbaria at eight existing cemeteries and five new cemeteries and (2) annually considers all sites that may warrant the establishment of columbarium units. We acknowledge, as stated in our report, that NCS plans to add columbaria at 8 of the 114 existing national cemeteries and include columbaria in its 5 new cemeteries. However, the intent of our recommendation was to encourage VA to identify opportunities to construct columbaria in cemeteries that are nearing depletion of casket grave sites for first family members or have already run out. This will involve at least 72 cemeteries by 2010.

Although NCS acknowledges that columbaria could extend service at a cemetery that would otherwise be closed to veteran use, they have only been used for this purpose at one national cemetery. While the NCS Director stated in his comments that NCS considers the anticipated ratio of casket burial to cremains burial when planning for the future, during our review, NCS officials stated that they primarily use historical usage data. For example, at one cemetery, NCS planned to allocate more than 30 percent of the burial spaces for cremation sites, although the cremation rate for the state in which the cemetery was located was more than 50 percent in 1995, and projected to increase to more than 60 percent in 2000 and to about 80 percent in 2010. As our report states, by including other factors in the decision process, such as projected cremation demand, availability and cost of land, and availability of grave sites at state veterans' cemeteries, officials may identify additional national cemeteries that warrant the establishment of columbaria.

NCS also provided technical comments in an attached white paper. Comments 1 through 3 repeat points made in the letter. Comments 4 and 5 question the results of our analysis of the cost of extending the service period of existing cemeteries, since it was based on the maximum number of burial sites available in an acre of land. Specifically, NCS commented that it may not be feasible to devote a single 1-acre plot entirely to columbarium niches because using the "absolute maximum" would not allow space between structures. However, in our analysis we did not envision a single 1-acre plot. Rather, we assumed several parcels of land dispersed around the cemetery that totaled 1 acre of available burial space. Accordingly, we have revised our discussion to clarify this issue.

Comment 6 questions our assumption that first family member interments would be evenly spaced over 30 years for all three modes of burial. Specifically, NCS suggests an analysis in which the annual interment rates are assumed to differ for the three alternatives (casket, in-ground cremains, and columbarium burials), reflecting current use patterns. However, our objective was to perform a cost comparison. For a valid cost comparison, the alternatives being compared must be evaluated in terms of the same outcome—in this case, to inter a given number of eligible veterans and their dependents according to a given schedule. The specific assumption we adopted—evenly spaced first family member interments for all alternatives—was previously suggested to us by NCS, and our analysis is similar to the one NCS used in its 1996 study. The type of analysis that NCS is now suggesting is outside the scope of our work.

NCS offered other technical comments, which we incorporated where appropriate. NCS' comments are included in their entirety in appendix III.

We are sending copies of this report to the Secretary of Veterans Affairs and other interested parties. This work was performed under the direction of Irene Chu, Assistant Director. If you or your staff have questions about

this report, please contact Ms. Chu or me on (202) 512-7101. Other major contributors to this report are listed in appendix IV.

Sincerely yours,

Stephen P. Backhus
Director, Veterans' Affairs and
Military Health Care Issues

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Figures

Abbreviations

CANA	Cremation Association of North America
FTE	full-time-equivalent
GS	general schedule
NCS	National Cemetery System
SSA	Social Security Administration
VA	Department of Veterans Affairs
WG	wage grade

Our Analysis of the Long-Term Costs of Alternative Modes of Interment: Methodology and Data

Introduction

In this appendix we discuss the methodology, data sources, and principal assumptions that we used to

- characterize the relative long-term cost of each of three modes of interment: casket, in-ground cremains, and columbarium;
- project the outlays that would be required to construct and operate a cemetery that offers each of these modes of interment over a period of 30 years or more;[16] and
- estimate the cost of these three types of interment on the basis of the development of a total of 1 acre of land composed of parcels of land not contiguous to each other in a cemetery nearing depletion of available burial sites.

Our analysis builds on a study that the National Cemetery System (NCS) performed at the request of the Chairman, Subcommittee on Compensation, Pension, Insurance and Memorial Affairs, in February 1996. In that study, the Department of Veterans Affairs (VA) presented an analysis of the relative costs of casket and columbarium burial over a 20-year period. For the purpose of this report, we have updated and extended the NCS analysis, most notably by

- adding in-ground cremains burial as a third alternative, as requested by the Subcommittee;
- analyzing costs over 30 years or more, thus recognizing that cost differences among the modes of interment will persist far into the future;
- analyzing the relative long-term costs of the three alternatives in the context of using available space in existing cemeteries, as well as in the context of developing new cemeteries; and
- using the present value method to evaluate the relative long-term costs of the three alternatives.

Present Value Analysis

Simple comparisons of cumulative outlays for the several modes of interment (casket, in-ground cremains, and columbarium) would provide a misleading picture of the relative costs of the respective options because the modes differ in the relative share of total cost that is incurred in the first years. Moreover, a dollar paid by the government today is more costly than a dollar paid at some future date, because it increases the burden of making interest payments on the national debt.

[16]We recognize that it is unlikely that VA would ever devote an entire new cemetery to a single mode of interment. However, we believe our analysis of the long-term costs of hypothetical single-use cemeteries serves to isolate the relevant differences in the long-term costs of the three types of interment.

It is standard practice among policy analysts to compare different payment streams by calculating the present value (also known as the lump-sum equivalent) of each stream.[17]

Overview of Our Models

We developed two models. The first model was used to estimate the long-term cost of alternative burial modes in a new cemetery. The second model was used to estimate the long-term cost of alternative uses of available space in an existing cemetery. Each model consisted of three basic components:

- simulating the sequence of events whereby a cemetery is opened and burial sites are developed, placed into service, and maintained;
- attaching estimated costs to each of these events, so as to create a trajectory of costs over the whole time period; and
- calculating the present values of cost streams associated with each of the options being evaluated.

Assumptions and Data

We developed the assumptions and specified the data to be collected in consultation with NCS experts. Except as noted below, NCS officials supplied the data.[18] We did not verify all of the data.

What follows is, first, a description of the elements of the model for the analysis of the costs of a new cemetery designed for 50,000 burial sites, with burials to take place over a 30-year period. Second, we describe how we modified the data and assumptions for the second model, which analyzes the cost of adding to an existing cemetery.

Analysis of the Costs of a New Cemetery

Timing of Significant Events

Land acquisition. We assumed that all land acquisition and development of architectural master plans and environmental impact statements would occur in the first year.

[17]Office of Management and Budget, Guidelines and Discount Rates for Benefit-Cost Analysis of Federal Programs, Circular A-94 (Washington, D.C.: Office of Management and Budget, revised Oct. 29, 1992).

[18]As agreed with your office, we asked NCS to supply cost data that pertain to the Tahoma National Cemetery in the Seattle area and other data describing the average salaries of NCS employees and their time charges.

Development of burial sites. NCS officials told us that burial sites would be developed in three phases, each of which would result in one-third (about 16,700) of the total number of burial sites. The first phase would occur in the second and third years. The second phase would occur in the eleventh through thirteenth years. The third phase would take place in the twenty-first through twenty-third years. Each of the three phases would involve outlays for design, land development, and equipment acquisition (see below). The construction of buildings would occur during the first two phases.

First family member interments. Per NCS guidance, we assumed that first family member interments would commence in the fourth year and that they would be evenly spaced over the next 30 years (that is, there would be 1,667 first family member interments per year).

Subsequent interments. We used the assumption, supplied by NCS officials, that subsequent interments would initially make up 2 percent of first family member interments and would increase linearly over time, so that in the thirtieth year (that is, the thirty-third year of the period of analysis), subsequent interments would make up 60 percent of first interments.

Development and Construction Costs

These costs include the cost of site acquisition, site development (conducting environmental impact assessments, obtaining architect/engineer design services, and developing land), and construction of buildings (administration and maintenance facilities).

Site acquisition. According to NCS officials, land in the vicinity of the Tahoma National Cemetery costs $10,000 per acre. They told us that a cemetery exclusively devoted to casket burial would require 114.8 acres, of which 57.4 acres would be used for grave sites and 57.4 acres for infrastructure (parking lots, driveways, buildings, landscaping, and so on). A cemetery devoted exclusively to in-ground cremains burial would require 34.3 acres (10.3 acres for burial sites and 24.0 acres for infrastructure). An all-columbarium cemetery would require 14.25 acres (0.57 acre for columbaria and 13.68 acres for infrastructure).

Site development. The estimated cost for the environmental assessment aspect of site development is $100,000 for a casket cemetery, $17,150 for an in-ground cremains cemetery, and $7,250 for a columbarium cemetery. These estimates reflect NCS' experiences with similar projects in the past.

The architect/engineer design cost category covers such services as carrying out a topographic survey, an archeological exploration, and traffic impact studies. The cost of architect/engineer design services is assumed to be proportional to construction costs (land development plus buildings). The estimated cost of these services for phase 1 is $545,414 for the casket alternative, $246,249 for in-ground cremains sites, and $862,233 for columbaria. For phases 2 and 3, costs would be lower.

Land development costs include site preparation (for example, grading; landscaping; and providing irrigation, roads, storm drainage, and utilities) and purchasing site furnishings (for example, benches and flagpoles). The estimated cost of land development is $102,298 per acre for all modes of interment. Thus, land development costs for the three alternatives are proportional to their respective acreage requirements, discussed above.

Under each alternative, one-third of the total acreage would be developed in each of the three phases (years 2 through 3, 12 through 13, and 22 through 23). For a casket cemetery, outlays would amount to $3.91 million in each phase. For an in-ground cremains cemetery, the estimated cost is $1.17 million per phase. For a columbarium cemetery, the estimated cost is $0.49 million per phase.

Construction of buildings. Buildings that would be constructed in phase 1 include a public information building, an administration building, a maintenance building, a vehicle storage building, and two committal service shelters. An additional committal service shelter would be constructed in phase 2. The three alternatives have different requirements for the size of the maintenance and vehicle storage buildings. Columbaria niches would be constructed in each phase, giving this mode the highest total construction cost.

Operations and Maintenance Costs

These costs include (1) the cost of purchasing initial and subsequent equipment; (2) salary and benefits for personnel to handle administration and interment issues (drafting contracts and correspondence; handling public inquiries, ceremonies, and outreach; scheduling burial services; opening/closing grave sites or niches; interring casket or cremated remains; setting headstones or placing markers; and restoring burial sections); (3) the cost of purchasing nonlabor items (fertilizer, seeds, headstones, markers, and grave liners); and (4) the cost of maintenance activities (keeping the grounds and facilities).

Equipment. VA provided estimates of the equipment costs for the three modes. The initial costs were $736,674 for caskets, $443,003 for in-ground cremains sites, and $91,664 for columbaria—all purchased in year 3 of the first phase. Subsequent equipment purchases were assumed to be equal and to occur in year 3 of phases 2 and 3. We estimated their cost at $150,000 for caskets, $90,000 for in-ground cremains sites, and $18,000 for columbaria.

Labor associated with administration and interments. We assumed that it would require 7.3 full-time-equivalent (FTE) general schedule (GS) employees, at an annual rate (pay and benefits) of $45,216 each, plus 6.7 FTE wage grade (WG) employees at a rate of $35,085 each, to conduct the 1,667 interments that are projected for each year under all three burial modes. VA said that the GS administrative and interment requirements would be the same for all three modes but that the WG labor associated with each mode would vary. According to NCS assumptions, the WG labor required for casket burials was 6.7 FTEs. We had to develop our own estimate—3 FTEs for in-ground cremains sites and .56 FTE for columbarium niches—because VA had no specified ratio for WG labor for the noncasket modes.

We assumed subsequent interments would require a prorated amount of labor. That is, if subsequent interments in a given year are estimated to be 20 percent of first interments, we assumed that labor costs associated with subsequent interments would be equal to 20 percent of the labor costs associated with first interments. Put differently, we assumed that each subsequent interment would require as much labor as each first interment.

Nonlabor costs. These costs include the costs of irrigating and purchasing fertilizer, seed, and other supplies. We used VA estimates to derive amounts for this category of costs. The amounts are small and proportional to the acreage developed. For the casket model, the nonlabor costs would be $389,000 in phase 1, increasing by $95,500 in phases 2 and 3 to a total of $580,000 by the 24th year. For in-ground cremains sites, we adjusted the cost in phase 1 by the ratio of acreage to arrive at a cost of $117,000, rising by $28,500 in phases 2 and 3 to a total of $174,000 in the 24th year (with rounding). For columbaria, the initial nonlabor cost was $57,000, rising $14,000 in phases 1 and 2 to a total of $85,000 in years 24 through 33.

Outlays for headstones and markers are proportional to the number of first interments in a given year. These costs vary depending on the area of

the country in which the headstones and markers are purchased. For this analysis, we used the middle price in the range of prices VA said they pay. For a casket burial, we assumed a headstone cost of $120; for an in-ground cremains burial, we assumed a grave marker cost of $70; and for a columbarium burial, we assumed a niche cover cost of $15. Casket burials require grave liners, at an estimated cost of $240 apiece.

Labor associated with maintenance. VA uses the standard of 1 FTE per 10.7 developed acres for casket cemeteries. Using this ratio, under the casket scenario, we estimated that maintenance of developed acreage would require 3.5 WG FTEs during phase 1 (years 4 through 13), 7 FTEs during phase 2 (years 14 through 23), and 10.5 FTEs during phase 3 (years 24 through 33), at the annual pay rates stated above. We adjusted these WG labor requirements for the fewer acres in the other modes. For in-ground cremains burials, we estimated that maintenance of developed grave sites would require 1.1 FTEs during phase 1 and an additional 1.1 FTEs during phases 2 and 3. For columbaria, we estimated that maintenance of developed grave sites would require .4 FTE during phase 1, .9 FTE during phase 2, and 1.3 FTEs during phase 3.

Further, there would also be labor costs associated with the maintenance of burial sites that have already been placed in service (that is, in which there has been a first family member interment). VA uses an estimate of 1 FTE per 7,844 developed grave sites in its planning for new cemeteries. Using this ratio, it would require about .2 FTE a year for the 30-year burial period in a casket cemetery. We adjusted this amount to reflect the lesser acreage of the other modes. For in-ground cremains sites, .04 FTE per year would be required; for columbaria, .002 FTE would be required. The cost differences among the three alternatives are proportional to the differences in the number of burial acres (as opposed to infrastructure acres) that each alternative requires. For each alternative, grave site maintenance costs would increase linearly for each succeeding year, because we assumed that the same number of first family member interments (1,667) would take place each year.

Analysis of the Costs of Extending an Existing Cemetery's Service Period

We also analyzed the relative long-term cost of each of the three alternatives as it applied to extending the service period of an existing cemetery. For this model, we adopted the same assumptions, and used the same data, as for the model we used to analyze the long-term cost of a new cemetery, with the following modifications:

- We assumed the existence of an acre of land that had already been acquired—an acre composed of parcels of land that were not contiguous to each other—so that the cost of land acquisition was zero for all three alternatives.
- Similarly, we assumed that such costs as environmental assessment, architect/engineer design, land development, and construction of administration and maintenance buildings had already been incurred for the casket and in-ground cremains site estimates.
- We assumed that for columbaria, it would be necessary to incur the cost of constructing a set of niches, including architect/engineer design costs.
- For each of the three alternatives, we assumed that a total of 1 acre of land, pieces of which were not contiguous to each other, could be devoted to burial sites. That is, we assumed that the cemetery's infrastructure (for example, roads) was complete and that there were no other obstacles (such as irregular topography) to the full use of the acre for burial sites. Thus, we assumed the theoretical maximum number of interment sites: 871 for caskets; 4,840 for in-ground cremains sites; and 87,000 for columbaria.
- Only costs that are incurred up to the time that the acre is closed to further first family member interments are accounted for. Because, as noted above, each of the three alternatives permits a different number of interment sites per acre, and because we are assuming that first family member interments will take place at a rate of 1,667 per year, the time at which the acre's first family member interment sites are full will be different under the three alternatives (0.52 years for caskets; 2.9 years for in-ground cremains sites; and 52.2 years for columbaria). This simplifying assumption leads to an understatement of the cost of casket burial relative to that of the other alternatives, all other things equal.

Additional Assumptions

Future changes in cost factors. All costs are expressed in 1997 dollars. We assumed that although the costs of labor and materials could rise in the future, the relative prices would remain unchanged.

Discount rate. We used a (real) discount rate of 3.21 percent. This rate is based on (1) a (nominal) long-term cost to the government of borrowing 6.71 percent, as represented by the interest rate on 30-year Treasury securities as of June 1997, and (2) a long-term inflation rate projection of 3.5 percent that was prepared by the Social Security Administration (SSA).[19]

[19]We also performed a sensitivity analysis in which we used a (real) discount rate of 2.7 percent based on SSA's intermediate long-term projection of the real interest rate (see SSA, 1997 Annual Report of the Board of Trustees of the Federal Supplementary Medical Insurance Trust Fund (Washington, D.C.: SSA, Apr. 24, 1997, p. 7). We found that using this alternative assumption did not substantially alter the relative costs of the three modes of interment.

Period of analysis. As agreed with your office, we analyzed cost data over a period that ends 30 years after the first interments (that is, 33 years), at which time the cemeteries are assumed to be full.

Ideally, a cost analysis would consider the entire useful life of the project, given that differences in operating costs among the three modes of interment would persist even if there was no new development of burial sites or new first family member interments. For a cemetery, this time period is indefinite. Accordingly, we performed a sensitivity analysis in which the present value of costs for the three modes of interments was evaluated over a period of 53 years (that is, until 20 years had elapsed since the last first family member interments).

We found that when costs were evaluated over the longer period, the cost would be $58.4 million for casket burial, $24.1 million for in-ground cremains burial, and $24.8 million for columbarium burial. The differences between costs for the 33-year and 53-year periods reflect differences in operating costs across the three modes of interment, especially the fact that columbaria would require far less costly maintenance than the other two types of interment.

Information on the Costs of Three Types of National Cemeteries

We provided information on a cemetery providing only casket interment, another providing only interment of cremated remains in columbarium niches, and a third providing interment of in-ground cremated remains. For each type of cemetery, this appendix provides 30-year undiscounted and present value cost estimates in 1997 dollars for development and construction and operations and maintenance. We also projected the cash outlays that would be required to construct and operate a cemetery that offered each of these modes of interment over a 30-year period (see fig. II.1). Costs were based on actual figures obtained from the most recent NCS construction project—Tahoma National Cemetery. The following tables present detailed data for each type of cemetery we analyzed.

Table II.1: Cost Summary for a Cemetery Offering Only Casket Burial

Cost factors	Years 1-3	Years 4-13	Years 14-23	Years 24-33	Total cost undiscounted	30-year present value
Development and construction costs						
Site acquisition (115 acres)	$1,148,000	[a]	[a]	[a]	$1,148,000	$1,148,000
Environmental assessment	100,000	[a]	[a]	[a]	100,000	100,000
Architect/Engineer design	545,414	$222,446	$215,265	[a]	983,125	822,027
Land development	3,907,783	3,907,783	3,907,783	[a]	11,723,349	8,426,331
Construction of buildings	1,547,581	[a]	[a]	[a]	1,547,581	1,476,131
Committal service shelter	130,554	65,277	[a]	[a]	195,831	169,922
Subtotal	7,379,332	4,195,506	4,123,048	[a]	15,697,886	12,142,411
Operations and maintenance costs						
Labor	[a]	7,887,048	10,946,990	$14,006,956	32,840,994	18,385,718
Nonlabor[a]	[a]	9,891,200	10,846,200	11,801,200	32,538,600	19,071,773
Equipment	736,674	150,000	150,000	[a]	1,036,674	869,083
Subtotal	736,674	17,928,248	21,943,190	25,808,156	66,416,268	38,326,574
Total	**$8,116,006**	**$22,123,754**	**$26,066,238**	**$25,808,156**	**$82,114,154**	**$50,468,985**

[a]Not applicable.

[b]Nonlabor costs include the cost of purchasing such items as grass seed, pest control, grave liners, and headstones or markers.

Table II.2: Cost Summary for a Cemetery Offering Only Columbarium Burial

Cost factors	Years 1-3	Years 4-13	Years 14-23	Years 24-33	Total cost undiscounted	30-year present value
Development and construction costs						
Site acquisition (14 acres)	$142,500	[a]	[a]	[a]	$142,500	$142,500
Environmental assessment	7,250	[a]	[a]	[a]	7,250	7,250
Architect/Engineer design	862,233	$518,974	$511,794	[a]	1,893,001	1,512,670
Land development	485,916	485,916	485,916	[a]	1,457,748	1,047,778
Construction of buildings	965,001	[a]	[a]	[a]	965,001	920,443
Committal service shelter	130,554	65,277	[a]	[a]	195,831	169,922
Columbaria	4,166,750	4,166,750	4,166,750	[a]	12,500,250	8,984,740
Subtotal	6,760,204	5,236,917	5,164,460	[a]	17,161,581	12,785,303
Operations and maintenance costs						
Labor	[a]	4,041,213	4,902,749	$5,764,296	14,708,258	8,428,489
Nonlabor[b]	[a]	820,050	960,050	1,100,050	2,880,150	1,667,550
Equipment	91,664	18,000	18,000	[a]	127,664	107,353
Subtotal	91,664	4,879,263	5,880,799	6,864,346	17,716,072	10,203,392
Total	**6,851,868**	**$10,116,180**	**$11,045,259**	**$6,864,346**	**$34,877,653**	**$22,988,695**

[a]Not applicable.

[b]Nonlabor costs include the cost of purchasing such items as grass seed, pest control, and niche covers.

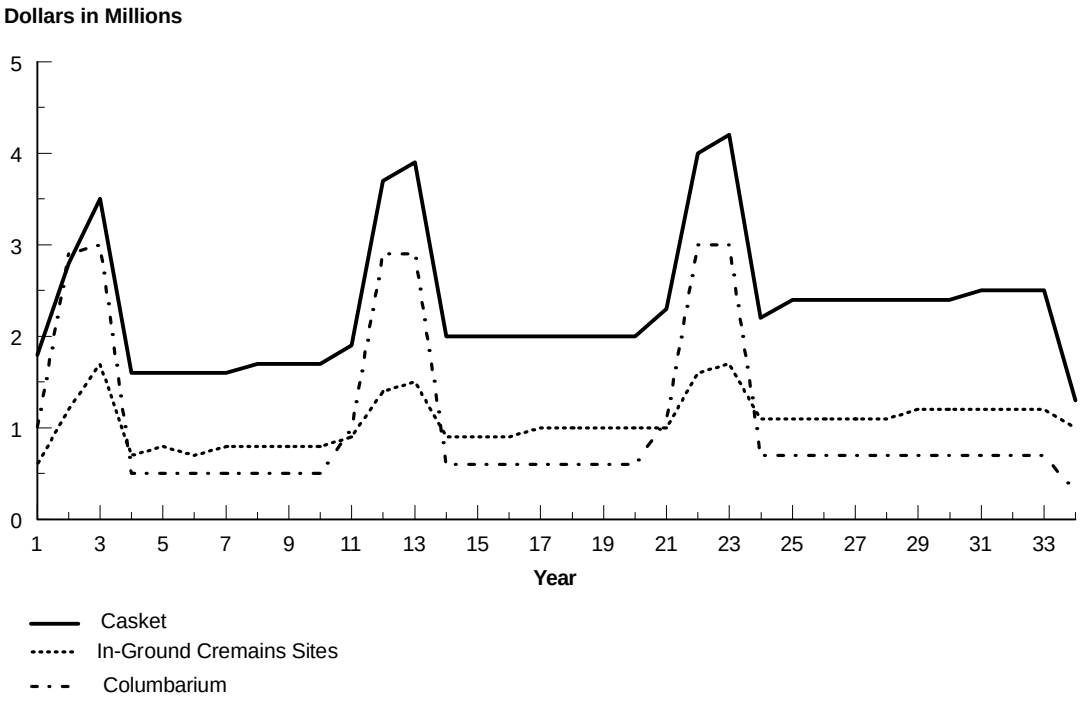
Table II.3: Cost Summary for a Cemetery Offering Only In-Ground Cremains Burial

Cost factors	Years 1-3	Years 4-13	Years 14-23	Years 24-33	Total cost undiscounted	30-year present value
Development and construction costs						
Site acquisition (34 acres)	$343,000	[a]	[a]	[a]	$343,000	$343,000
Environmental assessment	17,150	[a]	[a]	[a]	17,150	17,150
Architect/Engineer design	246,249	$45,890	$38,710	[a]	330,849	300,284
Land development	1,166,197	1,166,197	1,166,197	[a]	3,498,591	2,514,664
Construction of buildings	1,159,204	[a]	[a]	[a]	1,159,204	1,105,685
Committal service shelter	130,554	65,277	[a]	[a]	195,831	169,922
Subtotal	3,062,354	1,277,364	1,204,907	[a]	5,544,625	4,450,705
Operations and maintenance costs						
Labor	[a]	6,071,287	7,352,561	$8,633,833	22,057,681	11,385,942
Nonlabor[b]	[a]	2,336,900	2,621,900	2,906,900	7,865,700	4,590,211
Equipment	443,003	90,000	90,000	[a]	623,003	522,387
Subtotal	443,003	8,498,187	10,064,461	11,540,733	30,546,384	16,498,540
Total	**$3,505,357**	**$9,775,551**	**$11,269,368**	**$11,540,733**	**$36,091,009**	**$20,949,245**

[a]Not applicable.

[b]Nonlabor costs include the cost of purchasing such products as grass seed, pest control, and markers.

Figure II.1: Cash Flow for Three Modes of Burial



Comments From the National Cemetery System

DEPARTMENT OF VETERANS AFFAIRS
DIRECTOR, NATIONAL CEMETERY SYSTEM
WASHINGTON DC 20420

AUG 27 1997

Stephen P. Backhus, Director
Veterans' Affairs and Military Health
Care Issues
United States General Accounting Office
441 G Street, NW
Washington, D.C. 20548

Dear Mr. Backhus:

Thank you for the opportunity to comment on GAO's draft report, National Cemetery System: Opportunity Exists to Extend the Service Period of National Cemeteries (GAO/HEHS-97-192; GAO File #2001D). The recommendations presented appear to be valid, and represent the vision and performance of the National Cemetery System in meeting the burial needs of our Nation's veterans. Our goal is to assure that a burial option is available to all eligible veterans, while assuring that the burial options provided are preferred by veterans.

Specifically regarding the recommendations contained in the draft report, NCS offers the following comments:

1. Develop plans to address veterans' long-term burial demands during the peak years.

Concur, with comments. NCS is already performing "long-term" planning as evidenced by numerous strategies and activities. Strategic planning and management in NCS is a dynamic process that reflects the target realities of the five-year budget cycle and the requirements of GPRA while formulating and identifying longer range issues:

- The NCS Strategic Plan was developed through an inclusive strategic planning process. NCS has continued to refine and enhance its strategic plan, and has recently drafted a new strategic plan for the budget cycle of FY 1998 -- FY 2003. This strategic plan identifies sites at which NCS must build new cemeteries, extend the service period of open national cemeteries, and acquire land through purchase or donation to keep existing cemeteries open. It sets an additional goal to increase the number of veterans served by NCS-supported State veterans' cemeteries by 35,000 per year beginning in FY 1998.

- NCS has also developed the Management and Decision Support System (MADSS), which provides current, detailed information to support estimates of future workload, acreage status at the national cemeteries, projected dates of depletion of developed gravesites, and projected dates of depletion for full-casket gravesites beyond the year 2030, and serves as a repository of historical information about interments. Data reported through the MADSS is used to plan future construction projects and land acquisitions.

• NCS has completed two Reports to Congress, in June 1987 and in February 1994, pursuant to the requirements of Public Law 99-576. These reports described NCS plans for its operations, identified the requirements for additional burial space for veterans, and identified the metropolitan areas most in need of veterans cemeteries. Although national cemeteries have been or are being constructed at some

of those sites, NCS recognizes that service to the remaining metropolitan areas is a critical need that must be addressed. Furthermore, NCS officials are in the process of discussing with the House Veterans' Affairs Committee the feasibility of a new study to update and identify those areas of the country most in need of a new national cemetery.

• Cemetery "master plans" have been prepared for all cemeteries developed since the 1970's. These master plans pre-design all aspects of the cemetery grounds, including full-casket sections, cremain sections, and columbarium units for the projected life of the cemetery. Master plans include phased development, in ten-year increments; at each phase there is a reevaluation of the most efficient and effective way to continue to provide burial services for veterans (full-casket, in-ground cremain, columbaria, or mixtures of each).

• NCS administers the State Cemetery Grants Program (SCGP), which provides grants to States of up to 50 percent of the cost of establishing, expanding, or improving state veterans' cemeteries as a complement to the services provided by federal facilities. To foster an enhanced partnership with the States, and increase access to burial options provided by this program, a legislative proposal has been submitted to authorize VA to award grants for up to 100 percent of the cost of construction, including initial operating equipment. Although not all States will establish veterans' cemeteries, many States have shown support for this legislative proposal.

2. Collect and use information on veterans' burial preferences to better plan for future burial needs.

Concur, with comments. NCS carefully tracks actual burial practices in our national cemeteries and monitors trends in the private cemetery sector. These indices offer a reliable method of planning for the future and NCS plans interment options accordingly. NCS emphasizes that all data currently available on NCS customer preferences indicate that an overwhelming majority prefer full-casket burial over cremation, as described in the enclosed White Paper. Additional data on veterans' preferences would, of course, assist NCS in its planning efforts, and additional questions pertaining to personal burial preferences will be included in the next National Survey of Veterans.

3. Identify opportunities to construct columbaria in existing cemeteries, for the purpose of increasing burial capacity and extending the cemeteries' service period.

Concur, with comments. NCS currently operates a strategy of developing additional space for cremated remains and is presently planning to add columbaria at eight existing cemeteries and include columbaria at all five new cemeteries. Within each annual update of the NCS five-year budget and construction plan, consideration is given to all sites that may need or warrant the establishment of columbarium units. Construction of columbaria is not undertaken far in advance of actual need; rather, the five-year forecast is factored into projected resource requirements, prioritized against other competing demands, and included in construction plans. Columbaria can be added to most cemeteries after full-casket options have been exhausted, and if the demographics of the local veteran community indicate support and willingness to use columbaria. Thus, we believe that we are presently accomplishing the intent and practice recommended by GAO.

The enclosed White Paper provides additional detail and perspective on the conclusions contained in the draft report. Any questions should be directed to Mr. Daniel Tucker, Director, Budget and Planning Service, at 273-5157.

Sincerely,

Roger R Rapp

for JERRY W. BOWEN

Enclosure

Enclosure

White Paper

Review of VA's National Cemetery System

1. This White Paper supplements the response of the Director, National Cemetery System to GAO Final Report, GAO File #2001D; DTS #737330.

2. All data currently available on NCS customer preferences indicate that an overwhelming majority prefer full-casket burial over cremation as described below:

Actual Interment Data. NCS carefully tracks actual burial choices of our Nation's veterans and their dependents who chose interment in national cemeteries. In FY 1996, NCS performed 71,786 interments: 51,552 casket interments and 20,234 cremain interments. Throughout the system, including all cemeteries that accepted interments, 28.2 percent of interments were of cremated remains. However, of the 57 national cemeteries in which there was a choice between full-casket and cremain interment, the cremation participation rate was lower, at 23.8 percent. Of the eighteen national cemeteries that have a cremation participation rate of 25 percent or more, 12 are from the Western service area, typifying the national trend and regional preference. Also confirming national trends and regional preference, Calverton, NY, National Cemetery, NCS's busiest cemetery with 7,349 interments in FY 1996, has a cremation participation rate of only 7.5 percent. NCS's two busiest cemeteries, Calverton, NY, and Riverside, CA, offer full-casket, in-ground cremain or columbarium interment. As shown in the table below, full-casket interments were the most favored option while niches were the least favored option.

Interments – Fiscal Year 1996

National Cemetery	Interments	Full-casket		In-Ground Cremains		Niche		Total Cremains	
	Total	Total	%	Total	%	Total	%	Total	%
Calverton, NY	7,349	6,798	92.5%	284	3.9%	267	3.6%	551	7.5%
Riverside, CA	6,517	4,434	68.0%	1,128	17.3%	955	14.7%	2,083	32.0%
Totals:	13,866	11,232	81.0%	1,412	10.2%	1222	8.8%	2,634	19.0%

Fourth National Survey of Veterans (NSV). Data on the type of burial veterans intend to have is available from the 4th NSV. Of the total veteran population, 66 percent plan to have a regular full-casket burial; 20 percent are planning to be cremated; two percent plan to be interred in a mausoleum; and 12 percent did not know, refused to answer, or had other burial plans. Of those veterans planning to be buried in a national cemetery, 77 percent planned on a regular full-casket burial; 22 percent on cremation, and the other one percent planned to be buried in a mausoleum. There was no significant variation in the type of burial preferred across most of the key demographic indicators including family income, marital status or age; full-casket burial was indicated as the most desirable interment option.

3. One of NCS's strategies for assuring that a burial option is available to all eligible veterans is to expand existing cemeteries to continue to provide service. Through FY 2002, NCS has identified 26 cemeteries that will require construction to make additional gravesites or columbaria available for burials; columbaria will be constructed at eight of those sites. However, the choice of method of interment is an individual decision and is strongly subject to influences such as culture/ethnicity, religion, geographic area of the country, and age/generational practices. As discussed above, most veterans and their families prefer full-casket interment. Therefore, in order to preserve space for full-casket interments, the first choice of veterans and their families, the incorporation of columbaria into cemeteries with limited remaining acreage or land suitable for in-ground burials is carefully evaluated. The master planning, design, and phased development of existing or proposed national cemeteries consider the anticipated ratio of full-casket and cremain usage. Where space limitations preclude full-casket interments, cremain sites or

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columbarium niches represent a viable means of providing continuing service at a cemetery that would be otherwise closed to veteran use. Further since the initial construction cost of columbarium units is very high, and since such units can architecturally be incorporated as peripheral walls or isolated stand-alone units within otherwise unusable sections of the cemetery, they can be added toward the end of the lifecycle of the cemetery and prolong interment activity for cremated remains after full-casket options have been exhausted. With the majority of veterans preferring full-casket burials, NCS has followed this development strategy.

4. The gravesite yield per acre of land varies significantly depending on the type of gravesite(s) used and the characteristics of the land. One acre of land contains 43,560 square feet of area. Using 5' X 10' gravesites, the mathematical maximum yield of burial sites is 871 per acre; using 6' X 10' gravesites yields 726 gravesites. In reality, the expected yield of gravesites per "average" acre of land ranges from 500 to 700 depending on topography, slope, wetland areas, high water tables, underlying rock, the positioning of roads, irrigation and utility lines, and landscaping buffer zones. The use of land that is unsuitable for full-casket interments can be maximized through the use of in-ground cremation sites or garden niches. In-ground cremain sites are 3' X 3' and are generally developed in sections not exceeding 500 units to avoid the perception of overpowering numbers. A section of 500 cremain sites would consume approximately 4,500 square feet. One acre, if devoted exclusively to cremain usage, could be expected to yield approximately 2,500 sites if properly designed to allow landscaped separation into five cremain sections. Garden niches are often found near pathways or along stretches of landscaped ground whose slope or configuration precludes the burial of caskets. Columbarium elements can be constructed in almost any multiple of niche yields. Such columbarium units can be single-sided or double-sided, and are normally built not to exceed four or five niches in height to permit ease in reading the inscription.

5. Any proposal to use 87,000 niches per acre is totally misleading, as this is the "mathematical yield" – the absolute maximum with no space between columns or units. The practice and operation of columbaria at that great a density, are both without precedence and any documentation at all of potential public acceptance. In fact, it would be at variance with designing and maintaining the national cemeteries as National Shrines. During FY 1995, NCS conducted a series of customer focus groups. The purpose of the sessions was to collect voluntary, first person, anecdotal data that would assist NCS in further assessing its performance in commemorating veterans' service. Participants in these focus groups indicated a high level of satisfaction with the appearance and maintenance of national cemeteries, and consistently commented favorably on the beautiful and well-kept veterans' resting places provided by NCS. In addition, NCS has begun periodically performing surveys of the families of individuals who are interred in national cemeteries and of other visitors to judge how the public perceives the appearance of cemeteries. In FY 1996, 94% of respondents rated cemetery appearance as good to excellent.

6. A fundamental assumption of the 30-year life cycle cost comparison model (as contained in the draft report GAO File #2001D; DTS #737330) is that first interments would be evenly spaced over the 30 years that the cemetery would be open for initial interments. However, by postulating that each type of cemetery (casket, in-ground cremain, and columbarium) would have the same annual interment rate, this assumption does not account for veteran burial preferences . This assumption also has the consequence of each cemetery depleting its 50,000 burial space inventory at the same time (i.e., at the end of the 30 year period.) Although cremation burials are gaining in acceptability, all available data show the demand for cremain sites is significantly less than for casket sites, and will continue to be so well into the next century. As a practical matter, in juxtaposition to the cost comparison model, in-ground cremation and columbarium sites would not be depleted at the end of the initial 30-year period. This would result in a narrowing of the gap between the cost per burial space among the three types of cemeteries over the same 30-year period.

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