COMMONWEALTH of VIRGINIA

Department of Veterans Services

Vincent M. Burgess
Commissioner

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November 30, 2007

The Honorable Timothy M. Kaine
Governor

The Honorable Vincent F. Callahan, Jr.
Chairman, House Appropriations Committee

The Honorable John H. Chichester
Chairman, Senate Finance Committee

Re: Meeting the Memorial Needs of Virginia Veterans: An Analysis of Existing and Proposed Cemetery Sites

Dear Governor Kaine, Delegate Callahan, and Senator Chichester:

I am pleased to submit this report on the memorial needs of Virginia's veterans, prepared by the Weldon Cooper Center for Public Service at the University of Virginia.

The study recommends that Virginia establish the goal of placing a national or state veterans cemetery within 50 miles of at least 90 percent of its veteran population. The study also recommends that the state plan for the future deactivation of Culpeper National Cemetery and that the state begin planning for a fourth state veterans cemetery in west-central Virginia to meet the long-term memorial needs of Virginia's veterans.

Sincerely,

Vincent M. Burgess

MEETING THE MEMORIAL NEEDS OF VIRGINIA VETERANS

An Analysis of Existing and Proposed Cemetery Sites

Terance J. Rephann, PH.D

November 2007

Weldon Cooper
Center for Public Service
University of Virginia

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The Weldon Cooper Center for Public Service
University of Virginia

November 2007

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FOREWORD

This study was commissioned by the Virginia Department of Veterans Services to determine the need for additional veterans cemeteries in the Commonwealth of Virginia and the location(s) where the cemetery needs of Virginia's veterans are not currently being met. The study relies on both published and unpublished data as well as literature that address trends in the death-care industry. The study makes use of standard geographical public facility location modeling techniques to identify the optimal sites for cemeteries. It also provides estimates of state veteran cemetery usage under different scenarios. These locations and estimates can provide a common framework for informing future cemetery development and funding decisions.

The author would like to thank the staff of the Virginia Department of Veterans Services for assistance in compiling data and information that were used in this report. Special thanks go to Mr. Dan Kemano, Director of Cemeteries, and Mr. Steven Combs, Director of Policy and Planning. The staff of Virginia Veterans Cemetery and the Albert G. Horton, Jr. Memorial Cemetery, including Superintendent Becky Harvie and Susan Ulrich, provided additional assistance. Professor John Knapp of the Weldon Cooper Center provided helpful guidance and feedback, and Steve Kulp assisted with data collection and document preparation. W. Grace Ng and Dave Borszich provided editing advice. Any errors or omissions are the responsibility of the author.

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Regional Economist

Charlottesville, Virginia
November 2007

MEETING THE MEMORIAL NEEDS OF VIRGINIA VETERANS

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EXECUTIVE SUMMARY

The Commonwealth of Virginia is home to a large number of veterans. According to the 2000 U.S. Census, their number was approximately 786,000 which ranks 10th largest in the U.S. This higher-than-average veteran population can be attributed to the number of large military bases in the eastern portion of the state, a relatively high rate of youth military recruitment, and retiree migration trends that favor more temperate climates in the Southern U.S.

To meet the burial needs of a large and growing veteran population, the Virginia Department of Veterans Services (DVS) established a State Cemetery System with the assistance of funds obtained from the National Cemetery Administration's State Cemetery Grants Program. The Virginia Veterans Cemetery in Amelia County was dedicated in 1997 and the Albert G. Horton, Jr. Memorial Veterans Cemetery in Suffolk was opened in 2004. Since the establishment of these cemeteries, the number of interments has grown nearly every year with a record number of 738 laid to rest in FY 2007.

A number of different factors have influenced the burial needs of Virginia veterans in the immediate past and will continue to do so in the future. First, while Virginia has historically been well served by a number of national cemeteries located within the state, most of these cemeteries have closed in the last four decades, and Culpeper National Cemetery may reach capacity in the next 15-20 years unless additional land is acquired. Second, the number of annual veteran deaths projected over the next few decades will continue to be high by historical standards. Third, many veterans remain outside a reasonable traveling distance of a state or national cemetery. Fourth, some aging veteran cohorts, such as Vietnam veterans, may increasingly favor veteran cemetery interment.

In assessing state and national cemetery needs, the National Cemetery Administration (NCA) uses a 75-mile cemetery service area boundary. The goal of the NCA is to maximize the number of veterans who reside within 75-mile straight-line distance of a national or state cemetery. This boundary is considered to be the outer limit for which veterans will consider burial sites. Using this criterion, the establishment of a new state cemetery in southwest Virginia at Dublin on property to be obtained from the U.S. Army, will bring an additional 65,000 Virginia veterans or 98 percent of all veterans within 75 miles of a veterans cemetery.

This study examined interment records of the two state cemeteries. It finds that the vast majority of veteran interments are drawn from within 50 miles of a state cemetery with even higher likelihoods of veteran burial occurring for those areas in closer proximity to each cemetery. This result conforms to some national research that indicates that the 75-mile service area boundary may be too large. In addition, a 75-mile boundary may be a poor approximation of travel time because geographical travel conditions vary widely due to differences in road network density, traffic congestion, and the presence of natural barriers such as rivers and mountains. A 50-mile service area boundary roughly translates into a 71-mile roadway travel distance for rural Amelia County, which can be traveled in less than two hours.

This study recommends use of a 50-mile distance service standard in state cemetery planning. Using this criterion, it is estimated that an existing or planned national or state cemetery serves fewer than 90 percent of Virginia

veterans. In addition, the strong possibility exists that Culpeper National Cemetery will be closed to casket burial in the planning horizon. If that closure happens, only 85 percent of Virginia veterans would be served. It is recommended that Virginia establish the goal of including at least 90 percent of its veteran population within 50 miles of a state or national cemetery and plan for the possible deactivation of Culpeper National Cemetery. If these guidelines are adopted, a new cemetery located in west central Virginia, in particular Nelson County, would serve the largest population of unserved veterans including a number of veterans who would be displaced by the closure of Culpeper.

Acquisition and development of a Nelson County area site should proceed as part of a long-term plan. Desirable sites for development would have a number of features such as good transportation access, no major built up areas contiguous to the parcel, compatibility with local zoning regulations, no major easements or other restrictions on development, the absence of environmental hazards and major grades which would escalate construction costs, and aesthetic characteristics such as tree canopy and some topographical relief. Property values in the area are relatively low by state standards, and Nelson County is projected to grow slower than the state as a whole. Areas outside the immediate I-81 and I-64 corridors are not subject to the same development pressures as the northern and eastern parts of the state. Therefore, no sense of urgency or immediacy should guide the acquisition and development decision. On the other hand, the DVS would incur a number of small administrative costs such as property maintenance costs and some indirect costs such as legal liability if a decision were made to immediately acquire the land. Moreover, local government(s) would lose some small amount of revenue from foregone property taxes.

Projections indicate that approximately 1,000 veterans would be laid to rest within a four-cemetery system in FY 2017 and potentially 20,000 veterans over the period FY 2008-2030. These figures do not include spouses or eligible dependents that would contribute an estimated 30 percent to the cemetery workload. These projections are based on U.S. Department of Veterans Affairs veteran death projections and estimates of county burial draw rates in the vicinity of each cemetery. Albert G. Horton, Jr. Memorial Veterans Cemetery in Suffolk would have the largest volume of burial activity followed by Virginia Veterans Cemetery in Amelia. A prospective cemetery in Dublin would serve approximately 150 veterans beginning in FY 2012 and another one in Nelson would serve approximately the same number beginning in FY 2017.

Although state veterans cemeteries are currently restricted to state residents or residents of the state at time of military induction, removing this eligibility requirement is projected to have a relatively small effect on state cemetery interment volumes. The two cemeteries that would be affected, Albert G. Horton, Jr. Memorial Veterans Cemetery in Suffolk and the proposed state cemetery in Dublin, would experience a projected impact of 20 and 42 burials respectively in FY 2012, which represents approximately 10 percent of their total projected burials volumes otherwise. Virginia Veterans Cemetery in Amelia and a fourth cemetery in Nelson County would not be affected because their service areas lie in Virginia.

Two major factors will contribute to decreasing consumption of cemetery space over the long term. First, Virginia veteran deaths are projected to drop below FY 2000 estimates beginning in FY 2020. These decreases will be observed in all state cemetery service regions. Second, veterans, like other citizens, are showing an

increasing preference for cremation over traditional casket burial. The space requirement of inurnment is only a fraction of traditional casket burial. Because of these trends, the total acreage requirements of new cemeteries should be less than the requirements of cemeteries developed in the past.

The cemetery division of the DVS has established performance criteria that include increasing the number of burials at its existing facilities. In order to achieve burial goals, the department is exploring new ways of reducing the cost burden to veteran families and increasing outreach and marketing. State cemeteries provide significant price advantages to users over private cemeteries that offer discount burial services such as "veteran gardens." It is estimated that the low-cost private alternatives would cost veterans and their families approximately $1,500 more for a veteran casket burial and approximately $4,440 more if both veteran and spouse were interred. Moreover, the department is exploring the possibility of procuring burial vaults at wholesale prices and offering them to veterans at cost (an estimated $150). DVS has also made pre-application to the National Cemetery Administration State Cemetery Grants Program for grant funding to pre-install vaults as part of its Dublin cemetery project. Pre-installing liners would have the added benefit of stabilizing burial plots and allowing the cemetery to accommodate a larger number of gravesites.

The department has conducted a number of outreach activities and more are planned. DVS staff visits local funeral homes, veteran organization chapters, churches, beauty parlors, and barbershops within a 50-mile radius of the two state veterans cemeteries to increase awareness of the state veterans cemeteries and veteran burial benefits. Also, periodic media exposure is gained from local newspaper, radio, and television outlet features, especially surrounding special events such as Memorial Day ceremonies. The department recently hired a communications specialist to improve the quality and distribution of public relations materials and will collaborate and coordinate with other units in the department to make users of other DVS services aware of their burial benefits.

Opportunities may exist to improve outreach. Pre-applications completed by veterans are a potential useful source of data about veterans and the effectiveness of outreach activities. Monthly reports generated from this data could be used to assess strengths and weaknesses and track progress from year to year. Mail contact with veterans using both reports of separation (DD214) and commercial marketing databases might also yield additional pre-applications. Since more pre-planning and purchasing is occurring over the Internet, enhancements to the DVS website (http://www.virginiaforveterans.com) are recommended. This website would be a useful resource for veterans who are contacted as a result of a coordinated print and media outreach campaign.

In order to keep pace with changing consumer tastes and the private cemetery industry, some additional products and services might be offered. Veterans are increasingly favoring burial modes that utilize less land. Therefore, it may also be prudent to plan for offering other interment services such as scattering gardens and even mausoleums if federal financial support can be obtained. Computer technology could also be tapped to offer additional electronic services such as kiosks that provide cemetery information, multimedia equipment for funeral ceremonies and video presentations to educate the general public about the role of the armed forces in shaping the nation's history.

Finally, state cemeteries offer a high standard of appearance and service. In order to maintain this quality and ensure continued positive messages by way of word-of-mouth, quality

assessment data may be useful. The use of satisfaction surveys mailed to families of the departed may provide valuable information for performance measurement and planning continuous improvement. Such a survey instrument is being used by the NCA and a similar instrument could be adopted by the DVS.

Introduction

This report evaluates the burial needs of Virginia's veterans. It describes the locations and capacities of cemeteries that serve veterans who reside in Virginia, evaluates the need for additional burial capacity, identifies an optimal location for a new state cemetery, and examines the issues to consider in procuring additional property for cemetery expansion. It also investigates the role of cost and marketing/outreach efforts in shaping veteran burial choices and the potential effect of expanding interment eligibility to out-of-state residents. Based on projections of veteran deaths through 2030 and various assumptions about veteran burial location preferences (veteran cemetery versus other interment locations) and type of internment (ground-casket, cremation burial, or columbarium), the study identifies alternate scenarios for utilization of existing facilities and proposed facilities. In determining future expansion needs, the capacities of existing national veteran cemeteries at Culpeper (VA), Quantico (VA), Mountain Home (TN), Salisbury (NC), and Grafton (WV) are considered as well as Virginia Department of Veterans Services cemeteries located in Amelia (Virginia Veterans Cemetery), Suffolk (Albert G. Horton, Jr. Memorial Veterans Cemetery), and a new state facility to be developed in Dublin.

This report is divided into five additional sections. The next section provides some historical background on national and state veteran cemeteries including the establishment of the National Cemetery Administration (NCA), the State Cemetery Grants Program, and Virginia's veterans cemeteries. The second section examines the variables that influence veteran burial needs. These variables include veteran population and death projections as well as veteran interment preferences. In section three, a location analysis is performed to identify optimal cemetery sites using several competing modeling assumptions. In addition, the issues surrounding land acquisition for a fourth state veterans cemetery are discussed. The fourth section presents veteran service area computations, projections of cemetery burial volumes for the period FY2008-FY2030 and estimates of the impact of allowing veterans who reside out-of-state to be interred in the cemeteries. The fifth section examines comparative cost data for private, state, and national cemeteries and provides outreach, marketing, and product development recommendations

Section 1
Background

Veteran Cemetery History

The origins of the U.S. National Cemetery System can be traced to the extraordinary burial needs that arose near military hospital sites and battlefields where there were military engagements during the Civil War. After the war, additional sites were acquired for the dignified re-interment of military casualties that were unburied or scattered in temporary, makeshift graves. Seventeen of nineteen national cemeteries located in Virginia were created during the Civil War and the period immediately after.[1] Some, such as Seven Pines and Balls Bluff, bear the names of significant Civil War battles (See **Table 1.1**). Indeed, among the first U.S. military cemeteries was Alexandria which was used for burials that arose from hospital casualties and military engagements near Washington D.C. As it filled to capacity, Arlington National Cemetery, the Nation's most prominent military cemetery, was established. The property was confiscated in 1862 from the owner, Robert E. Lee, by the U.S. government in a tax lien case (Holt 1992). Arlington and another national Civil War era cemetery, Culpeper National Cemetery, continue to accept casket interments and Alexandria and Danville continue to accept cremated inurnments.

1 Hampton VA National Cemetery (not to be confused with Hampton National Cemetery) was created during a Yellow Fever epidemic for servicemen at the Southern Branch of the National Home in 1899 (Holt 1992). Quantico National Cemetery was opened in 1983 using land donated by the Marine Corps military base at Quantico.

Table 1.1: Virginia National Veterans Cemeteries Established During Civil War Era

Cemetery	Year Established	Acreage	Status[a]	Ownership
Alexandria	1862	5.5	Closed (1967)	Department of Veterans Affairs
Arlington	1864	612	Open	Department of the Army
Balls Bluff	1865	4.6	Closed (1889)	Department of Veterans Affairs
City Point	1866	6.7	Closed (1971)	Department of Veterans Affairs
Cold Harbor	1866	1.4	Closed (1970)	Department of Veterans Affairs
Culpeper	1867	29.5	Open	Department of Veterans Affairs
Danville	1866	3.5	Closed (1970)	Department of Veterans Affairs
Fredericksburg	1867	12	Closed	Department of the Interior
Fort Harrison	1866	1.5	Closed (1967)	Department of Veterans Affairs
Glendale	1866	2.1	Closed (1970)	Department of Veterans Affairs
Hampton	1862	27.1	Closed (1993)	Department of Veterans Affairs
Poplar Grove	1866	18	Closed	Department of the Interior
Richmond	1867	9.7	Closed (1963)	Department of Veterans Affairs
Seven Pines	1866	1.9	Closed (1964)	Department of Veterans Affairs
Staunton	1868	1.15	Closed (1983)	Department of Veterans Affairs
Winchester	1866	4.9	Closed (1969)	Department of Veterans Affairs
Yorktown	1866	2.7	Closed	Department of the Interior

[a] "Closed" means closed to casket burial

Source: U.S. Department of Veterans Affairs (2007a), Steere (n.d.), and Holt (1992)

The national cemetery system was formally created by legislative act in 1862 with the Department of the U.S. Army Quartermaster being charged with the responsibility of acquiring land for establishing cemeteries (Steere n.d.). Legislation in 1863 provided the legal authorization for funding the physical improvements to the cemetery land. By 1870, seventy-three national military cemeteries had been created and the process of identifying fallen soldiers and re-interment of the dead had concluded. The next major expansion of the national cemetery system occurred in 1873 when burial privileges were extended to all honorably discharged Civil War veterans. Later in the century, this privilege was extended to other war veterans such as those who served in the Spanish American War. In 1948, spouses and dependent children and some non-military personnel who served in combination with the U.S. military officially became eligible for interment.

The next major phase of national cemetery expansion was motivated by the need to renew existing national cemeteries that were approaching capacity and to provide more convenient access to veterans residing in underserved areas. In 1938 several existing cemeteries were expanded, and twenty new national cemeteries were authorized on land provided by the states (Steere n.d.). A 1974 study for the NCA recommended that a system of regional cemeteries be developed and that states participate on an equal basis towards development costs. This recommendation was formalized in 1978 with the establishment of the State Cemetery Grants Program. In 1998, this 50-50 percent cost split was modified with the Department of Veterans Affairs providing 100 percent of development costs but requiring that the states provide the land for development (U.S. Congress. House. Subcommittee on Disability Assistance and Memorial Affairs, 110th Congress. May 8, 2007). The states are also responsible for the cemetery operational costs.[2]

The NCA currently operates a two-tiered system for establishing veteran cemeteries. It continues to expand and improve the system of national cemeteries in underserved areas where it can be established that at least 170,000 veterans would live within 75 miles of a new cemetery. The most recent additions to the system include cemeteries in Sacramento, CA and Southern Florida. Six national cemeteries are being developed in Bakersfield, CA, Birmingham, AL, Columbia, SC, Jacksonville, FL, Sarasota, FL, and Southeastern Pennsylvania (U.S. Department of Veterans Affairs 2007a). The NCA currently operates 125 national cemeteries. However only 65 are accepting all types of interments. Seventeen accept cremated remains or the remains of family members in a gravesite of an interred family member. The remaining cemeteries accept only the remains of family members in a gravesite of an interred family member (U.S. Department of Veterans Affairs 2007a).

The State Cemetery System is viewed as supplemental to the national system and used to provide access to veteran populations that fall below the 170,000 threshold for national cemetery eligibility. The NCA has funded 65 state cemeteries, including two in Virginia. In addition, ten new state cemeteries are under development (U.S. Department of Veterans Affairs 2007a). They are located in Georgia, Texas, Kentucky, Louisiana, South Carolina, Iowa, Montana, and Saipan.

Virginia State Veterans Cemetery System

According to the 2000 U.S. Census, Virginia was home to approximately 786,000 veterans

2 The NCA also provides a headstone or marker and $300 reimbursement toward burial expenses for each veteran interred at a state veterans cemetery.

Table 1.2: Top Veteran States, 2000

State	Number of Veterans
California	2,569,340
Texas	1,875,597
Florida	1,754,809
New York	1,361,164
Pennsylvania	1,280,788
Ohio	1,144,007
Illinois	1,003,572
Michigan	913,573
New Jersey	792,646
Virginia	786,359

Source: U.S. Census Bureau

and ranked 10th among the states (see **Table 1.2**). Virginia's veteran population as a percentage of civilian population aged eighteen years and older ranked ninth. This higher than average veteran population can be attributed to the number of large military bases in the eastern and northern parts of the state (e.g., the Pentagon, Quantico Marine Corps Base, Langley Air Force Base, Naval Station Norfolk), a relatively high rate of youth military recruitment in the state[3], and retiree migration trends that favor more temperate climates in the Southern U.S. Most of the state's veterans are located in the heavily populated Northern Virginia suburbs and Hampton Roads areas (see **Figure 1.1**). However, compared to the size of the adult civilian population, a relatively large number of veterans live in western and central counties of the state (see **Figure 1.2**).

To meet the burial needs of a growing number of elderly WWII and Korea era veterans and compensate for the loss of national cemeteries such as Hampton National Cemetery, which closed to casket burials in the mid 1990s, the State Veterans Cemetery System was created within the Virginia Department of Veterans Affairs (renamed the Virginia Department of Veterans Services in 2003). The first cemetery was dedicated in 1997 with the acquisition and development of the 129-acre Virginia Veterans Cemetery in Amelia, approximately 40 miles southwest of Richmond (see **Table 1.3**). In 2004, another state cemetery was opened, Albert G. Horton, Jr. Memorial Veterans Cemetery in Suffolk. It is anticipated that 80 acres of land will be acquired for a third veteran's cemetery in Dublin, approximately 50 miles south of Roanoke, in FY 2009. Pre-application is currently being made for development costs from the NCA State Cemetery Grants Program with

3 4.5 percent of Virginia's 15-24 aged population was recruited by the Army, Navy, Marines, and Air Force in 2005. This ranked 10th highest in the nation and was above the national average of 3.8 percent (National Priorities Project 2006).

Table 1.3: Virginia State Veterans Cemeteries, 2007

Cemetery	Location	Dedicated	Acreage	Total Interments	Characteristics	Projected Depletion Date
Albert G. Horton, Jr. Memorial Veterans	Suffolk	November 2004	73	1,243	1,920 niche columbaria (26 developed) 4X4 cremation plots 4X10 burial plots Granite headstones and markers	FY 2060+
Virginia Veterans	Amelia	May 1997	129	1,603	1,440 niche columbaria (29 developed) 3X3 cremation plots 5X10 burial plots Marble headstones and granite markers	FY 2080+
Southwest Virginia (Proposed)	Dublin	--	80	--	--	--

Source: Virginia Department of Veterans Services

Table 1.4: State Veterans Cemetery Interments, FY1997-FY2007

Year	Albert G. Horton , Jr. Memorial	Virginia Veterans	Total
1997	--	2	2
1998	--	95	95
1999	--	91	91
2000	--	124	124
2001	--	121	121
2002	--	175	175
2003	--	169	169
2004	--	179	179
2005	255	188	443
2006	478	231	709
2007	510	228	738
Total	1,243	1,603	2,846

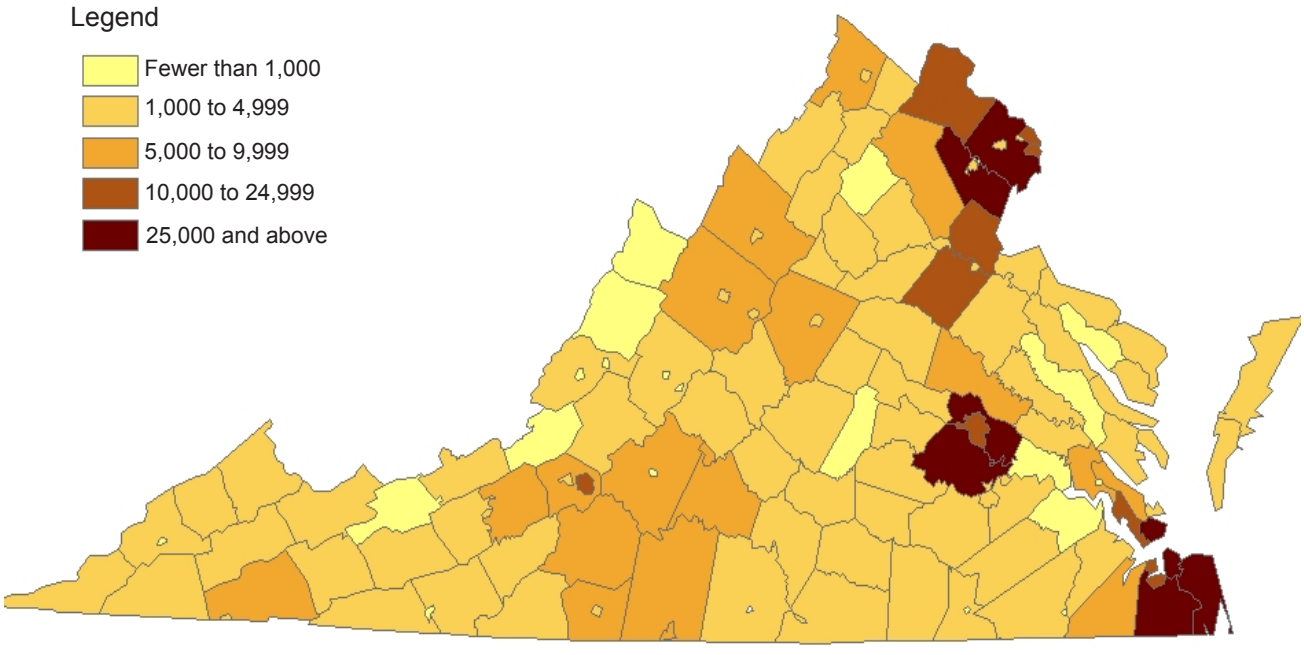
Source: Department of Veterans Services

construction expected to commence in FY 2010 or FY 2011.[4] These cemeteries are projected to meet the veteran burial needs of their respective service areas for the next 60 to 80 years.

The state veterans cemeteries provides a final resting place for a growing number of Virginia veterans (see **Table 1.4**). Moreover, the FY2006 figure amounts to approximately one-third of all Virginia veteran and veteran spouse/dependent interments handled by Virginia national and state cemeteries. This number will increase with the establishment of a new state cemetery in Dublin on property to be obtained from the U.S. Army. According to Virginia Department of Veteran Services (DVS) records, the cemetery will bring an additional 65,000 veterans within 75 miles of a veteran's cemetery (DVS 2006a). In addition, the DVS has stated goals of increasing burials by 10 percent each year at Amelia and 20

4 Using the NCA's 75-mile standard, two Virginia areas were identified as having large underserved veteran populations centered on Chesapeake and Roanoke (Principi 2002). The Albert G. Horton, Jr. Memorial Veterans Cemetery opened in 2004 in Suffolk serves the former area. The planned state cemetery in Dublin will serve much of the latter area.

Figure 1.1: Number of Veterans by City and County, 2000

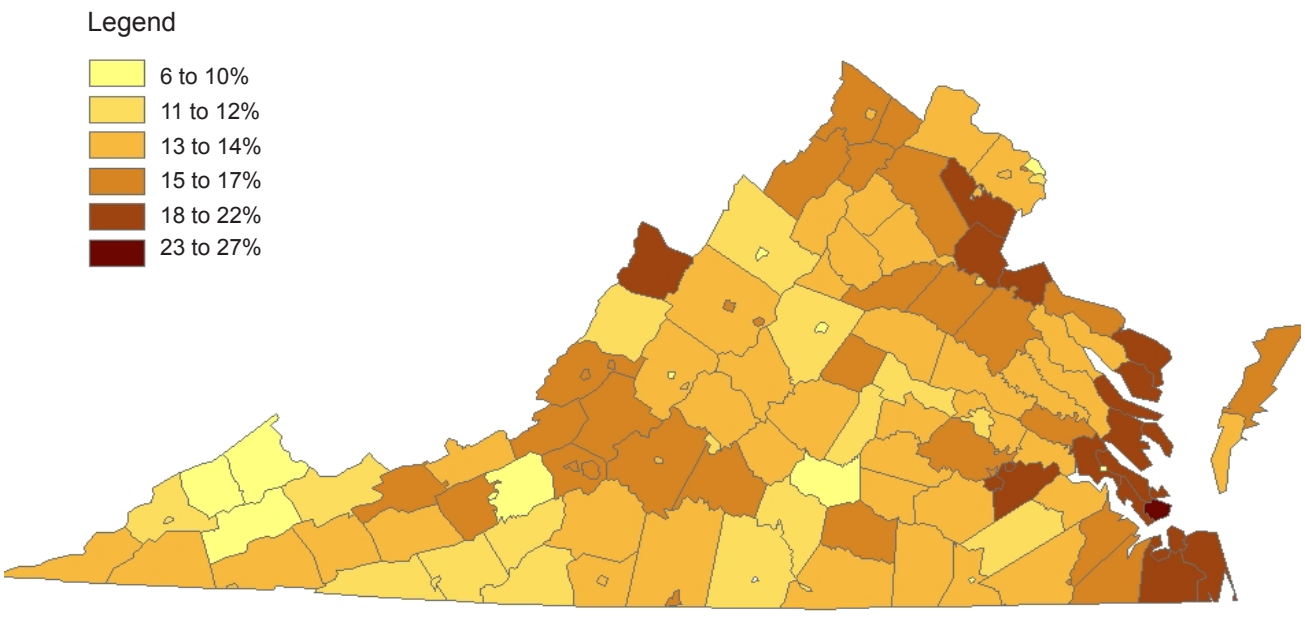


Source: U.S. Census Bureau

percent at Suffolk through increased outreach and marketing efforts (DVS 2006b).

The DVS restricts eligibility for interment to honorably discharged veterans who were legal residents of Virginia at death or upon entering the armed forces, their spouses, and dependent children (DVS 2006a). In this regard, Virginia is like most other states, the exceptions being Nevada, Wyoming, and Utah that do not require residency (Holt 1992). Legal residency is shown by submission of a report of separation (Form DD-214) that establishes where the veteran lived at the time of his induction into military service. Waivers are granted in special circumstances for others who lived in Virginia at one time but did not meet the letter of the residency conditions. Veterans are responsible for purchasing caskets, vaults/grave liners, and urns for cremains. The DVS covers all interment costs for the veteran excluding burial liner or vault. Spouses and dependents are charged $300 to cover grave opening and closing.

Figure 1.2: Number of Veterans by City and County as a Percentage of Civilian Population 18 Years and Older, 2000



Source: U.S. Census Bureau

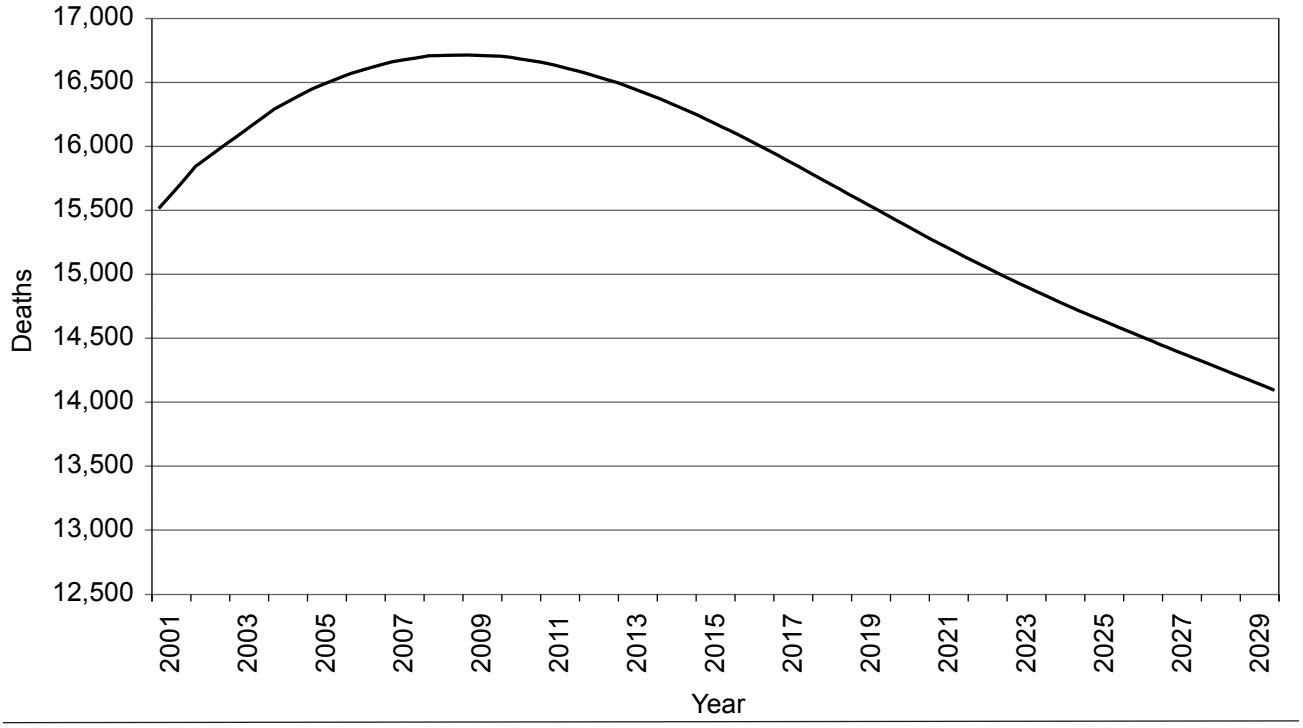
Section 2
Determinants of Burial Needs

Veteran Population and Death Projections

Veteran population and death figures used in this study are derived from the VetPop2004 Version 1.0 projection model (U.S. Department of Veterans Affairs 2007b). The projections are based on the 2000 U.S. Census, Department of Defense data on military separations, and Department of Veterans Affairs administrative data. State changes in veteran population numbers are based on subtracting estimated veteran deaths from the additional veterans created by separations from the military and estimates of interstate migration.

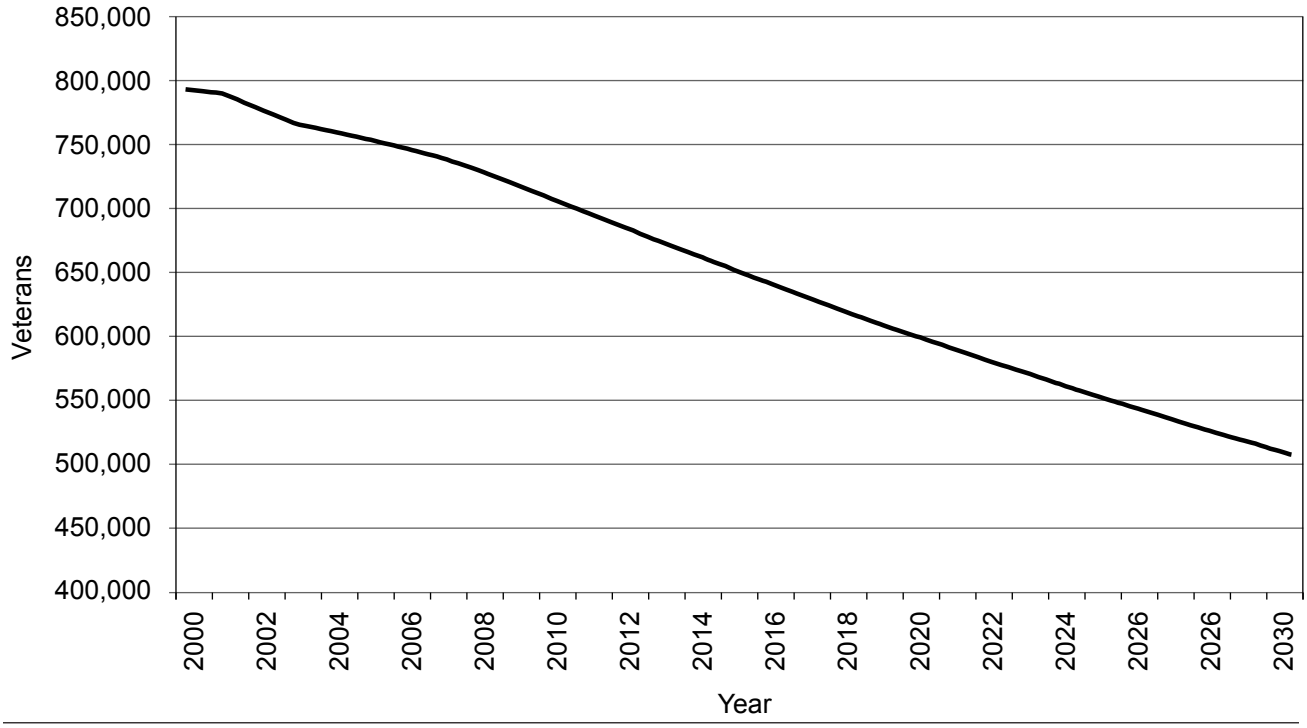
Mirroring national trends, the Commonwealth of Virginia is projected to see a peak in veteran deaths in FY 2008 (see **Figure 2.1**) due to the deaths of a large cohort of WWII and Korean War era veterans. Veteran deaths thereafter are projected to decline because of the shrinking size of the veteran pool (see **Figure 2.2**). This decrease is caused by mortality attrition and the smaller number of veteran separations caused by reduced peacetime military forces. Though veteran deaths are likely to decrease, they are not projected to reach the level estimated for FY 2000 until FY 2020.

Figure 2.1: Virginia Veteran Deaths by Year, 2001-2030



Source: U.S. Department of Veterans Affairs (2007b)

Figure 2.2: Virginia Veteran Population by Year, 2000-2030



Source: U.S. Department of Veterans Affairs (2007b)

County estimates and projections are determined by allocating from the state using 2000 U.S. Census information and locality population projections from Woods and Poole Economics, Inc. As noted by the Department of Veterans Affairs, counties and cities are the least reliable geography because of the more limited data available at this level. Moreover, the methodology does not address criticisms that it does not adequately take into account veteran age composition changes (Prettol and Glace 2001). However, a number of improvements have been made in the current release including the incorporation of an adjustment factor based on counties that have a higher percentage of foreign-born residents, which have a lower likelihood of producing veterans, and an adjustment factor for counties that have a high percentage of active duty military personnel, which have a higher likelihood of producing veterans. Both of these factors are likely to be important in Virginia which has relatively high concentrations of foreign-born residents in northern Virginia and armed forces members in eastern cities and counties.

Cemetery Preferences

Veteran burial preferences are shaped by a number of personal and financial factors. Knowledge of the veteran interment benefit also plays a big role. According to a 2001 veterans survey, two in five veterans (see **Table 2.1**) are not aware of their national and state burial benefits (U.S. Department of Veterans Affairs 2001). For those who are likely to choose a veteran cemetery for burial, the honor conferred by being buried there

Table 2.1: Veteran Awareness of Burial Benefits, 2001

Item	Percent of Respondents[a]
Burial in a national or state veterans' cemetery	58.8
VA headstones and burial markers in private cemeteries	44.2
Presidential Memorial Certificates for next of kin of deceased veterans	13.3

Source: U.S. Department of Veterans Affairs (2001)
[a] Sums to more than 100 percent because more than one response allowed.

is the overriding factor (see **Table 2.2**). Cost is secondary but still important.

Veterans' burial location choices are often influenced by family considerations (see **Table 2.3**). Many veterans have already made plans for burial in a private cemetery. In numerous instances, veterans may have entered into pre-need contracts for funeral and burial arrangements. Distance is identified as an obstacle by 6.6 percent of respondents. This result may partly reflect the fact that approximately 20 percent of U.S. veterans live beyond 75 miles of a national or state cemetery that the NCA regards as an outer limit for which veterans would be willing to consider burial sites. For veterans already located within 75 miles of a veteran cemetery, distance may still pose a barrier because of increased search costs associated with investigating the burial option, a desire to be interred close to home or family, or a desire to be interred in a place that is more accessible for family and friends during funeral ceremonies or cemetery visitation.

Historical data suggest that veteran cemetery interment rates have increased over the last 150 years. These increases may be due to greater preferences for veteran cemeteries, growing comparative cost advantages over private cemeteries, improved accessibility, or other factors. Less than 3.5 percent of eligible Civil War/ Spanish American War veterans chose burial in national cemeteries (Steere n.d.). An 1883 study of Cyprus Hills National Cemetery estimated that 10 percent of New York area veterans would seek burial there. Approximately 12.5 percent of WWI servicemen who were killed in action were buried in national cemeteries compared to 20 percent of those killed in action during WWII. Current National Cemetery Administration planning guidelines recommend that allowance be made that 20 percent of veterans living within 75 miles of a veteran's cemetery would choose interment there.

Travel Distance

Distance is clearly a key factor in veteran burial decisions, particularly when it is considered as a proxy for the strength of local or family attachments, increased search costs, or the costs of transporting remains, funeral attendees or

Table. 2.2: Reasons for Choosing National or State Veterans Cemetery, 2001

Reason	Percent of Respondents[a]
Honor of burial in a national shrine	47.2
Cost	26.9
Friends or family buried there	16.9
Quality of services	10.0
Some other reason	23.4

Source: U.S. Department of Veterans Affairs (2001)
[a] Sums to more than 100 percent because more than one response allowed.

Table 2.3: Reasons for Not Choosing National or State Veterans Cemetery, 2001

Reason	Percent of Respondents[a]
Wanted location close to other family members	44.6
Made other arrangements	41.2
Didn't know eligibility criteria	8.6
Veterans' cemetery too far away	6.6
Didn't know how to make arrangements with VA	2.4
VA services don't accommodate religious preferences	0.7
Too difficult to make arrangements with VA	0.6
Wanted services that weren't available at veterans' cemetery	0.3
Quality of service	0.2
Unable to make advance arrangements with VA	0.2
Some other reason	15.5

Source: U.S. Department of Veterans Affairs (2001)

[a] Sums to more than 100 percent because more than one response allowed.

visitors. Therefore, it is not surprising that the service area distance threshold standard plays a central place in the debate about veteran cemetery burial needs.

Initial estimates of a 250 mile service areas for planning new cemeteries in the 1940s (Steere n.d.) have given way to a much smaller 75 mile service area estimate in recent years (Holt 1992). Some studies suggest an even smaller service area of 50 miles. For instance, a 1948 study found that 82 percent of all interments to a national cemetery came from veterans living within a 50-mile radius of the cemetery (Holt 1992). A 1974 study states that "experience has shown that the families of deceased veterans, in the vast majority of cases, have preferred and sought burial of the veterans within 50 miles of the family home" (Holt 1992, p. 457). Subsequent studies provide empirical support for a 50-mile service standard.

In congressional hearings, the 75-mile service area standard has been called into question. The 75-mile service standard is based on straight-line distance and does not recognize the variability in travel times that may result from differences in the quality and connectivity of the local road network, traffic congestion, and the presence of natural barriers such as rivers and mountains. Because of these issues, the NCA has contracted with an independent consultant to study the issue further and offer recommendations (U.S. Congress. House. Subcommittee on Disability Assistance and Memorial Affairs, 110th Congress. May 8, 2007). This study may result in a future refinement of the service area definition.

Interment Type Preferences

There are many options for disposition of remains. Casket and cremain burial are the most common choices. But, other interment choices include above ground interment in a mausoleum or columbarium. Cremains can also be scattered in cremation gardens, at sea, or other locations. Some people elect to donate their cadavers to science.

Cremation has experienced explosive growth over the last 40 years in the U.S. (see **Figure 2.3**) and is now the leading disposition method in some, mainly western states. It has experienced dramatic growth in Virginia as well. Cremation was used for approximately 20 percent of Virginia deaths in 2000 and 28 percent in 2006. This percentage is just five percentage points lower than the U.S. average. The Cremation Association

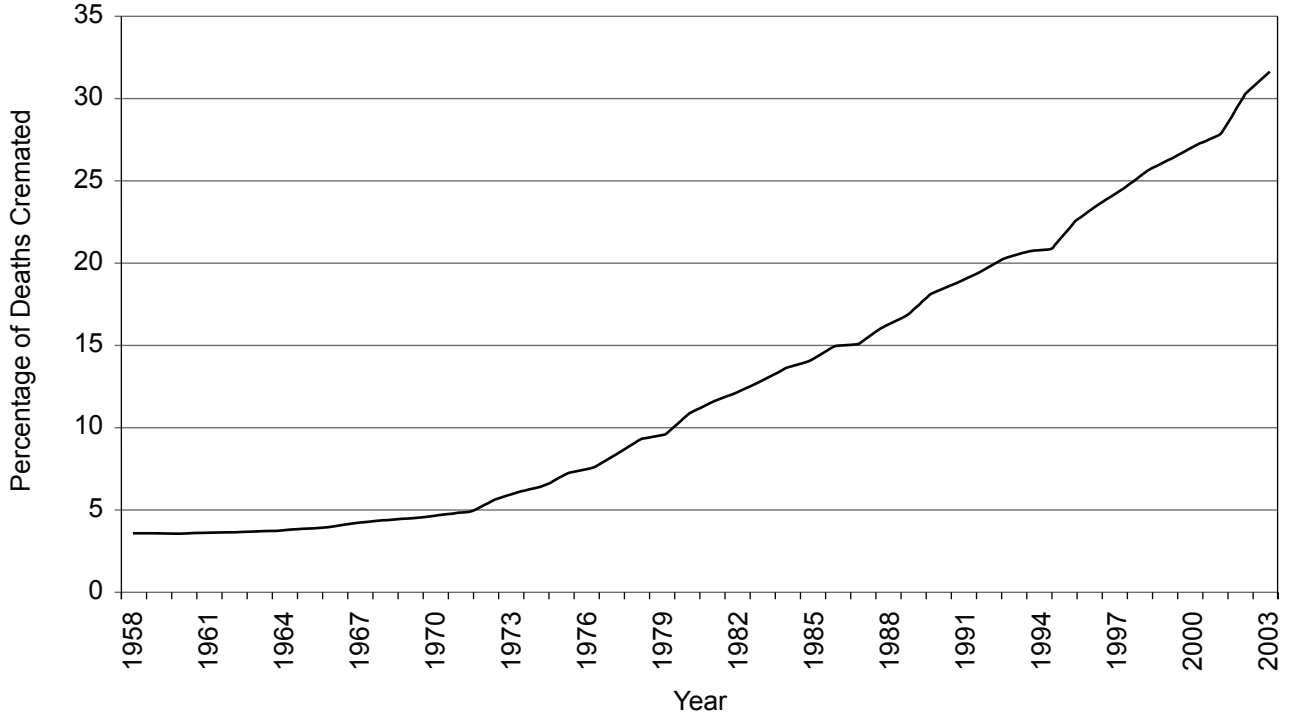
of North America (CANA) projects that over 50 percent of Americans will choose cremation by 2050 (CANA 2007).

The Wirthlin Report (O'Meara 2005) identifies several factors that are making cremation more popular. These factors include the lower cost of cremation compared to traditional burial, increased concern for the environment, and personal preferences for simpler methods of disposition. Other explanations for growth include weakening taboos towards cremation because of the wider acceptance of the practice by religious groups that historically opposed it, narrowing regional differences, demographic trends such as increased migration and immigration, and improved education levels. Still, certain identifiable groups have proven somewhat resistant to the practice, including African Americans and members of conservative religious groups such as Baptists and Muslims.

Not surprisingly, veteran cremation percentages mirror national trends. Cremation interments made up 20 percent of interments in national cemeteries in FY 1989 (Holt 1992). In FY 2006, they accounted for approximately 41 percent (see **Table 2.4**).[5] At Arlington National Cemetery, 65 percent of interments are cremated

5 These percentages are somewhat higher than indicated on veteran preferences survey. However, the percentage may be slightly distorted by the fact that 17 national cemeteries now can accommodate only cremated remains. If restricted to cemeteries where all burial choices are available, this percentage would be slightly lower.

Figure 2.3: U.S. Cremation Percentages, 1958-2005



Source: Cremation Association of North America (2007)

Table 2.4: U.S. Veteran Cemetery Annual Interments by Type, Percentage Distribution, 2003-2006

	Percentage of Total			
Type	2003	2004	2005	2006
Full-casket burial	62.9	61.8	61.3	59.5
Cremain burial	26.0	25.6	26.5	27.0
Columbarium	11.1	12.6	12.2	13.5

Source: U.S. Department of Veterans Affairs (2007a)

remains (Associated Press 2005).[6] On the other hand, Virginia's two other active national cemeteries, Culpeper and especially Quantico show much lower inurnment rates (see **Table 2.5**). Results compiled for Virginia Veterans Cemetery in Amelia in June 2007 and for Albert G. Horton, Jr. Memorial Veterans Cemetery in Suffolk in May 2007 (see **Table 2.6**) show higher inurnment percentages, but they are still well below national percentages. These figures may partly reflect the somewhat lower state resident preference for cremation compared to the nation.

6 This high cremation rate may be due to the less restrictive rules for cremated remains at the cemetery compared to casketed burials. Also, Arlington is truly a national cemetery with remains coming regularly from all 50 states. The cost of transporting cremated remains is much lower than casketed remains.

Table 2.5: Virginia National Veterans Cemetery Annual Interments by Type, Percentage Distribution, 2000-2006

	Percentage of Total			
	Culpeper		Quantico	
Year	Full-casket	Cremain	Full-casket	Cremain
2000	79.7	20.3	89.4	10.6
2001	79.8	20.2	87.9	12.1
2002	72.6	27.4	85.2	14.8
2003	74.5	25.5	85.7	14.3
2004	76.6	23.4	83.2	16.8
2005	73.4	26.6	84.4	15.6
2006	78.2	21.8	84.0	16.0

Source: National Cemetery Administration

Table 2.6: State Veteran Cemetery Cumulative Interments by Type, Percentage Distribution, 2007

	Percentage of Total		
Type	Amelia	Suffolk	Total
Full-casket burial	76.3	73.2	75.0
Cremain burial	8.5	6.7	7.7
Columbarium	15.2	20.1	17.3

Source: Virginia Department of Veterans Services

Survey data also indicate that veteran burial preferences are much like the general public. *The Wirthlin Report* (O'Meara 2005) indicates that 33 percent of the general public would "definitely" choose cremation and 14 percent are "somewhat likely" to choose it. Veteran preference survey indicates that approximately 30 percent of those who indicated an interment preference would choose cremation (see **Table 2.7**). DVS

Table 2.7: Veteran Interment Plans by Type, Percentage Distribution, 2001

Type	Percentage of Total
In-ground casket burial	59.8
Cremation	30.3
Undecided	6.6
Some other plan	2.7
Unknown	0.6

Source: U.S. Department of Veterans Affairs (2001)

pre-application responses compiled in September 2007 suggest that approximately 30 percent of veterans will choose inurnment (see **Table 2.8**).

Table 2.8: Virginia Veterans Cemetery Interments by Type based on Pre-applications, Percentage Distribution, 2007

	Percentage of Total		
Type	Amelia	Suffolk	Total
Full-casket burial	79.6	63.2	70.0
Cremain burial	8.2	22.1	16.3
Columbarium	12.2	14.7	13.7

Source: Virginia Department of Veterans Services

For those preferring cremation, the state veteran cemeteries offer two methods of disposition: urn placement in a columbarium niche or in-ground niche. According to *The Wirthlin Report*, two thirds of the general public choosing these options prefers in-ground burial (see **Table 2.9**). A similar breakdown (72 percent) is evident in veteran survey responses (see **Table 2.10**).

Table 2.9: General Public's Plans for Cremains, Percentage Distribution, 2005

Type	Percentage of Total
Scatter remains	39
Bury ashes (plot)	16
Keep in urn at home	10
Place in a columbarium at a cemetery	8
Family can decide	5
Let deceased decide	3
Dispose (general)	3
Place in a columbarium at a church	1
Other	1
Don't know/Refused	14

Source: The Wirthlin Report (O'Meara 2005)

National cemetery interment data suggest that in-ground is much more common (74 percent). Holt (1992) believes that this pattern may be due to the fact that families report feeling "closer to the departed" when the cremains are buried. Curiously, Virginia state cemeteries do not conform to this pattern. Sixty-nine percent of inurnments are placed in columbarium niches. Pre-applications from the state cemeteries, on the other hand, indicate a slight majority (54 percent) would select in-ground inurnment.

Table 2.10: Veteran Plans for Cremains, Percentage Distribution, 2001

Plan	Percentage of Total
Placed in a columbarium	7.4
Buried	18.8
Scattered	64.7
Some other arrangement	9.0

Source: U.S. Department of Veterans Affairs (2001)

Section 3
Location Analysis

Existing Cemeteries

Figure 3.1 shows the locations of state and national cemeteries in Virginia and adjoining states that allow casket burial. Only those cemeteries offering casket burial will be considered because it is the most common interment choice. This means that thirteen national cemeteries located in Virginia are excluded from the analysis. Three only accept inurnments and eligible family members in an existing gravesite (DVS 2006b). Ten other national cemeteries only accept eligible family members in an existing gravesite. The number of inurnments in the three cemeteries accepting cremated remains is negligible for the purposes of this study and one might surmise that the cemeteries are regarded as virtually closed by most veterans.

In addition, this analysis assumes that veterans cemetery services for Virginia veterans are provided by (1) national veterans cemeteries located within the state of Virginia, (2) those national veterans cemeteries located within a 75 mile radius of the state border of Virginia, and (3) existing or planned Virginia state veterans cemeteries (see **Figure 3.2**). State veterans cemeteries in adjacent states are not considered because interments are restricted to residents of those states.

Finally, this analysis excludes Arlington National Cemetery, which is operated by the U.S. Army. Arlington is the United States' most visible and prestigious national cemetery, but it has more stringent eligibility criteria for in-ground casket burials than the national cemeteries run by the National Cemetery Administration. Only servicemen who died while on active duty, retired military personnel, certain categories of disabled veterans, and highly decorated veterans are

Figure 3.1: Location of National and State Veterans Cemeteries in Virginia and Nearby States

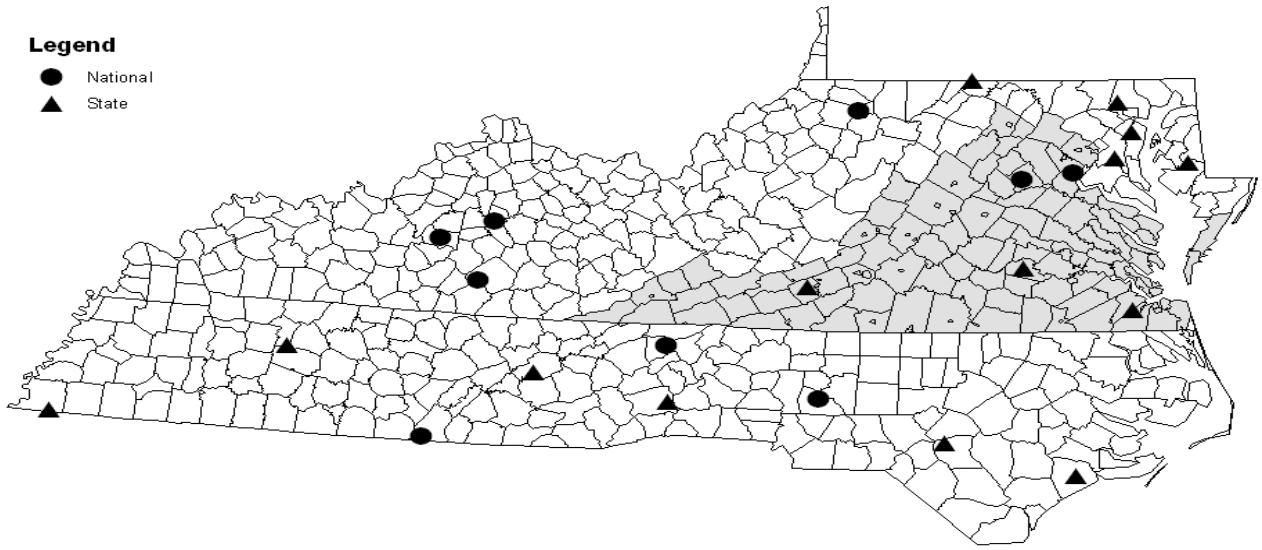
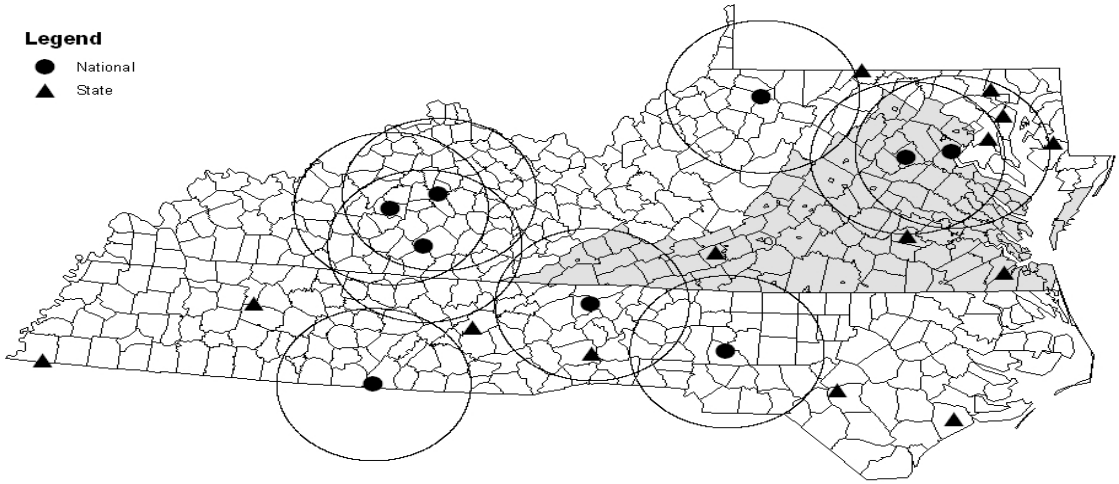


Figure 3.2: 75-mile Radii for National Veterans Cemeteries in the Region



eligible.[7] Columbarium inurnment, in contrast, is open to all honorably discharged veterans who served on active duty.

Restricting the cemeteries in the manner described above results in the list of cemeteries in **Table 3.1**. Five active national cemeteries in Virginia and the surrounding region impact Virginia veterans. These include:

1. Quantico National Cemetery. The cemetery is located on a 727-acre site that was donated by the U.S. Marine Corps and was opened in 1983. It is expected to be active for at least the next 60 years. Also, the possibility exists to expand the cemetery to meet future needs because of the presence of adjacent

7 This information was obtained from the Arlington National Cemetery website at: http://www.arlingtoncemetery.org/funeral_information/index.html (Accessed October 12, 2007).

Table 3.1: Veterans Cemetery Capacities, 2006

Cemetery	FY 2006 Interments	Occupied Gravesites	Gravesites Available	Gravesites Potential	Status	Projected Depletion Date Full-casket Sites	Projected Depletion Date Cremation Sites
State							
Amelia	231	1,161[a]	12,339	57,324	Open	2030+	2030+
Dublin (proposed)	--	--	--	--	Acquisition	2030+	2030+
Suffolk	478	879[a]	7,843	35,456	Open	2030+	2030+
National -- Virginia							
Culpeper	211	8,552	4,820	0	Open	2030+	2030+
Quantico	1,169	19,111	3,740	340,740	Open	2030+	2030+
National – Out-of-State							
Salisbury, NC	501	20,219	340	4,400	Open	2030+	2030+
Mountain Home, TN	361	11,423	2,830	27,900	Open	2030+	2030+
West Virginia (Grafton), WV	223	2,791	2,490	8,910	Open	2030+	2030+

Source: U.S. Department of Veterans Affairs (2007a) and Virginia Department of Veterans Services.
[a] FY 2007 figures

publicly owned property. The cemetery primarily serves veterans located in Northern Virginia.

2. Culpeper National Cemetery. The cemetery was established in 1867 and occupies 30 acres. It was closed once during the mid 1970s to casketed burials because of space limitations (Holt 1992). However, the Veterans of Foreign Wars donated 11 acres of land in 1978 that extended the life of the cemetery. Although the NCA projections indicate that the cemetery will be open to casketed interments beyond 2030, the forecast may be overly optimistic. In all likelihood, the cemetery will be closed to such burials within the next 15 to 20 years.[8] Opportunities exist now to expand further the area of the cemetery and extend its depletion date. However, the NCA makes expansion decisions within 3-5 years of expected depletion. In the meantime, rapid growth in Northern Virginia and Culpeper County may encroach on the cemetery's perimeter. The cemetery serves the northern and central parts of Virginia.

3. Mountain Home National Cemetery. The 100-acre cemetery is located in Johnson City, Tennessee on the grounds of the Mountain Home Veterans Administration Center and is approximately 30 miles from the Virginia border. It was established as a national cemetery in 1973 and has adequate space to meet the burial needs of veterans beyond 2030. This cemetery is the closest veteran's cemetery for many veterans who reside in Southwestern Virginia.

4. Salisbury National Cemetery. The cemetery was established during the Civil War and occupies 64 acres. It is located in Salisbury, North Carolina, approximately 35 miles south of Winston-Salem. Because it is located so far southward, its 75-mile service area intersects only a very small portion of southwestern Virginia.

5. West Virginia National Cemetery. The cemetery was opened in 1987 to replace Grafton National Cemetery, which was closed to casket burial in 1961. It occupies approximately 90 acres and serves primarily veterans in the northern half of West Virginia. However, its service boundary intersects Virginia's lightly populated Highland County.

Three Virginia state cemeteries will be assumed for this analysis. They include the following:

1. Virginia Veterans ("Amelia") Cemetery. This cemetery is located in Amelia County approximately 40 miles southwest of Richmond. It was opened in 1997 and occupies approximately 129 acres of which 29 acres are currently developed. It serves primarily veterans in the Richmond area and Piedmont region of central Virginia and is projected to have burial capacity for 80 or more years.

2. Albert G. Horton, Jr. Memorial Veterans ("Suffolk") Cemetery. This cemetery is located in Suffolk and occupies 73 acres of which 26 acres are developed. The cemetery is expected to have burial capacity for 60 or more years. It serves primarily veterans in the Hampton Roads area of Virginia.

3. Southwestern Virginia ("Dublin") Cemetery. This prospective cemetery is to be located in Southwestern Virginia on an 80-acre tract next to the U.S. Army Radford Ammunition plant that will be secured from the U.S. Army. It will serve veterans in the west central and valley regions of Virginia.

Service Area Boundaries

This study assumes that the goal of state policy is to maximize the number of veterans who are located within a given distance of a national or state cemetery. A distance of 75 miles is used by the NCA in locating national cemeteries and awarding State Veterans Cemetery Program development grants. Therefore, this distance standard will be used as a starting point for

8 This information was obtained from the Superintendent of Culpeper National Cemetery, Ms. Terrie Smith, in a telephone conversation on September 20, 2007.

assessing burial needs. However, based on Virginia state cemetery interment data, a smaller service area distance of 50 miles appears to be a better approximation of the outer limit that Virginia veterans are likely to consider as an interment choice. Therefore, the effect of reducing the radius of the service area from 75 miles to 50 miles is also explored.

Veteran "burial draw rates" (or the percentage of projected veteran county interments accommodated by the two state cemeteries in Amelia and Suffolk) were computed by combining state cemetery interment data with veteran projections by county from VetPop2004 (U.S. Department of Veterans Affairs 2007b).[9] **Figures 3.3** and **3.4** show veteran burial draw rates for the Amelia and Suffolk Cemeteries by county of residence with concentric 50 mile and 75 mile rings superimposed. The figures show that the largest draw rates occur within 50 miles of each cemetery. In addition, counties in the vicinity crossed by roads such as U.S. Route 360 for the Amelia cemetery have larger draw rates than counties that are not connected to the cemetery by a major arterial highway. The map shows that counties with draw rates above one percent are generally located within a 50-mile radius of the state cemetery.

Figure 3.5 provides an alternative picture of city and county burial draw rates by comparing them to straight line (i.e., "as the crow flies"

9 State cemetery interment data obtained from the DVS contained the zip code of each veteran's final residence. Total zip code interments were aggregated to the county level using zip code/county correspondence data obtained from Zipinfo.com (2004). The Amelia cemetery was dedicated in May 1997 and Suffolk in November 2004. Interment data used here reflected burials as of mid-June and mid-May 2007 respectively. Since FY 1997-1999 veteran population estimates were not available, FY 2000 estimates were used instead for these three years. Also, the two cemeteries were not open for the entire fiscal years of their first years of operation and data for the final fiscal year was incomplete with Suffolk interment data reflecting totals as of May 2007. Therefore, the total interments by locality for each cemetery were divided by estimates of deaths that were prorated to reflect the period for which each cemetery was open and data were available.

Figure 3.3: Veteran Burial Draw Rates by City and County, Amelia Cemetery

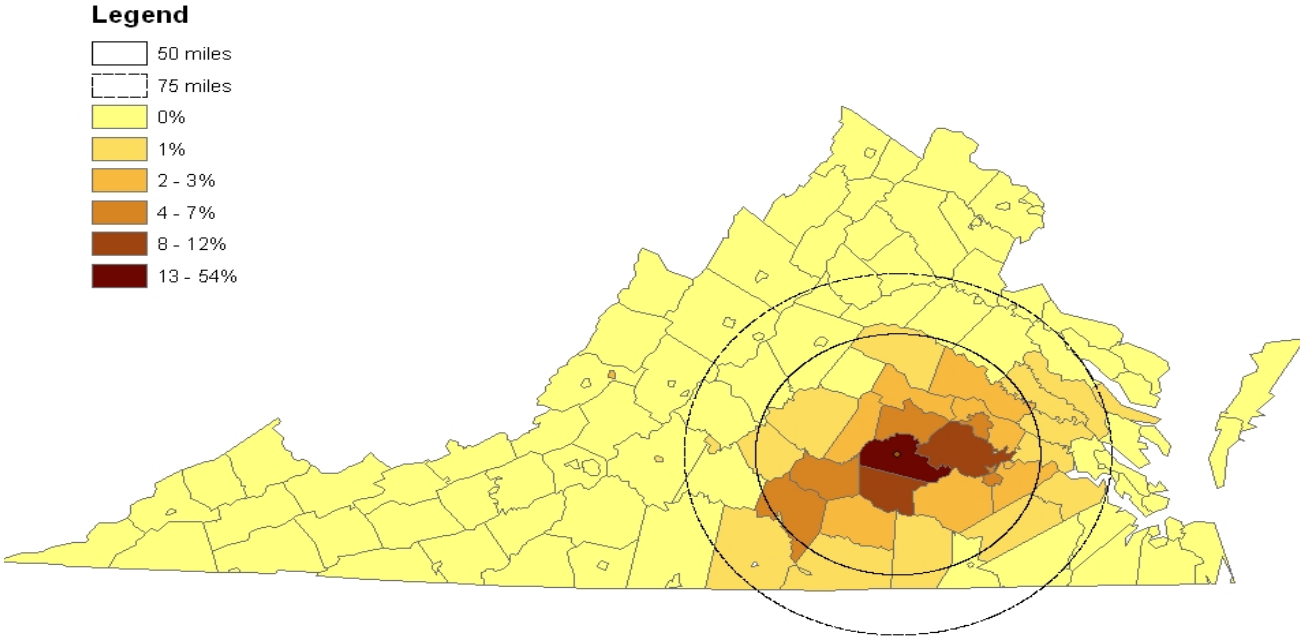


Figure 3.4: Veteran Burial Draw Rates by City and County, Suffolk Cemetery

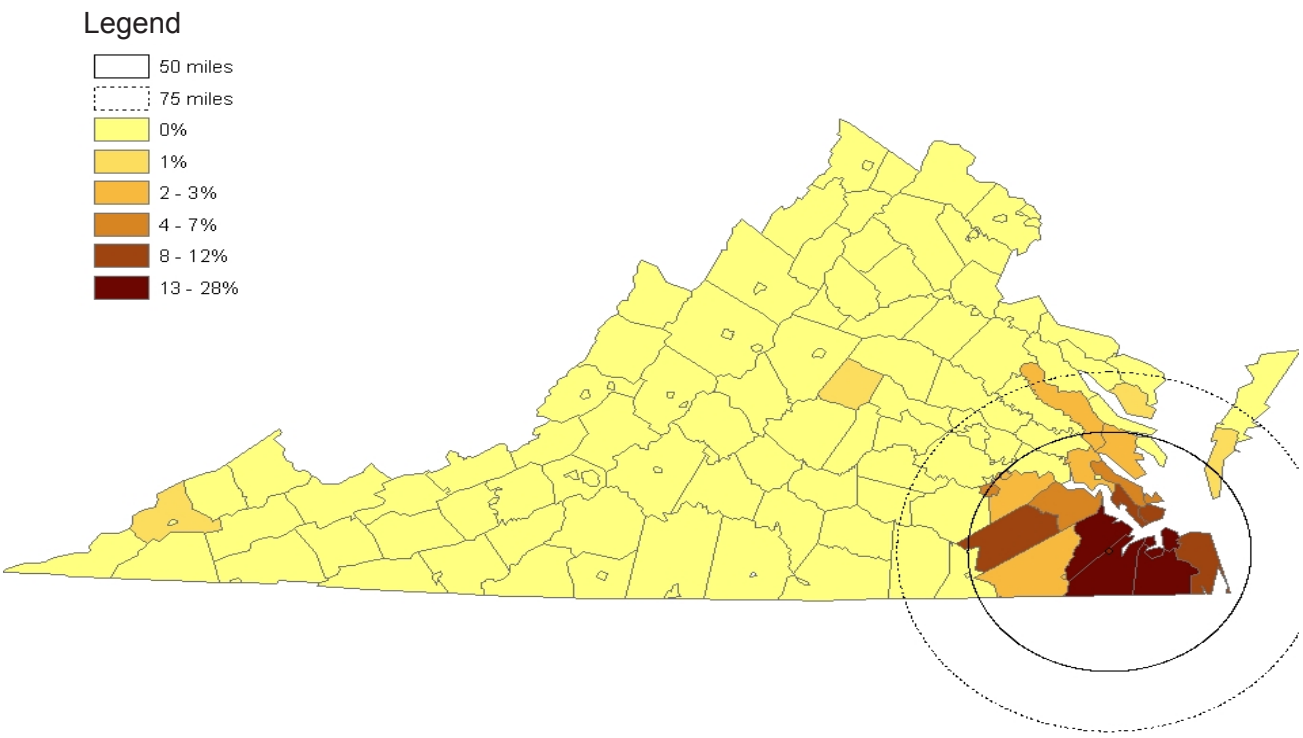
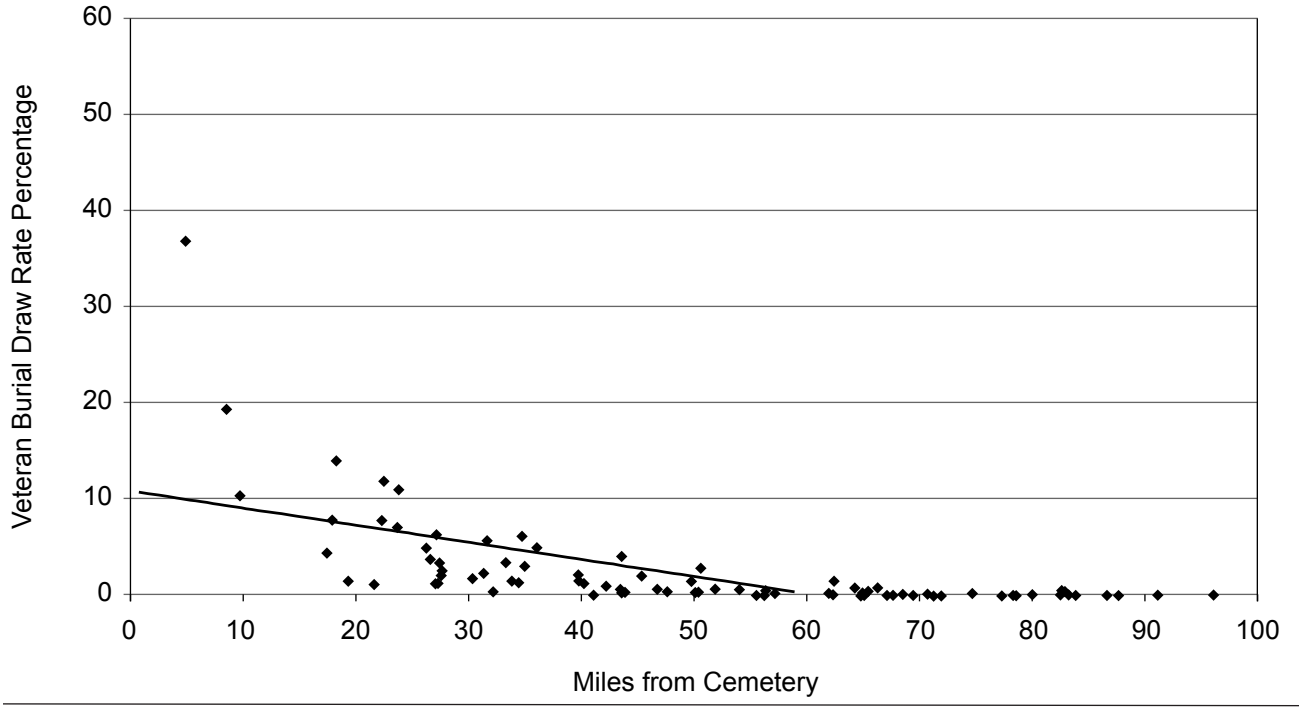


Figure 3.5: Veteran Burial Draw Rates by City and County Straight Line Distance



or Euclidean) distance to a state veterans cemetery.[10] The graph shows a steady erosion of veteran burials with negligible draw rates beyond 50 miles. A linear regression equation estimates that no burials occur beyond approximately 59 miles.

The challenges of traveling within a 75-mile straight line distance of a cemetery are also illustrated by **Figure 3.6** which provides a comparison of Amelia cemetery draw rates by distance defined as both Euclidean and roadway (network) distance.[11] Because straight line distance provides the most direct route from origin to destination, it is always smaller than roadway distance. The graph suggests that the service standard of 75 miles straight-line distance (represented by the first vertical line in the graph) is approximately the same as a 91-mile roadway distance (represented by the second vertical line in the graph). In addition, one can ascertain from the graph that a 50-mile service area boundary roughly translates into a 71-mile roadway travel distance, which can be traveled in less than two hours.

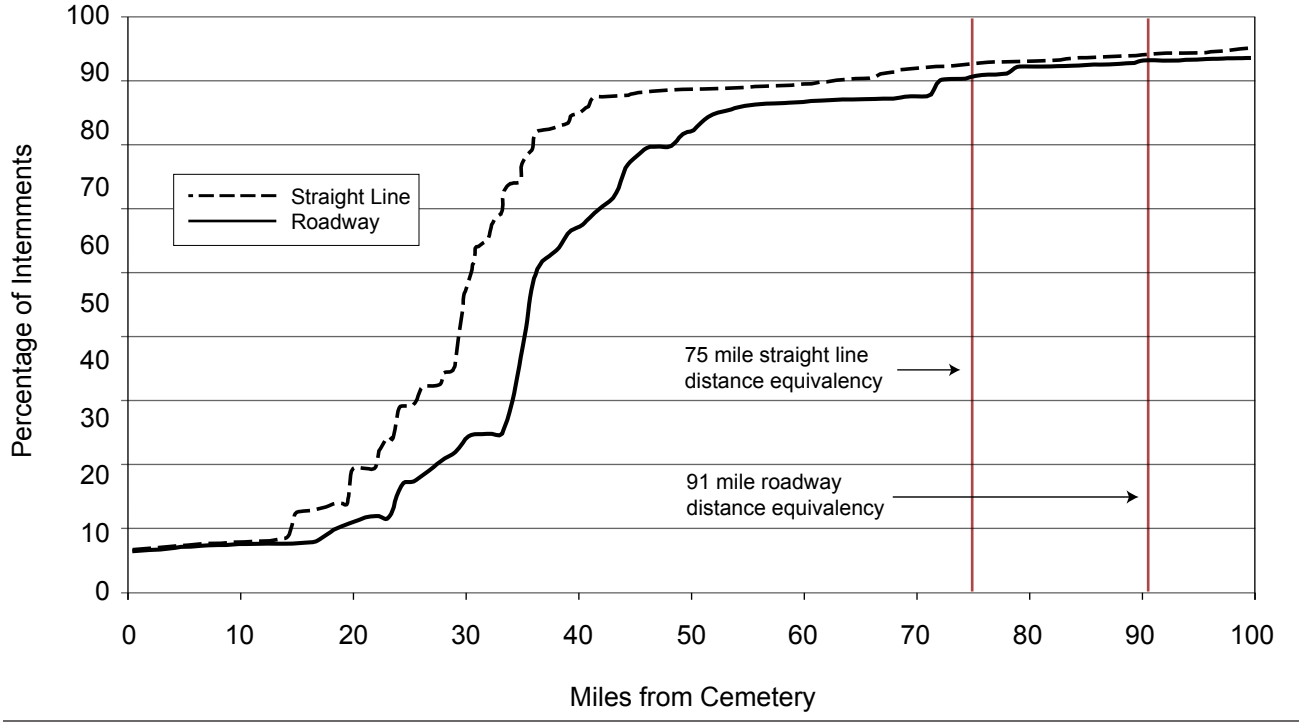
10 These distances were computed by assigning locality veteran deaths and locality veteran cemetery interments to county centroids that were obtained from MABLE/Geocorr2k (http://mcdc2.missouri.edu/websas/geocorr2k.html) (Accessed October 15, 2007). Cemetery addresses were geo-coded using the TeleAtlas website http://www.geocode.com/ (Accessed October 17, 2007). Distances were computed based on these linear endpoint coordinates.

11 Zip code centroid data were obtained from MABLE/Geocorr2k to compute zip code Euclidean distances. Roadway distances to cemeteries based on cemetery addresses and the zip code of final residence were obtained by the DVS using Google Map.

Cemetery Location Models

The task of finding computationally the optimal geographical location to serve a given population with goods and services belongs to the field of location-allocation modeling (Ghosh and Rushton 1987). Different techniques are available which solve different objective functions and utilize different computational routines (Yeh and Chow 1996). These techniques solve

Figure 3.6: Veteran Burial Draw Rates for Amelia Cemetery, Straight Line Versus Road Distance



location problems in both continuous space and using networks such as streets and roads.

The problem of maximizing the population of veterans that is served within a certain threshold distance (d) of a given number (n) of cemeteries corresponds to the "maximal covering location problem" (Church and ReVelle 1974). It is solved here using routines available in ARC/INFO Workstation. This software allows the user to change parameters in the analysis to investigate their effects on location assignments. For example, the location and strength of demand (i.e., number of veterans at a given location), boundary distance (e.g., 75 or 50 miles), and number of facilities can be altered. Also, up to n fixed cemetery assignments can be imposed on the solution set. This constraint is necessary here because veteran cemeteries already exist at certain locations and must be pre-determined within the search routine.

For this study, continuous space was used and Euclidean distances served as distance measures. This choice was made because the national service area guidelines are stated in terms of straight-line distance. Moreover, a previous national study performed for the NCA (Prettol and Glace 2001) used straight-line distance. Veteran populations were assigned to county and independent city centroids for making distance computations. The city and county veteran populations served as the measures of demand at each location because NCA State Cemetery Grants Program goals are stated in terms of the number of living veterans located within a veterans cemetery service area. Eight locations listed in Table 3.1 were constrained to have cemetery locations.

Several alternative coverage models were run to examine optimal locations for state cemeteries. Veteran populations for different years were used, different service area distance thresholds were selected, different configurations of existing cemeteries were considered, and up to two new locations were modeled. The results proved to be relatively insensitive to different specifications. Moreover, the addition of one additional cemetery facility proved to be sufficient to bring at least 92 percent of the veteran population within the service area boundary of a veteran's cemetery.

The results of several models (see **Table 3.2**) are described here to illustrate the effect of changing the service area distance threshold from 75 to 50 miles and the inclusion or exclusion of Culpeper National Cemetery. In addition, two alternative assumptions were made about the longevity of Culpeper National Cemetery. The first assumes that it will be available in the future and the second models cemetery location as if it were depleted. In each instance, FY 2008 county veteran population projections from the U.S. Department of Veterans Affairs are used.

Table 3.2: Cemetery Location Modeling Scenarios

Scenario	Figure	Service Area	Culpeper Included?	Cemetery Addition?
1	3.7	75 Miles	Yes	No
2	3.8	50 Miles	Yes	No
3	3.9	75 Miles	No	No
4	3.10	50 Miles	No	No
5	3.11	75 Miles	Yes	Yes, Amherst County
6	3.12	50 Miles	Yes	Yes, Rockbridge County
7	3.13	75 Miles	No	Yes, Amherst County
8	3.14	50 Miles	No	Yes, Nelson County

Scenarios 1 and 2 show baseline cemetery service areas if there are no changes in the number of cemeteries currently available to veterans. **Figure 3.7** indicates that there are very few localities outside the service area boundaries of the seven existing regional state and national veteran cemeteries and one proposed cemetery in Dublin. Areas outside of a service region include Accomack County on the Eastern Shore, Bath and Rockbridge counties (along with Lexington and Buena Vista cities) in the west, and Danville City in Southside. **Figure 3.8** shows the effect of reducing the service area boundary to 50 miles. This change expands the list of uncovered localities to 37 including larger areas in west central and Southside Virginia and the Northern Neck and Middle Peninsula.

Figure 3.7: Cemetery Service Areas, 75 Miles

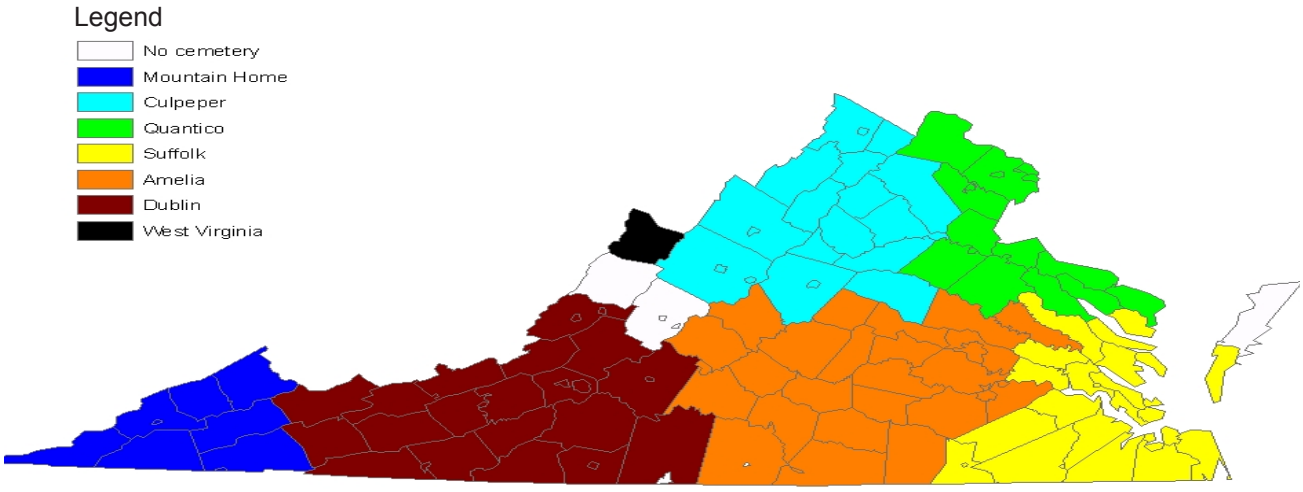
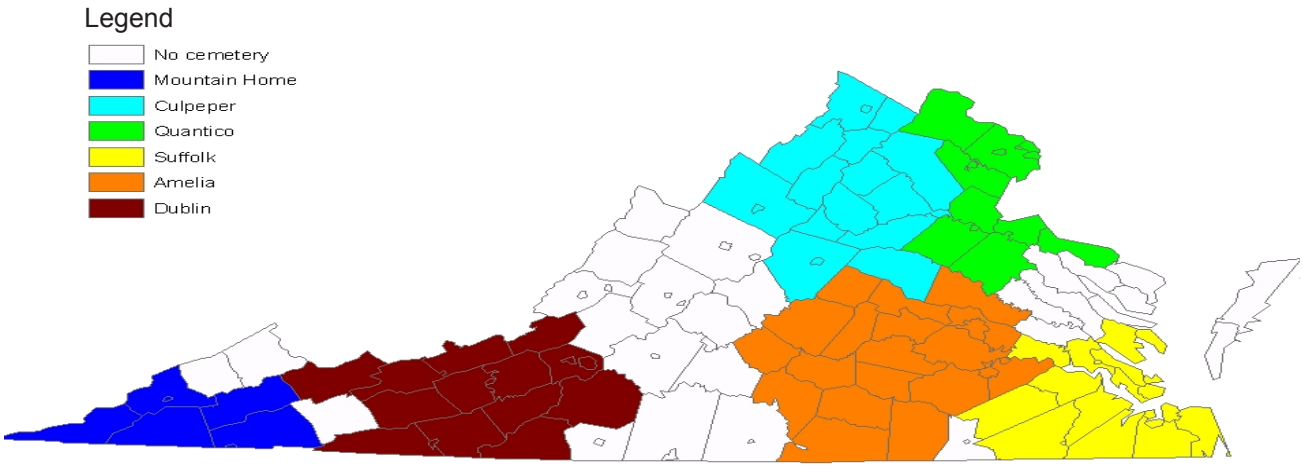


Figure 3.8: Cemetery Service Areas, 50 Miles



Scenarios 3 and 4 show cemetery service areas with 75 and 50-mile service area boundaries respectively if one assumes that Culpeper is depleted. Changing this assumption (see **Figure 3.9**) affects only four additional localities because much of Culpeper's 75-mile service area in Northern Virginia is picked up by Quantico. However, a 50-mile service boundary (see **Figure 3.10**) places 11 additional localities in northwestern Virginia outside a cemetery service area.

Figure 3.9: Cemetery Service Areas, 75 Miles and Without Culpeper

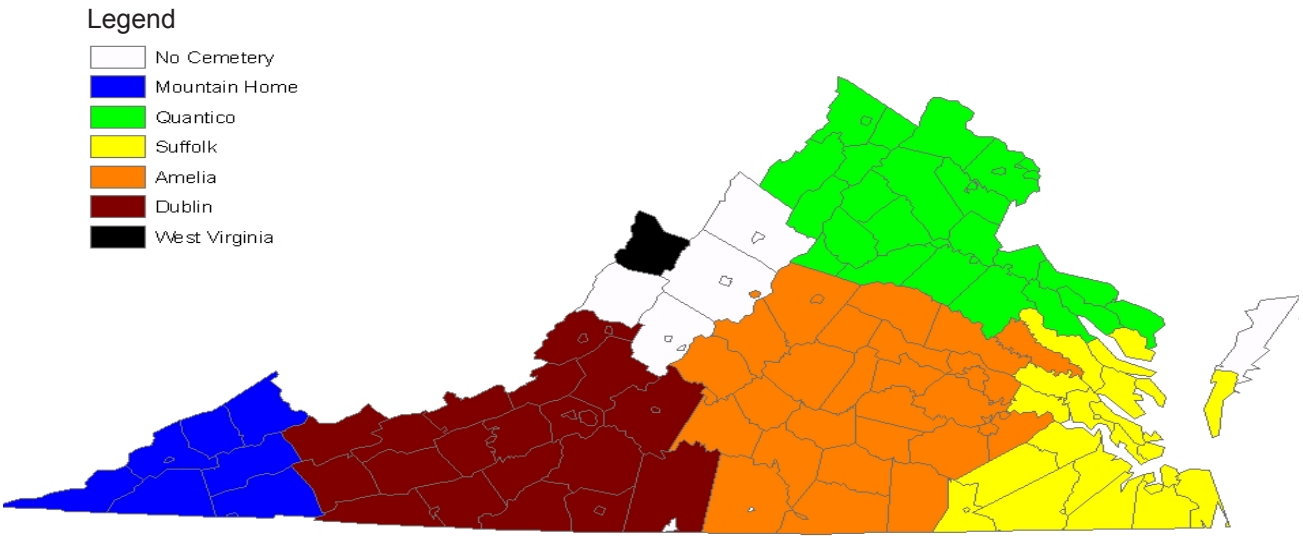


Figure 3.10: Cemetery Service Areas, 50 Miles and Without Culpeper

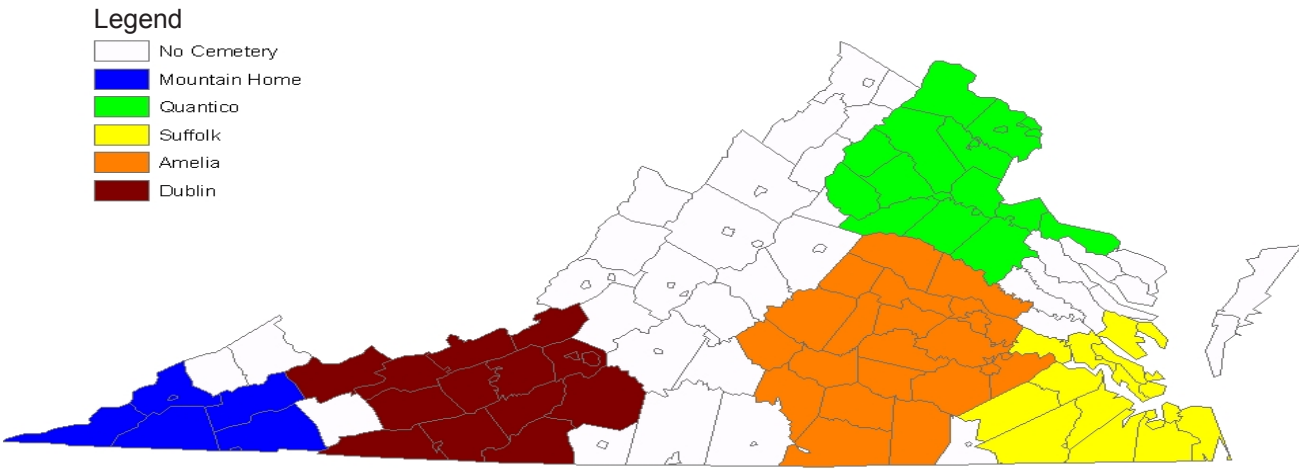


Figure 3.11 and **Figure 3.12** show service areas for 75 and 50-mile boundaries if one additional optimally sited cemetery is provided. With a 75-mile boundary, Amherst County provides the optimal coverage and includes five of the six localities previously excluded. For a 50-mile boundary, Rockbridge County is selected. It extends coverage to 17 of 37 counties that would otherwise be outside a 50-mile service area.

Figure 3.11: Cemetery Service Areas, 75 Miles and New Cemetery in Amherst County

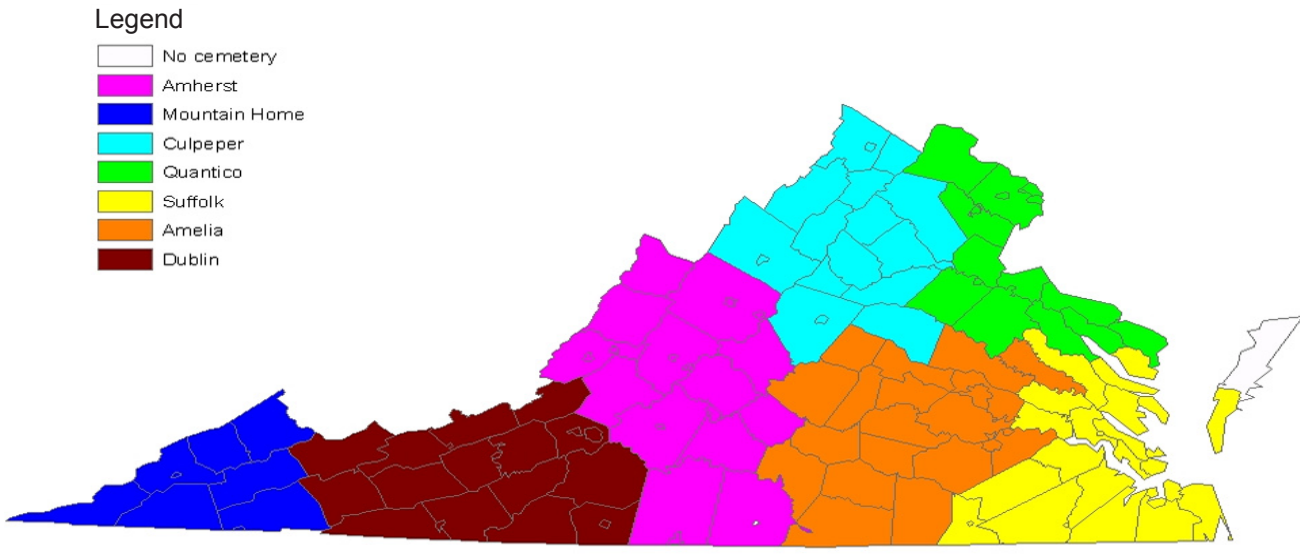


Figure 3.12: Cemetery Service Areas, 50 Miles and New Cemetery in Rockbridge County

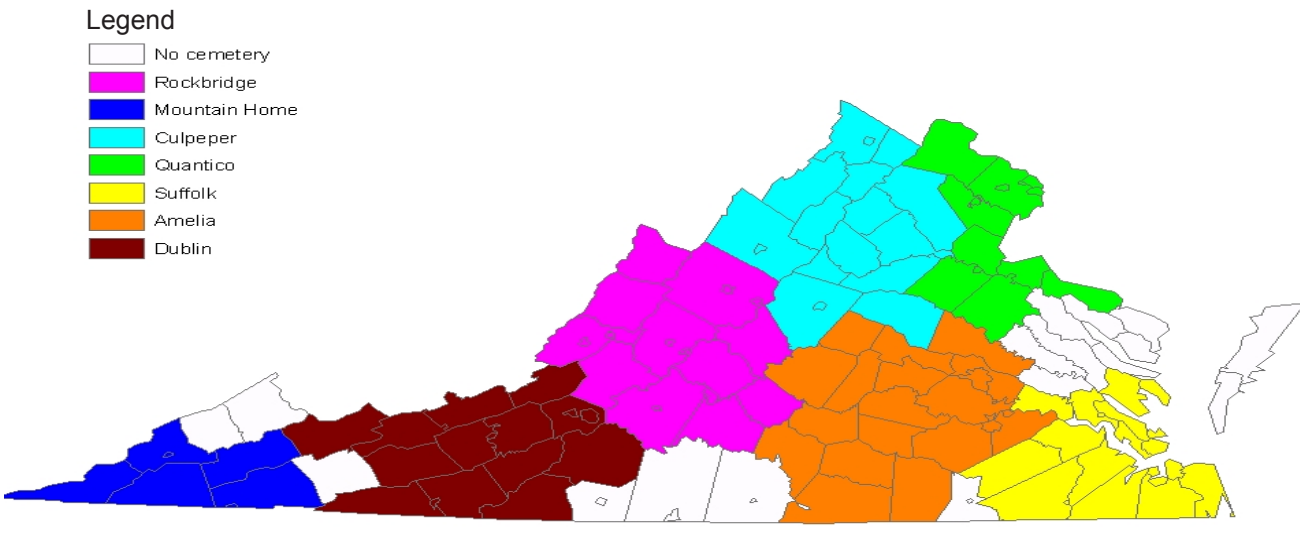


Figure 3.13 and **Figure 3.14** show service areas assuming that Culpeper National Cemetery is unavailable. With a 75-mile rule, Amherst County is selected again and it provides coverage for all but Accomack County. A 50-mile boundary results in the selection of Nelson County that adds 15 out of 48 localities that were located outside a service area.

The various scenarios considered here result in selections of three county candidate locations

Figure 3.13: Cemetery Service Areas, 75 Miles Without Culpeper and New Cemetery in Amherst County

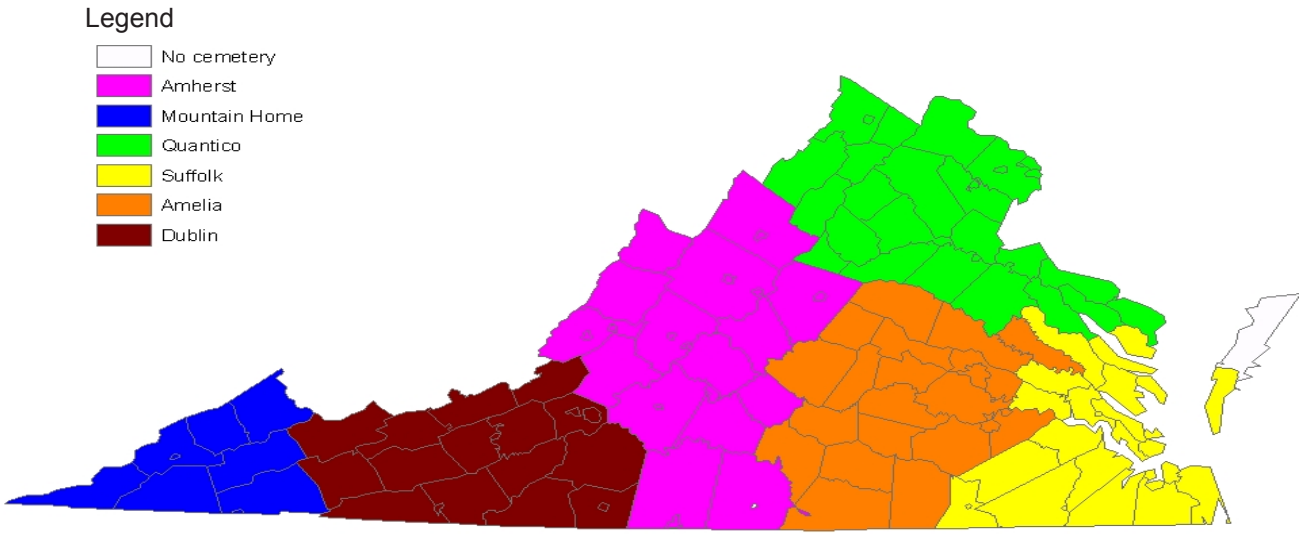
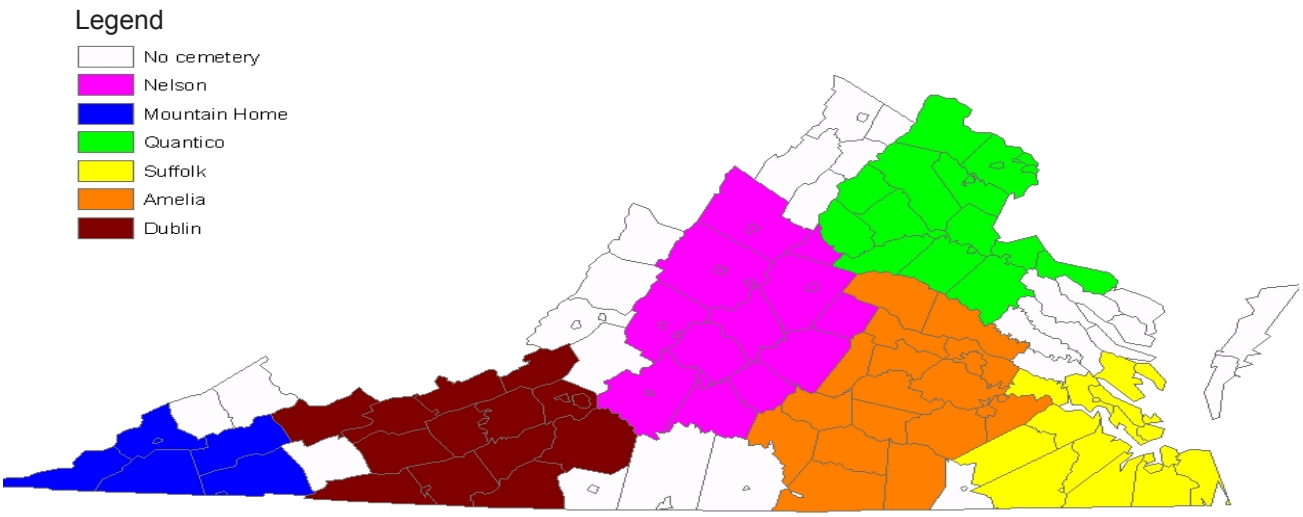


Figure 3.14: Cemetery Service Areas, 50 Miles without Culpeper and New Cemetery in Nelson County



that are adjacent to one another and draw from the same central western region of the state. They provide similar coverage by improving cemetery access to west central veterans who are either not currently located within a service region (e.g., Rockbridge County) or located on the edge of an existing service region (e.g., Lynchburg City). Of these choices, Nelson County would serve as the best choice of the three based on a fifty-mile service area boundary and the strong possibility that Culpeper National Cemetery will be depleted within the next two decades.[12]

Land Acquisition Issues

The area in question (west central Virginia) should be examined for future cemetery development opportunity. Qualifying parcels would have a number of different characteristics such as good transportation access, no major built up areas contiguous to the parcel, compatibility with local zoning regulations, no major easements or other restrictions on development, the absence of environmental hazards and major grades which would escalate construction costs, and aesthetic characteristics such as tree canopy and some topographical relief. Property values in the area are relatively low and the counties in the area are projected to grow much slower than the state.[13] Areas outside the immediate I-81 corridor are not subject to the same developmental pressures as the northern and eastern parts of the state. Therefore, no sense of urgency or immediacy should guide the acquisition and development decision. On the other hand, the DVS would incur a number of administrative costs such as property maintenance costs and some indirect costs such as legal liability if the land were acquired in the near future. In addition, localities would lose some small amount of tax revenue. For instance, a 35 acre parcel of land valued at $390,000 would cost the county approximately $2,800 per year in tax revenue at the nominal real property tax rate of $0.72 per $100 assessed value.

12 This study does not address the issue of cost effectiveness of state sponsored veteran cemeteries or the minimum number of interments that are required for a public cemetery to be viable. At extremely low volumes, more cost effective burial options may be available within private cemeteries.

13 Nelson County's median owner-occupied house value was approximately 75 percent of the state average according to the 2000 U.S. Census. Nelson County is projected to grow 22 percent compared to 34 percent for the state based on 2000 U.S. Census population figures and Virginia Employment Commission 2030 population projections (http://velma.virtuallmi.com) (Accessed October 22, 2007).

Section 4
Burial Needs Analysis

Cemetery Service Area Veteran Populations

Table 4.1 provides the number of Virginia veterans located within 75 miles and 50 miles of each cemetery. Since there is some overlap in service areas, veterans may be double-counted. The table shows that Culpeper National Cemetery encompasses an area with the most Virginia veterans and that Quantico National Cemetery is second. Mountain Home National Cemetery also potentially serves a large number of Virginia veterans. Among Virginia veterans cemeteries, Suffolk has the largest service area with Amelia second. Although the Dublin service area includes 77,593 Virginia veterans, there is less overlap between its boundaries and other cemetery service areas. In contrast, a Nelson County state cemetery location would encompass a service region of 113,512, but most of these veterans would also already be located within the 75-mile service regions of state and national cemeteries in Amelia, Dublin, and Culpeper.

Table 4.1: Veterans Cemetery Service Area Population, 75 Miles and 50 Miles

	75 Mile Veteran Population		50 Mile Veteran Population	
Cemetery	FY2008	FY2030	FY2008	FY2030
State				
Amelia	174,784	125,289	108,069	76,951
Dublin	77,593	48,937	49,878	30,965
Nelson	113,512	75,035	59,290	38,854
Suffolk	307,863	218,630	221,330	157,084
National				
Culpeper, VA	323,018	252,218	234,205	191,761
Quantico, VA	306,111	240,695	216,332	177,700
Salisbury, NC	4,534	2,877	0	0
Mountain Home, TN	25,490	15,467	15,366	9,146
West Virginia, WV	317	190	0	0

Table 4.2: Increment in Veteran Service Area Population, 75 Mile Boundary

	75 Mile Veteran Population			
Cemetery	FY2008	%	FY2030	%
With Culpeper				
Baseline	641,906	89	473,154	91
Dublin	65,293	98	41,285	99
Nelson	3,064	99	1,727	99
Without Culpeper				
Baseline	625,863	87	462,549	89
Dublin	65,293	96	41,285	97
Nelson	19,107	99	12,332	99

Table 4.2 shows the incremental number of Virginia veterans that would be served by the opening of cemeteries in Dublin and Nelson County if the service region distance standard were 75 miles. Based on FY 2008 projections, 641,906 or 89 percent of all Virginia veterans are located within a service area of either a state or national veterans cemetery. With the opening of Dublin cemetery, 65,293 additional Virginia veterans or an additional 9 percent would be added moving the state above the NCA goal of providing 75-mile access to at least 90 percent of veterans. Adding a Nelson County veterans cemetery would serve only 3,064 (or less than 1 percent) more veterans. If Culpeper National Cemetery were to close, it would reduce the number of veterans served by 16,043 in FY 2008 and 10,605 in FY 2030. All of these veterans would be served if a Nelson County state veterans cemetery were established. However, this represents an increment of only two percent of all projected state veterans.

If the service region distance standard were reduced to 50 miles (see **Table 4.3**), an estimated 586,913 veterans (82 percent of total veterans

Table 4.3: Increment in Veteran Service Area Population, 50 Mile Boundary

	50 Mile Veteran Population			
Cemetery	FY2008	%	FY2030	%
With Culpeper				
Baseline	586,913	82	440,009	84
Dublin	49,878	89	30,965	90
Nelson	34,601	93	21,455	94
Without Culpeper				
Baseline	550,108	77	413,993	79
Dublin	49,878	83	30,965	85
Nelson	52,451	91	34,243	92

in the state) would be located within reach of a state or national cemetery. An additional 49,878 (+7 percent) Virginia veterans would be served by adding a Dublin cemetery and an additional 34,601 (+4 percent) would be served for a Nelson County cemetery. With both cemeteries, a total of 93 percent of all estimated Virginia veterans would be served. However, the loss of Culpeper would have a substantial negative impact. If Culpeper national cemetery were not available, an estimated 413,993 (79 percent) in FY2030 would be located within a service area. The addition of Dublin would serve 30,965 more veterans (+6 percent) and Nelson County would add 34,243 (7 percent) bringing the total served to 92 percent of total. It is this latter scenario that provides the best argument in support of establishing a fourth Virginia state veterans cemetery.

Interment Projections

Burial projections provided here are based on a linear regression equation that measures the decreasing attraction of a cemetery to veterans who reside further away. City/county burial draw rates were regressed on distance of county of residence from state cemetery of interment where distance was measured from each locality's Census 2000 population centroid (i.e., coordinates of the estimated center of population). The equation was estimated for interments drawn from within 75 miles of each cemetery. County draw rates for both cemeteries were included in the estimation. The estimated equation is reported in **Table 4.4**.

Table 4.4: Regression Results for Veteran Burial Draw Rate

Variable/ Parameter	Coefficient	Standard Error	t-Statistic
Constant	15.864	1.788	8.87
Distance	-2.690	0.388	-6.94
N=71	R^2=0.4412	Root MSE=6.1876	

This equation was used to estimate the locality burial draw rates for both existing and prospective cemeteries. The assumption is made that any state cemetery selected in the future will experience this same burial-distance relationship. Therefore, these rates are applied to death projections for localities that are estimated to have positive draw rates by year to obtain interment projections for each cemetery. In addition, two scaling factors were used to adjust interment projections to reflect current burial volumes and to account for interments that can be attributed to veteran deaths that occur outside the service area.[14] The projections do not account for spouse

14 A scaling factor computed as 1.25 was applied to the estimates from this equation to adjust for the influence of relatively low volume early Amelia cemetery start-up years in the sample and to produce veteran service area interment estimates comparable to actual FY 2007 figures. The most recent fiscal year, FY 2007, is assumed to more accurately reflect for both cemeteries the normal volume of interment activity. The scaling factor was obtained as follows:

$$\frac{(m \bullet X_m) + (n \bullet Y_n)}{\sum_{i=1}^{m} X_i + \sum_{i=1}^{n} Y_i}$$

where X_i=Amelia Cemetery burial in year i.
Y_i=Suffolk Cemetery burial in year i

Finally, an additional markup factor of 1.0384 is applied to account for the fact that some burials come from residents outside the 75-mile service area and are not explained by distance. For instance, veterans who retire in Florida may elect to be interred in a Virginia veterans cemetery because they resided close by before entering the military.

or dependent burials. While these burials would affect staff workloads they would have no impact on cemetery space needs. Currently, veteran family members account for less than 10 percent of total interments. DVS estimates that 3 in 10 burials at Dublin will be family members and NCA planning guidelines recommend that cemeteries prepare for 5 in 10 (Burgess 2007). The low number of family interments at this point may reflect the fact that the state cemeteries are relatively new and that female spouses live longer on average than males.

In addition, these projections do not reflect any changes in marketing or outreach activities that may take place in the future and that might increase burial draw rates. Therefore, these projections should be viewed as baseline estimates.

Table 4.5 presents the results by cemetery and for the cemetery system as a whole. It is assumed that the Dublin state cemetery will be fully operational in FY 2012 and that a Nelson County cemetery will be opened by FY 2017. Approximately 1,000 veterans could be interred within a four-cemetery system in FY 2017 and potentially 20,000 veterans over the period FY 2008-2030. The Albert G. Horton, Jr. Memorial Veterans Cemetery in Suffolk would have the largest volume of burial activity followed by Virginia Veterans Cemetery in Amelia. A prospective cemetery in Dublin would serve approximately 150 veterans beginning in FY 2012 and another one in Nelson approximately the same number beginning in FY 2017.

Tables 4.6-4.9 provide breakdowns of total interments by burial type for each cemetery. Two projections by type of interment are provided. Series 1 provides a conservative casket burial estimate by assuming that cremation percentages will remain the same as the amount computed for pre-applications on file (approximately 30 percent). Series 2 (see **Table 4.10**) assumes that rates of cremation burial will track a projected average Virginia cremation rate. This rate is computed as being 5 percentage points less than an interpolated value using 2010 and 2050 CANA projections (CANA 2007). Also, it is assumed that columbarium interments will represent 60 percent of all cremation interments. This percentage is an approximate average of the columbarium and in-ground niche interment split for existing interments at the state cemeteries (69 columbarium, 31 percent in-ground) and preferences that veterans indicated on pre-applications (46 columbarium, 54 percent in ground).

These figures can be used to determine land consumption and acquisition needs for a Nelson County cemetery. A useful rule of thumb is that

Table 4.5: State Cemetery Veteran Interment Projections by Cemetery, 2008-2030

Fiscal Year	Amelia	Suffolk	Dublin	Nelson	Total
2008	271	470	0	0	741
2009	270	470	0	0	740
2010	269	469	0	0	738
2011	267	468	0	0	735
2012	266	464	148	0	878
2013	263	460	145	0	868
2014	260	456	142	0	858
2015	258	452	139	0	849
2016	256	447	136	0	839
2017	254	442	134	155	985
2018	251	438	131	151	971
2019	248	434	128	148	958
2020	245	431	125	145	946
2021	243	426	123	141	933
2022	240	421	120	139	920
2023	238	417	118	137	910
2024	235	413	116	135	899
2025	234	410	114	133	891
2026	233	406	112	130	881
2027	231	404	108	127	870
2028	228	401	106	125	860
2029	226	399	104	124	853
2030	224	397	102	122	845
Total	5,709	9,995	2,351	1,912	19,968

Table 4.6: Amelia State Veterans Cemetery Projections, 2008-2030

		Series #1			Series #2		
Fiscal Year	Total[a]	Casket	Columbarium	Cremain Burial	Casket	Columbarium	Cremain Burial
2008	271	186	51	34	190	49	32
2009	270	182	53	35	189	49	32
2010	269	176	56	37	188	48	32
2011	267	175	55	37	187	48	32
2012	266	173	56	37	186	48	32
2013	263	170	56	37	184	47	32
2014	260	167	56	37	183	47	31
2015	258	164	56	38	181	46	31
2016	256	161	57	38	179	46	31
2017	254	159	57	38	177	46	30
2018	251	156	57	38	175	45	30
2019	248	153	57	38	173	45	30
2020	245	150	57	38	172	44	29
2021	243	148	57	38	170	44	29
2022	240	145	57	38	168	43	29
2023	238	143	57	38	167	43	29
2024	235	140	57	38	165	42	28
2025	234	138	58	38	164	42	28
2026	233	136	58	39	163	42	28
2027	231	134	58	39	161	41	28
2028	228	131	58	39	160	41	27
2029	226	129	58	39	159	41	27
2030	224	127	58	39	157	40	27

[a] Burial types may not sum to total because of rounding error.

Table 4.7: Suffolk State Veterans Cemetery Projections, 2008-2030

		Series #1			Series #2		
Fiscal Year	Total[a]	Casket	Columbarium	Cremain Burial	Casket	Columbarium	Cremain Burial
2008	470	323	88	59	329	84	56
2009	470	310	96	64	329	84	56
2010	469	307	97	65	329	84	56
2011	468	306	97	65	327	84	56
2012	464	302	97	65	325	83	56
2013	460	297	98	65	322	83	55
2014	456	292	98	66	319	82	55
2015	452	287	99	66	316	81	54
2016	447	282	99	66	313	80	54
2017	442	277	99	66	310	80	53
2018	438	273	99	66	307	79	53
2019	434	268	100	66	304	78	52
2020	431	264	100	67	301	77	52
2021	426	259	100	67	298	76	51
2022	421	254	100	67	295	76	50
2023	417	250	100	67	292	75	50
2024	413	246	100	67	289	74	49
2025	410	242	101	67	287	74	49
2026	406	238	101	67	285	73	49
2027	404	234	102	68	283	73	48
2028	401	231	102	68	281	72	48
2029	399	228	103	68	279	72	48
2030	397	225	103	69	278	71	48

[a] Burial types may not sum to total because of rounding error.

Table 4.8: Dublin State Veterans Cemetery Projections, 2008-2030

		Series #1			Series #2		
Fiscal Year	Total[a]	Casket	Columbarium	Cremain Burial	Casket	Columbarium	Cremain Burial
2008	--	--	--	--	--	--	--
2009	--	--	--	--	--	--	--
2010	--	--	--	--	--	--	--
2011	--	--	--	--	--	--	--
2012	148	96	31	21	103	26	18
2013	145	93	31	21	101	26	17
2014	142	91	31	20	99	26	17
2015	139	89	30	20	98	25	17
2016	136	86	30	20	96	25	16
2017	134	84	30	20	94	24	16
2018	131	81	30	20	92	23	16
2019	128	79	29	20	90	23	15
2020	125	77	29	19	87	22	15
2021	123	75	29	19	86	22	15
2022	120	72	29	19	84	22	14
2023	118	71	28	19	83	21	14
2024	116	69	28	19	81	21	14
2025	114	67	28	19	79	20	14
2026	112	65	28	19	78	20	13
2027	108	63	27	18	76	20	13
2028	106	61	27	18	75	19	13
2029	104	59	27	18	73	19	12
2030	102	58	26	18	71	18	12

[a] Burial types may not sum to total because of rounding error.

Table 4.9: Nelson County State Veterans Cemetery Projections, 2008-2030

		Series #1			Series #2		
Fiscal Year	Total[a]	Casket	Columbarium	Cremain Burial	Casket	Columbarium	Cremain Burial
2008	--	--	--	--	--	--	--
2009	--	--	--	--	--	--	--
2010	--	--	--	--	--	--	--
2011	--	--	--	--	--	--	--
2012	--	--	--	--	--	--	--
2013	--	--	--	--	--	--	--
2014	--	--	--	--	--	--	--
2015	--	--	--	--	--	--	--
2016	--	--	--	--	--	--	--
2017	155	97	35	23	108	28	18
2018	151	94	34	23	106	27	18
2019	148	91	34	23	103	27	18
2020	145	89	34	22	101	26	17
2021	141	86	33	22	99	25	17
2022	139	84	33	22	97	25	17
2023	137	82	33	22	95	25	16
2024	135	80	33	22	94	24	16
2025	133	78	33	22	93	24	16
2026	130	76	32	22	91	23	16
2027	127	74	32	21	89	23	15
2028	125	72	32	21	88	23	15
2029	124	71	32	21	87	22	15
2030	122	69	32	21	85	22	15

[a] Burial types may not sum to total because of rounding error.

Table 4.10: Cremation Percentage, Actual and Projected, U.S. and Virginia, 2008-2030

Year	U.S.	Virginia
2003	28.4 (Actual)	23.4 (Actual)
2004	30.2 (Actual)	24.8 (Actual)
2005	32.3 (Actual)	26.1 (Actual)
2006	33.5 (Actual)	27.6 (Actual)
2007	34.9 (CANA Projection)	29.9
2008	36.3 (CANA Projection)	31.3
2009	37.7 (CANA Projection)	32.7
2010	39.1 (CANA Projection)	34.5 (CANA Projection)
2011	39.5	34.5
2012	40.0	35.0
2013	40.5	35.5
2014	40.9	35.9
2015	41.4	36.4
2016	41.9	36.9
2017	42.3	37.3
2018	42.8	37.8
2019	43.2	38.2
2020	43.7	38.7
2021	44.2	39.2
2022	44.6	39.6
2023	45.1	40.1
2024	45.6	40.6
2025	46.0	41.0
2026	46.5	41.5
2027	46.9	41.9
2028	47.4	42.4
2029	47.9	42.9
2030	48.3	43.3

Source: Based on CANA (2007) and author's interpolation

an acre will accommodate 600 casket gravesites (*Death Care Business Advisor* 2002a). Casket burial requires the most land followed by in-ground cremation niches and columbarium niches. If 15 acres are required for administrative and maintenance buildings, water and septic systems, roads, committal shelter, columbarium, and in-ground cremation niches similar to what is proposed for the Dublin state cemetery, an additional 2.3 acres would accommodate casket burial needs until 2030. If this highest estimated rate of depletion (0.16 acre per year) were extrapolated to a 20-year time frame and 80-year time frame, one and eleven additional acres respectively would be needed. Therefore, a 35-acre facility would meet the needs of west central veterans for approximately the next century.

Impact of Extending Interment to Non-residents

This section estimates the impact of waiving the state resident requirement rule for interment in a Virginia state cemetery. Three of the four existing and prospective cemeteries reported in Table 4.3 have 75-mile service areas that intersect other states. Suffolk Cemetery's area encompasses residents in northeastern North Carolina, Amelia intersects north central North Carolina, and the proposed cemetery in Dublin intersects

West Virginia, North Carolina, and a small section of Tennessee. The projections here, however, are based on the equation reported in the previous section that estimates the draw of a veteran's cemetery to be restricted to localities within a smaller radius of the cemetery. Therefore, only the state cemeteries at Suffolk and one proposed at Dublin would likely draw a significant number of interments from out-of-state residents.

The previous projection analysis and market area draw rate calculations were recomputed by adding the veteran death projections and distance computations for counties in nearby states. This computation should be regarded as a maximum expected impact because it does not take into account alternative out-of-state state and national cemeteries that may be nearby. The net impact of waiving the rule (see **Table 4.11**) would be to increase total interments by approximately 10 percent of the projected volumes of the two cemeteries and approximately 5 percent of all four existing and proposed state cemeteries. The bulk of this impact would originate from Dublin cemetery's ability to serve residents in Southeastern West Virginia who are not currently served by either a national or state cemetery.

Table 4.11: Interment Impact of Changing Residency Rule, 2008-2030

Year	Suffolk	Dublin	Total
2008	19	--	19
2009	20	--	20
2010	20	--	20
2011	19	--	19
2012	20	42	62
2013	18	42	60
2014	19	42	61
2015	19	42	61
2016	19	41	60
2017	19	40	59
2018	18	39	57
2019	17	39	56
2020	16	38	54
2021	16	37	53
2022	16	37	53
2023	16	36	52
2024	15	35	50
2025	15	35	50
2026	17	33	50
2027	14	35	49
2028	15	34	49
2029	15	31	46
2030	14	31	45
Total	396	709	1,105

Section 5
Improving Awareness of Veteran Burial and Memorial Benefits

Comparative Costs

Although cost is not the only consideration in interment choice, veterans are like other consumers in being sensitive to cost in planning their final arrangements. The U.S. veteran survey ranked cost second among the criteria veterans used in making burial decisions. In this regard, veterans cemeteries have distinct cost advantages over private cemeteries.

Several barriers exist in bringing these cost advantages to the attention of veterans. First, a large percentage of veterans like other citizens do not pre-plan. Therefore, end-of-life decisions are often made by family members during a period of psychological strain and may be made without considering the most desirable or most economical burial options that are available. Second, many veterans are unaware of their national and state cemetery burial benefits. Third, the growth of the private pre-need insurance industry and the use of aggressive marketing efforts has caused many veterans to already have made their cemetery and funeral choices. In some instances, veterans have been targeted by private cemetery advertising for free and reduced cost burials that turned out to be fraudulent or misleading.[15]

Virginia veterans who have been honorably discharged from the U.S. armed forces have essentially three interment choices: a national veterans cemetery, a state veterans cemetery, or a private cemetery. Each of these choices has different associated costs.

Veterans, spouses, and eligible dependents interred in cemeteries maintained by the National Cemetery Administration incur no cemetery related costs. The plot, perpetual care, grave opening/closing, headstone/marker, headstone installation, and grave liner/burial vault are provided at no expense. In addition, there are no residency restrictions on veterans.

Veterans interred in one of the two Virginia State cemeteries receive most of the same services as a national cemetery. The plot, perpetual care, grave opening/closing, and headstone/marker are provided without charge to the veteran. However, veterans must purchase grave liners/burial vaults that are estimated to cost between $800 and $1,200. Spouses and eligible dependents are charged a $300 interment fee. This fee is required because the state is not reimbursed for the cost of interring spouses and dependents. Fees charged for spouses and dependents at state cemeteries elsewhere in the U.S. vary from zero to $600, and several states have tiered price structures based on whether the interment is casket burial or cremains.

Those veterans electing to be interred in a private cemetery are eligible for a Veterans Administration headstone through the Headstones and Markers Program without cost (see **Table 5.1**), though some veterans do not use them because of the small size and restrictions on memorial content (Llewellyn 1998). In addition, many private cemeteries maintain "veteran gardens" where veterans may obtain discounted or free plots. However, the veteran is responsible for all cemetery costs not included in the contract. Such costs may include the purchase of the plot, perpetual care, opening and closing of the grave, burial vault, installation of the headstone or marker if a Veterans Administration headstone is not selected, and miscellaneous administrative fees. Moreover, spouses and dependents may

15 An example of such misleading advertising is provided by the Funeral Consumers Alliance at http://www.funerals.org/alert/vetscam2.htm (Accessed October 12, 2007).

Table 5.1: National, State, and Private Cemetery Interment Costs, 2007

Type	National	State	Private
Plot/Perpetual care — veteran	$0	$0	$0
Plot/Perpetual care — spouse	$0	$0	$918 ($798-$995)
Grave opening/closing — veteran	$0	$0	$874 ($705-$1,195)
Grave opening/closing — spouse	$0	$300	$874($705-$1,195)
Burial vault — veteran	$0	$1,000 ($800-$1,200)	$1,006 ($900-$1,095)
Burial vault — spouse	$0	$1,000 ($800-$1,200)	$1,006 ($900-$1,095)
Marker — veteran[a]	$0	$0	$509 ($424-$564)
Markers — veteran and spouse[b]	$0	$0	$1,932 ($1,795-$2,069
Administrative fees	$0	$0	$130 ($85-$145)
Residency requirements	No	Yes	No
Average veteran cost	$0	$1,000	$2,519
Average veteran and spouse cost	$0	$2,300	$6,659

[a] This cost assumes that a 28 inch by 16 inch granite base is installed.
[b] This cost assumes a matching spouse memorial (granite base and bronze marker).

incur a cost for the cemetery plot and many of the same burial costs again.

Good data on private deathcare costs are relatively difficult to find (Fan and Zick 2004; Sommer, Nelson, and Hoyt 1985). Few industry price surveys are available. Also, regional variation in prices can be substantial (Fan and Zick 2004) with urban areas generally exhibiting higher prices than rural areas (Kopp and Kemp 2007). Location within a cemetery and nearby amenities may also affect price (Llewelyn 1998).

Therefore, in order to determine the costs faced by veterans who use the most economical private casket burial alternatives, burial price information was obtained from cemeteries drawn from a random sample of 132 private cemeteries in Virginia available on the Internet.[16] Ten cemeteries were contacted. One of the cemeteries did not return telephone messages. Four of the remaining ten did not offer special veteran rates. One of the cemeteries had four discount plots available for veterans that were sponsored by the local Veterans of Foreign Wars (VFW) and American Legion chapters. Four of the ten cemeteries remaining provided information about special veteran pricing. They included cemeteries located in Castlewood (Russell County), La Crosse (Mecklenburg County), Lexington (Rockbridge County), and Virginia Beach. Some of these cemeteries offered premium priced lots but these lots were not considered here in order to provide a gauge of the lowest cost private cemetery alternatives available in the region.

This information for the four latter cemeteries with veteran discounts is listed in **Table 5.1** for casket burial. The prices are for flush-markers that are allowed in all four cemeteries. It indicates that State veteran cemeteries offer an approximately $1,500 cost advantage over regional low-cost private cemetery alternatives. Also, if a spouse is interred, the cost advantage is approximately $4,400. Of course, if the veteran does not choose a private cemetery offering veteran discounts, the expense would be much higher with the veteran incurring an additional plot with perpetual care expense. A 2001 AARP price survey (AARP 2004) indicates that this cost

16 The list of cemeteries was obtained from http://thecemeteryregistry.com/ (accessed October 22, 2007).

could be expected to fall between $2,000 and $4,500 per burial, which is consistent with the price information provided here.

Although the state veterans cemeteries offer a significant cost advantage over the most competitive private cemetery options, any effort by the state cemeteries to reduce the costs of burial can only have a salutary effect on veteran family experiences. The DVS is looking at ways to ease the burden of remaining burial expenses incurred by veteran families. It is exploring the possibility of procuring burial vaults at wholesale prices and offering them to veterans at cost (an estimated $150). It has also applied to the NCA State Cemetery Grants Program for funding to pre-install vaults as part of its Dublin cemetery development application. Pre-installing liners would have the added benefit of stabilizing burial plots and allowing the cemetery to accommodate a larger number of gravesites.

Outreach and Marketing Efforts

Veteran survey data indicate that many veterans are unaware of their national and state cemetery veteran benefits. Generally, there is a lower degree of awareness among younger, minority, and male veterans. The DVS recognizes the importance of reaching younger veterans who typically don't belong to veterans service organizations that are already targeted by outreach activities. Vietnam veterans, in particular, are viewed as having 'huge potential' because they are less likely to have pre-purchased interment sites than WWII veterans (Baxter 2007). Changes in veteran demographics, with greater representation of women and minorities in the armed forces and the aging of baby boomers, growth in new electronic media, and strong competition from a rapidly modernizing private cemetery industry will require that veteran cemeteries continuously re-calibrate their outreach activities.

Veteran cemeteries face stiff competition from private cemeteries. For-profit corporations are beginning to alter the landscape. Consolidation and vertical integration are increasing with some cemeteries bundling cemetery, mortuary, and other funeral related services under the same roof (Kopp and Kemp 2007; AARP 2000; Llewelyn 1998).[17] Some private cemeteries have expanded their services to include flower shops, monument sales, aftercare (e.g., grief counseling and support), genealogical research services, and annual calendars of special events that feature tours, concerts, and workshops.[18] Cemeteries are increasingly relying on pre-need contracts and employing modern marketing methods such as direct mail, telemarketing, and Internet advertising. In addition, some cemeteries offer a variety of interment choices not currently available from many veteran cemeteries such as cremation scattering gardens, "green" interment choices, and mausoleums. Some cemeteries are using new technologies such as digital video to create personalized memorials and enhance the visitor experience (*Death Care Business Advisor* 2004; Llewelyn 1998).

The DVS's current outreach program contains a number of different elements that are detailed in its Strategic Plan (DVS 2006a). Aside from "word-of-mouth," DVS staff visits local funeral homes, veteran organization chapters, churches, beauty parlors and barbershops within a 50-mile radius of the two state veterans cemeteries to increase awareness of the state veterans cemeteries and veteran burial benefits. Also, periodic

17 Llewelyn (1998) estimates that the number of these so-called "combination operations" grew from approximately 30 in the early 1970s into the hundreds by 1997 despite restrictive laws in some states. In 1999, the National Funeral Directors Association estimated the number at approximately 1,000 (AARP 2000).

18 For an example of this kind of modern full-service cemetery, visit the website of Crown Hill Cemetery and Funeral Home at http://www.crownhill.org/ (accessed October 12, 2007).

media exposure is gained from local newspaper, radio, and television outlet features, especially surrounding special events such as Memorial Day ceremonies. The department recently hired a communications specialist who has developed an attractive multi-color brochure that highlights the system and each cemetery.

The DVS has identified several other initiatives that would improve the visibility of state cemetery benefits. The department would like to utilize report of separation (DD214) information for direct mail contact with new veterans (DVS 2007). The department has shown an interest also in purchasing advertising space in newspaper obituary sections to promote its services. The department would like to improve the promotion of cemetery services through the Internet. However, the lack of a Webmaster staff position at the department has impeded progress in this area (DVS 2006a).

Opportunities may exist to augment outreach and marketing activities in the following areas:

Data Mining Pre-application Information. In order to assess the effectiveness of outreach activities, it would be useful to code pre-application data for use in assessment. Pre-applications numbers provide good potential measure of the sources and magnitude of future cemetery demand. Also, the pre-application form could be modified to provide more specific information about the effectiveness of outreach activities. Inserting a choice of specific responses would close the current open-ended pre-application question of "How did you hear about us?" A monthly, quarterly and/or annual report could be generated using the coded data to assess areas of weakness. For instance, geographical areas or demographic groups that are generating a smaller number of pre-applications than expected could be targeted for follow-up. Also, the pre-application data could be used to populate cemetery records when an actual interment occurs. This interment data could be used for additional reporting on the geographical origins and demographic characteristics of veterans who are interred.

Direct Mail Market Research and Promotion. The report of separation will be useful in establishing and maintaining contact with new veterans. Several marketing firms sell mailing lists of veterans. These lists include citizens who have accessed VA loans and those who contribute to veteran causes. These lists can be sorted according to age, geography, income, lifestyle, and other characteristics to organize targeted marketing campaigns. Before a targeted direct mail campaign, however, more detailed marketing research conducted by mail and/or telephone survey using a smaller random sample of veterans would be beneficial. In this way, it would be possible to identify the characteristics of veterans who are not pre-planning, not aware of their veteran cemetery interment benefits, and those who would be most receptive to an organized direct mail campaign.

Enhanced Media Outreach. The department has conducted extensive media outreach. At the time of the writing of this study, two major metropolitan newspapers, *The Virginian-Pilot* and *The Richmond Times-Dispatch*, had recently published comprehensive stories about the Virginia State Cemetery System (Baxter 2007; Ruff 2007). These stories provide a quality of exposure that is difficult to obtain from traditional paid advertising. The opportunity may exist to develop a formal and ongoing media campaign with press release templates for providing information to the public about important topics and in support of special events. These press releases could be distributed to regional and local media outlets along with information on how to obtain a press kit that

contains fact sheets, pictures, videos, newspaper stories, or other information. Additional visibility may be gained for state veteran cemeteries through public service announcements aired on the radio or videos broadcasted on public or government cable access television channels.

Web Site Development. Although *The Wirthlin Report* indicates that only 3 percent of the general public uses the Internet to research cemetery information (O'Meara 2005), it appears likely that marketing opportunities in cyberspace will grow (*Death Care Business Advisor* 2002b). The current website could be upgraded to provide features offered by other Virginia state agencies as part of the department's initiative to create an "Internet Portal." Enhancements might include multimedia images of cemeteries (e.g., panoramic pictures, videos), web-based forms for pre-applications, and interactive communication forums for obtaining additional information. Also, marketing materials that are currently available in print format could be converted to an electronic format such as PDF and posted on the website. Correspondingly, all print media should be issued with a departmental website such as the recently minted virginiaforveterans.com so that users may access more detailed information. Without additional staffing, it may be possible to contract with a private company to develop a new website and train existing staff for website maintenance.

New Interment Products. Many private cemeteries offer burial choices not available at Virginia's two veteran cemeteries. Among these choices are mausoleum and scattering gardens for cremains. The NCA does not currently fund the construction of mausoleums for state cemeteries but this policy is being reassessed. Some state veterans cemeteries, however, do offer scattering gardens where cremains are scattered in the landscape. With more veterans considering cremation and more environmentally friendly disposition methods, the construction of a scattering garden might be explored.

Enhancing the Visitor Experience through Technology. Modern computer technology can help improve the comfort, convenience, and experience of mourners and other visitors. Computerized kiosks make it easier for visitors to locate their loved ones and obtain information about the cemetery. The possibility may exist to offer additional kiosk services such as digital pictures, video, and audio as some private cemeteries do. Multimedia equipment could be utilized during the funeral ceremony to memorialize the departed and enhance the ceremony. It could also be used for special events to provide film presentations and to educate the general public about the wars and battles that interred veterans fought and that shaped the nation's history.

Ensuring Quality. The state cemeteries offer a high standard of appearance and service. In order to maintain this quality and ensure continued positive messages by way of word-of-mouth, quality assessment data may be useful. The use of satisfaction surveys mailed to families of the departed may provide valuable information for performance measurement and planning continuous improvement. Such a survey instrument is being used by the NCA and a similar instrument could be adopted by the DVS.

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