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*Honoring Those Who Served:  
An Analysis of Virginia State  
Veterans Cemeteries*

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UNIVERSITY  
*of* VIRGINIA

Weldon Cooper Center  
*for* Public Service

Center for Economic and Policy Studies



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An Analysis of Veteran Cemetery Services for  
Virginia's Veterans**

**November 2019**

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## EXECUTIVE SUMMARY

This study evaluates the interment needs of Virginia's veterans and assesses changes that have occurred since a previous report, *Commemorating Military Service and Sacrifice in Virginia: An Analysis of Veteran Memorial Needs*, was published in 2013. Since that time changes have occurred in the veteran population, consumer and veteran death care preferences, the drawing power of Virginia veterans cemeteries, and the projected closure dates of regional national and state veterans cemeteries. These changes motivated a reexamination of the assumptions and information that informed the previous study.

The 2013 study recommended that the Virginia Department of Veterans Services make long-term plans to establish a new veterans cemetery in Amherst County. This recommendation was predicated on two assumptions. First, the study assumed that a cemetery sited using the 75-mile distance service area boundary standard used by the National Cemetery Administration (NCA) for state cemetery establishment is the most likely to receive federal funding. Second, the Culpeper National Cemetery, which now handles approximately 275 interments each year, serving primarily veterans who resided in Northern and Central Virginia, was projected to be closed to casketed burial within 25 years or as early as 2038 unless additional land was acquired to sustain the cemetery. A location analysis found that a new Amherst County cemetery would serve the largest population of unserved veterans if one assumed a 75-mile service area radius and Culpeper National Cemetery was no longer available. Moreover, a future Amherst state veterans cemetery would provide a better way to serve Virginia veterans than a renewed Culpeper National Cemetery since that cemetery's Northern and Central Virginia service areas substantially overlaps that of the Quantico National Cemetery service area. In particular, an Amherst cemetery would provide superior access to veterans located in the Shenandoah Valley/Blue Ridge Mountain region whose closest options are now Culpeper National Cemetery, Southwest Virginia Veterans, or Virginia Veterans Cemeteries.

Since the last report, the NCA has reaffirmed its support for the criteria used for establishing new veterans cemeteries. It continues to support a 75-mile Euclidean distance standard in funding new cemetery construction, with an unserved veteran population of 80,000 within a 75-mile radius required for establishing new national cemeteries. For areas with fewer than 80,000 unserved veterans, states can initiate application to the State Cemetery Grant Program for a new state veterans cemetery. In addition, the NCA has begun to open smaller cemeteries as part of an effort to fill gaps within large urban areas and remote rural areas where access is more limited through its "urban initiative" and rural "National Veterans Burial Grounds" programs.

Since the last report, the Virginia Department of Veterans Services (VDVS) has emphasized improving and expanding interment areas within the footprint of existing cemeteries rather than embark on system expansion. The VDVS has completed or is in the process of completing large capital improvements at its two oldest cemeteries, Albert G. Horton, Jr. Memorial in Suffolk and Virginia Veterans Cemetery in Amelia that have new interment areas to accommodate future growth, including adding double depth crypts at both cemeteries. Interments at existing cemeteries have continued to increase due to the improved visibility that comes with cemetery exposure and expanded outreach efforts. The VDVS has now pre-installed double depth burial vaults at all three cemetery locations and waived fees for veterans and spouses that were charged in earlier years. The availability of these crypts at no cost to the veterans while interment costs continue to escalate at private cemeteries provides casketed burial at Virginia veterans cemeteries a substantial and growing cost edge over interment in private cemeteries.

Veteran demographics and consumer preferences have also changed. Since the last study, the U.S. Department of Veterans Affairs (USDVA) has published newer sets of veteran projections. The most recent product is the VetPop2016 model projections, which were made available in June

2017. These projections show a decrease in Virginia's veteran population over the planning horizon and a decreased number of deaths compared to previous projections. They also show a slightly different pattern of veteran population growth and decline within the state. Parts of the Hampton Roads and Fredericksburg regions are expected to see slight increases in their veteran populations, while the balance of the state will experience significant decreases. Consumer interment preferences also continue to change. More consumers are selecting cremation for its cost, simplicity, and environmental impact, and the rate of growth has outpaced earlier projections. New survey data and projections from varied sources such as the Cremation Association of North America, the Funeral and Memorial Information Council, and the U.S. Department of Veterans Affairs indicate that cremation has already overtaken casketed burial at the national level for both consumers and veterans and will continue to grow as an interment choice.

In line with the previous report, a 75-mile Euclidean distance standard was adopted for cemetery location analysis. This is the current standard used by the NCA in making cemetery development award decisions and appears to create a significant constraint in state decision-making. Furthermore, with the maturation of the Virginia veterans cemeteries and more extensive outreach and marketing activities in place, veteran burial draw rates have continued to improve within the outer 50-75 mile ring of the 75 mile service area. Therefore, current data and federal policy argue in favor of using the 75-mile standard. However, this study also examines the impact of using an alternative distance standard based on travel distance along existing roadways. Residents in the western part of the state are less well served by roads than other regions of the state because of the mountainous topography. This sensitivity analysis further illustrates the locational advantage of a Blue Ridge or Shenandoah Valley location for any future cemetery expansion rather than further development of the existing Culpeper National Cemetery (likely in a non-contiguous area because of space limitations), whose service region overlaps substantially with that of Quantico National Cemetery.

An updated location analysis indicates that new cemetery placement in Amherst County would still provide the most optimal solution for Virginia veterans. This cemetery extends service to the greatest number of Virginia veterans based on the NCA 75-mile standard and would best position the state for the eventual closure of Culpeper National Cemetery. Moreover, the new cemetery would provide a more centralized cemetery service area solution for the commonwealth than revitalizing Culpeper National Cemetery. The development of this fourth cemetery would result in four state contiguous cemetery service area bands that run parallel from east to west serving: (1) the Tidewater region, (2) the Piedmont region, (3) a region encompassing southern Shenandoah Valley and part of the Piedmont region, and (4) the Blue Ridge Highlands. Mountain Home National and Quantico National Cemeteries would cover the balance of the state, including the Appalachian region and Northern Virginia respectively. The new cemetery system would provide uninterrupted cemetery service for 99 percent of commonwealth veterans for at least a fifty-year time span. The only veterans who would remain unserved are those who reside on a portion of the Delmarva Peninsula.

Projections indicate that between 2,200 and 3,900 interments would be handled within a four-cemetery system by FY 2035 and potentially 53,000-86,600 total veteran interments over the period FY 2020-2045. These projections are based on USDVA veteran death projections, estimates of county interment draw rates, and alternative assumptions about interment draw rate growth. Albert G. Horton, Jr. Memorial Veterans Cemetery in Suffolk would have the largest volume of burial activity; interments would grow slightly throughout most of the period even under very conservative interment draw rate assumptions. A new cemetery in Amherst County would handle approximately 650 interments each year, making it slightly smaller in volume than Virginia Veterans Cemetery in Amelia. Approximately 270 burials can be expected to be first-interment casketed burials each year.

The higher projections depend on burial draw rates growing at rates similar to the last several

years for each of the cemetery service regions. Statewide draw rates for each of the cemeteries are still significantly lower than national cemeteries and state cemeteries nationwide. So, there is still significant opportunity for further improvement. Although national cemeteries may have greater drawing power, Virginia state veteran cemeteries are still comparatively young. The greater exposure that established cemeteries have on attracting veteran interments and outreach and marketing measures taken by the VDVS and USDVA may have contributed to recent improvements in draw rates. Adopting additional best practices through participating in new Veterans Legacy initiatives may further increase the attraction power of Virginia veteran cemeteries.

The VDVS has continued its marketing and outreach efforts, including reaching out to traditional media, veterans groups, and funeral directors to promote the cemeteries. It has expanded access in other ways. Most notably, the VDVS “Virginia Military Funeral Honors for Unclaimed Veterans’ Cremains Program”, which aims to identify unclaimed remains of indigent veterans or those with no next-of-kin that may be eligible for interment in a veterans cemetery, has resulted in a significant number of new interments. Since the 2013 report, an estimated 70 veterans have been laid to rest through these efforts. The VDVS has also upgraded its electronic media presence since the last report. The department now posts updates on a variety of social media formats, including Facebook, Twitter, Flickr, LinkedIn, and YouTube. The Departmental website is accessible through smartphone browsing, including Apple and Android operating systems.

The USDVA Veterans Legacy Initiative shows the potential for further building outreach activity and digital services to engage new audiences, honor American veterans, and increase public recognition of veterans cemeteries. Though new educational

outreach and digital tools, the initiative is creating greater awareness of veteran contributions and memorialization efforts. The centerpiece of the initiative is a digital memorial website, which currently allows users to retrieve information about gravesite locations and veterans military service and will expand into other digital service areas in the future. DVDS participation in these programs would help to raise awareness of Virginia veterans and ensure that the state does not fall behind NCA best practices.

The VDVS continues to offer cost effective burial options. Its fees are in line with what other state veterans cemeteries charge. Moreover, while private cemetery costs continue to escalate and some have begun to discontinue their veteran price discounts, the cost advantages of interment in a Virginia state veterans cemetery continue to increase. The current estimated benefits value for a veteran and spouse is approximately \$10,000 compared to less than half this amount in 2007. This difference can be attributed to the VDVS policy of preinstalling double depth crypts and continued escalation of private death care service costs.

The VDVS has also expanded its cemetery quality assessment efforts. Since the last report, the VDVS has introduced a process for soliciting information from next of kin/family members about their experiences with the state veterans cemeteries. Survey results indicate a high level of satisfaction with cemetery services and features. The USDVA has conducted a parallel satisfaction surveys for state and tribal veterans cemeteries. The last reports were issued in 2018 and summary results have been provided to VDVS. This data can potentially be used to benchmark Virginia veteran cemetery satisfaction with national and state veterans cemeteries and holds promise as an additional departmental assessment tool.



## INTRODUCTION

This report describes changes that have occurred since a previous report, *Commemorating Military Service and Sacrifice in Virginia: An Analysis of Veteran Memorial Needs*, was published in 2013 and evaluates the memorial needs of Virginia's veterans. It describes changes to U.S. Department of Veterans Affairs (USDVA) policy, Virginia Department of Veterans Services (VDVS) cemeteries and services, the geographical configuration and capacities of national and state veteran cemeteries in the region, and consumer death care preferences. The study examines issues relevant to determining veteran cemetery needs such as veteran demographics, interment location choices, and interment mode preferences. Using this information along with data on the locations and capacities of cemeteries that serve veterans who reside in Virginia, the study identifies optimal locations for a new state cemetery and provides up-to-date projections of veteran interments to the year 2045. The study also investigates consumer changes in memorialization and ways to improve the attraction of veterans cemeteries by offering alternative memorial products and services.

This report is divided into five sections. The next section reviews the history and characteristics

of the Virginia State Veterans Cemetery system, highlights results from previous analyses of state veterans cemeteries needs, and discusses policy, demographic, consumer and other changes that have occurred since the last study. The second section examines determinants of veteran burial needs. These variables include the geographical pattern of veteran populations and deaths, veteran interment location preferences, and veteran interment mode choices. Section three examines characteristics and market boundaries of regional veteran cemeteries, analyzes the geographical pattern of last reported residence of veterans interred in veterans cemeteries, and identifies locations for new cemeteries given certain assumptions about travel distance, market boundaries, veteran populations, and the geographical configuration of veteran cemeteries in service. The fourth section identifies the most optimal location for a new cemetery and presents projections of cemetery burial volumes for the period 2020-2045. The fifth section examines the ways that DVDS has expanded marketing, assessment, and affordability of its services and additional changes that might be introduced to better serve veteran memorial needs.



## SECTION 1 BACKGROUND

### Virginia State Veterans Cemetery System

The VDVS established its first state veterans cemetery in the late 1990s with funding from the National Cemetery Administration’s State Cemetery Grants Program in order to fill a substantial gap in veteran cemetery access in the Commonwealth.<sup>1</sup> Three cemeteries have now been established. They provide service to approximately 53 percent of Virginia veterans, while National cemeteries in the region provide coverage to an additional 45 percent of Virginia veterans.<sup>2</sup> Virginia Veterans Cemetery, located on a 129-acre tract in Amelia County 40 miles southwest of Richmond, was dedicated in 1997 (see **Table 1.1**). In 2004, a second state cemetery was opened in Suffolk County on a 74-acre property, named for Albert G. Horton, Jr. Memorial Veterans Cemetery, the first veteran interred in the cemetery. A third cemetery was opened in Pulaski County in 2011, approximately 50-miles south of Roanoke on 80 acres of land. These cemeteries are projected to meet the veteran burial needs of their respective service areas ranging from the next 30 to 270 years.

Virginia state veterans cemetery Interments have increased in 19 of the last 23 years of their service. Data as of June 2019 indicated that the state veterans cemetery system is rapidly closing on the 20,000 interment mark (see **Table 1.2**). Some of this growth can be attributed to new cemeteries coming online, but most of the growth is due to the growing attraction of cemeteries in place. The compounded annual growth rate since first full year of opening was 7.5 percent for Albert G. Horton, Jr. Memorial Veterans, 8.1 percent for Virginia Veterans, and 5.7 percent for Southwest Virginia Cemetery. Interments in Virginia state cemeteries in FY2018 represent over half (50.1 percent) of all interments in Virginia national and state veterans cemeteries compared to just 36.1 percent in FY2009.

Interment in one of the three Virginia State Cemeteries is available to members of the U.S. armed forces who die on active duty, military retirees, and honorably discharged veterans. In addition, members of the reserves and National Guard who have served for 20 years and qualify for a military pension are also eligible. Certain additional

**Table 1.1 Virginia State Veterans Cemetery Characteristics**

Cemetery	Location	Dedicated	Acreage	Total Interments as of FY 2019	Characteristics	Projected Depletion Date
Albert G. Horton, Jr. Memorial Veterans	Suffolk	Nov. 2004	74 (39 developed)	12,446	4,608 niche columbaria 2,825 4X4 cremation plots 12,812 4X10 burial plots Granite headstones and markers	FY 2025+
Virginia Veterans	Amelia	May 1997	127 (28 developed)	5,646	1440 niche columbaria 972 3X3 cremation plots 13,500 5X10 burial plots Marble headstones and granite markers	FY 2060+
Southwest Virginia	Dublin	May 2011	80 (24 developed)	1,280	625 niche columbaria 480 4X4 cremation plots 7,817 4X10 burial plots Granite headstones and markers	FY 2080+

Source: Virginia Department of Veterans Services, USDVA Form 40-0241—State Cemetery Data

Note: Projected depletion dates are based on developed acreage at end of FY2019.

**Table 1.2 Virginia State Veterans Cemetery Interments, FY1997-FY2019**

Year	Albert G. Horton, Jr Memorial Veterans	Virginia Veterans	Southwest	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
2008	591	213	--	804
2009	638	248	--	886
2010	752	263	--	1,015
2011	766	302	23	1,091
2012	800	279	143	1,222
2013	859	311	175	1,345
2014	1,017	307	140	1,464
2015	1,054	380	157	1,591
2016	1,161	416	201	1,778
2017	1,134	413	203	1,750
2018	1,211	426	228	1,865
2019	1,221	484	211	1,916
<b>Total</b>	<b>12,447</b>	<b>5,645</b>	<b>1,481</b>	<b>19,573</b>

Source: Virginia Department of Veterans Services

categories of federal government employees (e.g., commissioned officers of the National Oceanic and Atmospheric Administration, some American merchant mariners) can also be interred. Spouses and child dependents may be interred. Also, biological or legally adoptive parents are allowed under certain circumstances.

State veterans cemeteries provide several benefits, including the provision of a gravesite, opening and closing of the grave, burial containers, headstone or marker, and perpetual care of the gravesite. The VDVS covers all interment costs for the veteran, now inclusive of concrete outer burial

containers (formerly a cost of \$400 to veterans) at all location since burial vaults have been installed either as part of original cemetery development (Southwest Virginia Veterans Cemetery) and subsequent capital improvements at Albert G. Horton, Jr. Memorial and Virginia Veterans Cemeteries. Spouses and dependents are charged \$300 to cover grave opening and closing.

### Summary of Previous Cemetery Study

A cemetery study produced in 2013 (Rephann 2013) provided an update to assumptions and estimates from an initial study (Rephann 2007). It recommended that a long-term plan could be created to establish a new cemetery in Amherst County. This location would provide the most optimal coverage for Virginia veterans. This finding was based on two assumptions. First, it assumed that the 75-mile standard adopted and reaffirmed by the NCA in funding new state veterans cemeteries was the only realistic standard to use in locational planning because of the need for substantial national capital improvement assistance. The NCA considers 75-miles to be the outer limit for which veterans will consider burial sites. Therefore, as a matter of policy, the NCA establishes

new national cemeteries, expands existing national cemeteries, and awards state cemetery grants with the goal of maximizing the number of unserved veterans who reside within 75-mile straight-line distance of a proposed national or state cemetery. At the same time, the 75-mile standard had become more congruent with the actual Virginia veteran cemetery interment landscape as the Virginia state cemeteries had matured, as additional marketing and outreach activities had been implemented, and as new wartime cohorts of veterans such as Vietnam Vets with a greater propensity to select veteran cemetery interment aged. Second (and similar to the first study conducted in 2007), it found that

Culpeper National Cemetery, which now provides approximately 275 interments each year drawn mainly from a population of veterans who reside in Northern and Central Virginia, would likely be depleted for casketed burial within 15 years or as early as 2025 unless additional developable land was secured for the cemetery. Furthermore, it was determined that Culpeper National is not optimally located to serve the needs of Virginia veterans because its service area substantially overlaps that of the much larger Quantico National Cemetery in Stafford County and provides lower levels of access to lower Shenandoah Valley veterans than a veterans cemetery located in the Blue Ridge. Closure and replacement by an Amherst County cemetery would provide more centralized service area solution for the commonwealth and would result in four state contiguous cemetery service area bands that run parallel from east to west serving: (1) the Tidewater region, (2) the Piedmont region, (3) a region encompassing southern Shenandoah Valley and part of the Piedmont region, and (4) the Blue Ridge Highlands. Mountain Home National and Quantico National Cemeteries would cover the balance of the state, including the Appalachian region and Northern Virginia respectively. The new cemetery system would provide uninterrupted cemetery service for 99 percent of commonwealth veterans for at least a fifty-year time span. The only veterans who would remain unserved are those who reside on a portion of the Delmarva Peninsula.

Projections indicated that between 1,700 and 2,500 interments would be handled within a four-cemetery system by FY 2033 and potentially 36,000-55,000 veterans over the period FY 2014-2040. Albert G. Horton, Jr. Memorial Veterans Cemetery in Suffolk would have the largest volume of burial activity and its interments would grow throughout the period even under very conservative burial draw rate assumptions. A new cemetery in Amherst County would handle approximately 300-370 burials each year, making it similar in volume to Virginia Veterans Cemetery in Amelia.

The upper range of projections was predicated on continued improvements in burial draw rates for the cemetery service regions. Virginia State Veterans

Cemeteries veteran burial draw rates were then about half of those achieved by the entire national and state veterans cemetery system (i.e., six percent of all veterans within the service area interred versus a 12 percent rate nationwide). Virginia state cemeteries are still relatively new and, with the exception of Albert G. Horton, Jr. Memorial Cemetery in Suffolk, are somewhat remote from large urban areas. These features may depress draw rates. Moreover, national cemeteries offer comparatively lower interment fees (i.e., spouses and dependents are not charged interment fees) and may have greater drawing power. Outreach and marketing measures and lowered interment fees introduced as a result of burial vault pre-installation by the VDVS in recent years may have contributed to recent improvements in draw rates. A continued scaling up of these efforts could be important to realizing similar growth in future interment rates.

## **Key Changes Since Previous Study**

Several changes have occurred in federal policy, state cemetery planning, veteran demographics, consumer interment patterns, and the configuration and projected longevity of regional national and state veterans cemeteries since the last study. These changes, which are examined in detail here, suggest the need to update the assumptions and estimates of memorial needs of veterans in the commonwealth provided in the previous study.

## **National Cemetery Administration Policies**

The NCA has made limited changes to its policies for siting national and state cemeteries since the last report. The NCA continues to use a two tiered unserved veteran population threshold for national and state cemetery establishment within 75-miles radius of a proposed cemetery.<sup>3</sup> National cemeteries can be established in areas where at least 80,000 veterans reside more than 75 miles from a national or state veterans cemetery. Since the last report, five new national cemeteries have been established (Miramar, CA; Pikes Peak, CO; Cape Canaveral, FL; Tallahassee, FL; and Omaha, NE). The NCA

now operates 137 national cemeteries.<sup>4</sup> The NCA views state veterans cemeteries as complements to the national cemeteries that serve smaller veteran service areas. They can be established under the initiative of individual states with financial assistance from the USDVA State Cemetery Grants Program. The program has funded 112 veterans cemeteries in 48 states, two state territories and several tribal trusts to date, including three in Virginia. State veterans cemeteries have opened since 2013 in several states, including Arizona, California, Idaho, Kentucky, Montana, North Carolina, Oklahoma, South Dakota, and Tennessee.

The NCA estimates that approximately 93 percent of the U.S. veteran population will be located within 75-miles of a national or state veterans cemetery in 2020 compared to its strategic target to serve 95 percent in a similar capacity (USDVA 2019). The next tier was to be filled by state cemeteries that can initiate application with priority given for state and tribal cemeteries that serve fewer than 80,000 residents within 75 miles with priority given to projects that would bring the most unserved veterans within a service region.

The NCA also implemented its new its program for improving access for residents of large metropolitan areas and low population density rural areas. As reported in the previous study, the NCA created an “urban initiative” where small cemeteries would be developed for columbaria in major U.S. cities that are less accessible to existing national cemeteries. The “National Veterans Burial Grounds” program establishes veterans cemeteries within existing private or public cemeteries in rural areas with fewer than 25,000 unserved veterans according to the 75-mile service area standard. The NCA opened its first rural initiative cemeteries in Yellowstone, CO and Fargo, NC and will be opening its first urban initiative funded cemetery soon in Los Angeles. Seven additional rural and four urban initiative sites are under development.

The NCA has made other changes that that will have a much more modest impact on future cemetery planning.<sup>5</sup> With the Supreme Court decision requiring states to recognize same sex

marriage (*Obergefell v. Hodges*) on June 26, 2015, same sex spouses are now eligible for VA benefits, including memorial services. The Urban Institute estimates that gay and lesbian veterans represent approximately 4 percent of all veterans (Gates 2004); Pew States estimates that approximately 10 percent of LGBT adults are married to same-sex partners (Jones 2017). Thus, this change is expected to have a relatively small effect on the number of interments. The Dignified Burial and Other Veterans’ Benefits Improvement Act of 2012 implemented a program for identifying and interring the remains of deceased veterans with no known next of kin. A similar program introduced by the VDVS (“Virginia Military Funeral Honors for Unclaimed Veterans”) has resulted in several dozen new interments. The Alicia Dawn Koehl Respect for National Cemeteries Act allows for the disinterment of remains of individuals who are thought to have murdered another person but avoided prosecution and conviction (Szymendera 2016). The criminal case that motivated that legislation is unusual and should have no adverse effect on the number of veteran interments.

### Virginia Department of Veterans Services Policy and Cemetery Changes

Since the last study, the VDVS has maintained the three cemeteries within its system and focused much of its attention on additional improvements for the properties and additional marketing of the cemeteries to state veterans to increase interment rates. The increased marketing has shown results as interment rates have significantly progressed at each location within 75 miles radius of each cemetery. VDVS has embarked on two major capital improvements since the last report at the Albert G. Horton, Jr. Memorial Cemetery. Earlier this year, VDVS completed a Phase II expansion with the assistance of a \$2 million grant from the NCA involving the construction of five new columbaria with 1,920 niches and seven new ground cremation areas with a total of 1,260 cremain plots. As part of current Phase III development, 7,100 double depth crypts are being installed along with other signage, fencing, gate improvements as well as a cemetery office expansion and roof replacement. In addition,

DVS has made application for a \$4.5 million NCA grant for Virginia Veterans Cemetery expansion to include pre-installed burial crypts.

## National and State Cemeteries in the Region

While no new national cemeteries have been established within the Virginia service region since the last study, three state cemeteries have opened in adjoining states (Southeast Kentucky, Middle Tennessee, and East Carolina). However, only one of these is within 75 miles of the Virginia border. Kentucky opened its fifth state veterans cemetery, the 42-acre Kentucky Veterans Cemetery Southeast in Hyden, in 2018. Since this cemetery does not prohibit Virginia veteran burials per se (Kentucky law restricts eligibility to veterans born in the state, those who served at one of the U.S. military installations in the state, and those who have lived in the state), it could at least theoretically impact the Virginia service area. However, the same Virginia area is already served by Mountain Home National Cemetery.

No new National Veterans Cemeteries were established in the region since the last study. However, since that study, both Culpeper National Cemetery in Virginia and Salisbury National Cemetery in North Carolina anticipate further improvements that will increase their capacities. The Culpeper improvements are more significant in terms of service area impact but smaller in size. Improvements to Culpeper National Cemetery will occur within its existing 30-acre footprint. The bulk of the improvements will extend the cemetery's depletion date for cremain interments (currently estimated to be 2029) by creating 2 columbaria with 1,000 niches and an in-ground cremain area with 500 additional sites. In addition, an area to accommodate 142 casketed burial sites will be developed. Salisbury National Cemetery is anticipating a large donation of nearby land

(37 acres) by the town of Salisbury and YMCA. When developed, the area is expected to extend the depletion date of the cemetery by an additional 20+ years. The Salisbury National service area has a very limited impact on Virginia since its service area intersection with Virginia is already better served by Southwest Virginia Veterans Cemetery and Mountain Home National Cemetery in Tennessee. In addition, Danville National Cemetery, which is currently closed to all new interments, will develop a limited number of additional cremain interment sites by demolishing an existing concrete road.

## Demographics and Consumer Death Care Choices

The following sections describe changes in demographic and consumer preferences that continue to challenge accurately projecting long-term burial needs. Since the last study, the U.S. Department of Veterans Affairs has issued two newer sets of veteran projections. The first, VetPop2014, was released one year after the publication of the previous study. In June 2017, the USDVA issued new population projections using the VetPop2016 model. These projections now show a slow decline in Virginia's veteran population over the planning horizon and an associated decrease in the number of projected deaths. They also show veteran population declines in nearly all areas of the Commonwealth with the exception of a handful of localities in Hampton Roads and the Fredericksburg region. Growth in cremation for U.S. consumers continues to outpace projections but Virginia veterans cemetery cremain interment growth has been more moderate. Current data and projections from the Cremation Association of North America indicate that cremation recently became the choice of a majority of U.S. consumers in 2016 and will become so among Virginia consumers in the near future.



## SECTION 2 DETERMINANTS OF INTERMENT NEEDS

Three types of information are used to determine the current and future interment needs of veterans. First, veteran population and veteran death estimates by location and year are needed to identify the potential users and volume of interments for each cemetery market area. Second, veterans' propensity to select interment in a state veteran's cemetery by location and year versus alternative interment choices should be estimated. Third, veteran preferences for cremation versus casketed disposition by location and year must be determined. Virginia's state veterans cemeteries also provide two cremains interment options that have differing capital development expense, space requirements, and operational costs: columbaria and in-ground niches. Thus, greater specificity about the split between these two interment options provides better data for capital and operational planning..

For projection purposes, the veteran interment choice is disaggregated into several discrete and nested steps. Initially, a veteran chooses whether to be interred in a state veterans cemetery or elsewhere. Next, the veteran determines whether to select casketed burial versus cremain interment. Finally, veterans who elect to be cremated will choose between in-ground interment or columbarium. In reality, veteran decisions are much more complicated than this model suggests and these decisions may be made simultaneously or in reverse order. In some situations the decision can be reversed. For example, a veteran who has chosen casketed burial may be more likely to select a veteran cemetery because of the even larger cost advantages of casketed burial in a veterans cemetery versus that in private cemeteries. Alternatively, veterans who chose cremation may not even choose to be interred in a cemetery, veterans or private. Cremains interment decisions are increasingly made by next of kin many years after a loved one's death since cremains may be retained indefinitely.

This section examines each of these factors separately and in some detail with supporting data and analysis. Ultimately, the information described

here will be used in the subsequent sections to inform service area delineation, cemetery location analysis, and interment projections.

### **Veteran Population and Death Projections**

Recent USDVA estimates indicate that 733,046 veterans resided in Virginia in 2015. This figure ranks 7th highest among states in the nation but is significantly lower than the number reported in the last U.S. short-form census in 2000 (786,359). Virginia's veteran population as a percentage of civilian population aged 18 years and older ranked third in 2017 at 10.6 percent according to U.S. Census estimates.

Virginia has traditionally hosted a large veteran population for several reasons. Most importantly, Virginia has a large number of military bases and installations, with especially high numbers of servicemen and women working in the northern (e.g., the Pentagon, Fort Belvoir, Quantico Marine Corps Base) and the eastern (e.g., Langley Air Force Base, Oceana Naval Air Station, Norfolk Naval Base) regions of the state. The presence of these military activities and the close proximity of the seat of federal government in Washington, DC also attract many military contractors who employ large numbers of veterans with specialized skills who remain in the labor force and establish civilian careers. The state's generally low unemployment rate, low tax rates, wide array of cultural activities, and pleasant climate also attracts many military retirees. Lastly, the state has a relatively high proportion of military recruits compared to its civilian 18-24 age population. The state had a representation ratio of 1.2 representation ratio in FY2017 and 1.3 in FY2016 compared to a national average of 1.0 (Office of the Under Secretary of Defense, Personnel and Readiness 2018).

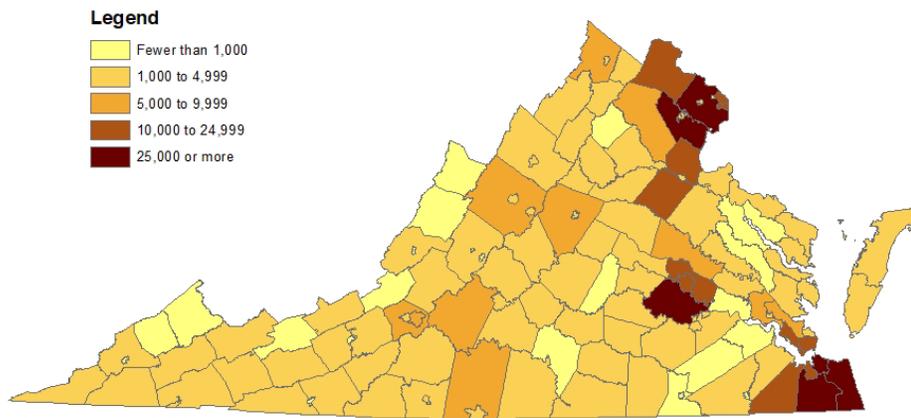
These factors also help to explain the geographical distribution of veterans within the state. Most of the state's veterans are located in the heavily populated

Northern Virginia suburbs and Hampton Roads areas where military facilities are clustered (see **Figure 2.1**).

The U.S. Department of Veterans Affairs has issued several sets of veteran population projections over the last fifteen years. Their first projection model was VetPop2000. VetPop2001 was introduced in 2002, VetPop2004 in 2004, VetPop2007 in 2008, VetPop2011 in 2013, VetPop2014 in 2014, and VetPop2016 in 2017. Each projection model incorporates methodological changes and introduces newer data on veteran detachments from the military, migration, and death. The changes in these projections can affect our analyses in two ways. First, since cemetery locational analysis depends on the size and distribution of the future veteran population, the optimal location for additional cemeteries could, in theory, be influenced. Second, the size and distribution of future veteran deaths would affect projected interments handled by existing and any future planned cemeteries.

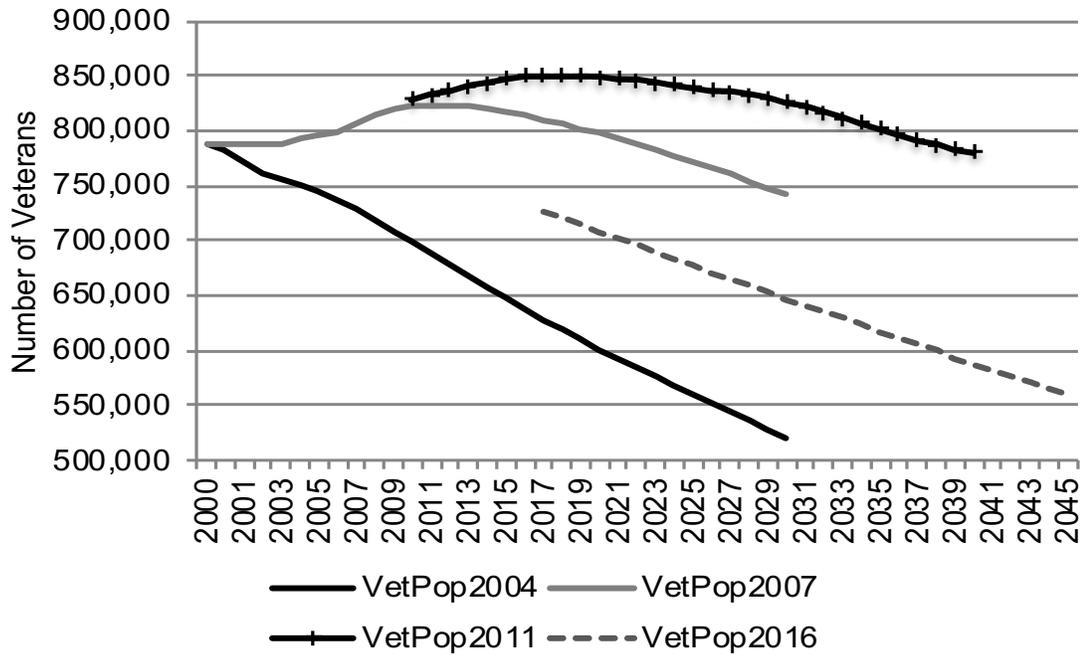
The study uses veteran population and death figures drawn from the VetPop2016 projection model (USDVA 2017). The VetPop2016 model has essentially the same features as the previous two versions (VetPop2014 and VetPop2011) but uses more current and improved demographics modelling data, including administrative records and survey data from the USDVA, Department of Defense, U.S. Census Bureau’s American Community Survey population data, Social Security Administration mortality rates, and Department of Defense historical and projected separations data. One notable difference between model outcomes for this version and VetPop2011 is that the estimated baseline population is much lower, likely because of the use of American Community Survey 2015 data to update the 2015 population estimates rather than rely on older 2000 decennial census baseline data. Thus, the model projects a significantly lower Virginia veteran population at each point in time than the VetPop2011 population estimates used in the previous report (Rephann 2013) (See **Figure 2.2**).

**Figure 2.1 Veteran Population by Virginia Locality, 2015**



Source: U.S. Department of Veterans Affairs (2017)

**Figure 2.2 Virginia Veteran Population by Year, Estimated and Projected, 2000-2045**



Source: U.S. Department of Veterans Affairs

Although VetPop16 projects that the Virginia veteran population will decline 23.4 percent significantly over the period 2015-2045, the rate is significantly lower than the nationwide rate of decline at 42.3 percent. In this regard, it is similar to other states in the southeastern and western U.S. with relatively high numbers of active and reserve military members (see **Figure 2.3**). Alaska is the only state projected to see an increase in the number of veterans (551 veterans) over the period.

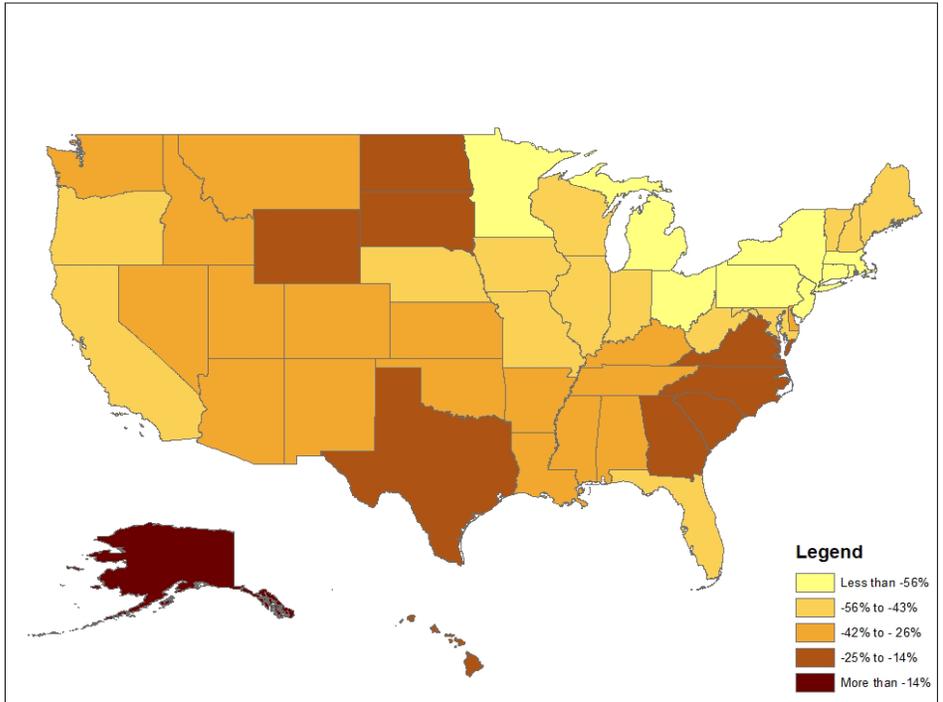
The county level projections indicate that the commonwealth will experience an increasing concentration of its veteran population over the next several decades, with growth occurring in only 10 localities located mainly in the Hampton Roads (Norfolk City, Chesapeake City, Portsmouth City, Suffolk City, and Isle of Wight County) and Fredericksburg regions (Fredericksburg City, Caroline County, Stafford County, and King George County) and losses elsewhere in the remaining 123 localities, including almost half of Fairfax County’s current veteran population (See **Figure 2.4**).

Virginia’s VetPop2016 veteran death projections track closely with the veteran population model projections (see **Figure 2.5**). The number of deaths are projected to gradually ebb from an estimated 16,430 in 2017 to 12,920 in 2045, a drop of 21.4 percent which closely matches the drop in veteran population of 23.4 percent. These projections suggest that increasing or even maintaining the number of interments at state veteran cemeteries in the future will depend on improving the draw rates of existing state veteran cemeteries..

### Interment Location Preferences

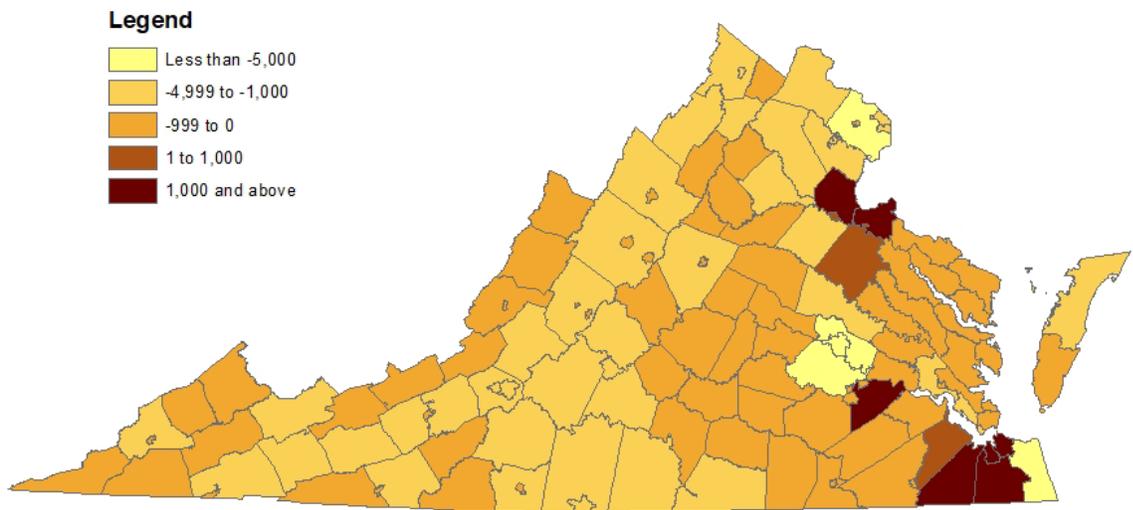
Veteran interment preferences are shaped by the same kinds of personal and financial considerations as non-veterans. Since cemetery burial is a unique benefit provided only to veterans, benefit awareness also plays an important role. There are still considerable gaps in veteran familiarity with their memorial benefits. In the most recent veterans survey, 32 percent of veterans indicated that they were unaware of these benefits (Booz Allen Hamilton Inc. 2014).

**Figure 2.3 Projected State Veteran Population Growth, 2015-2045**



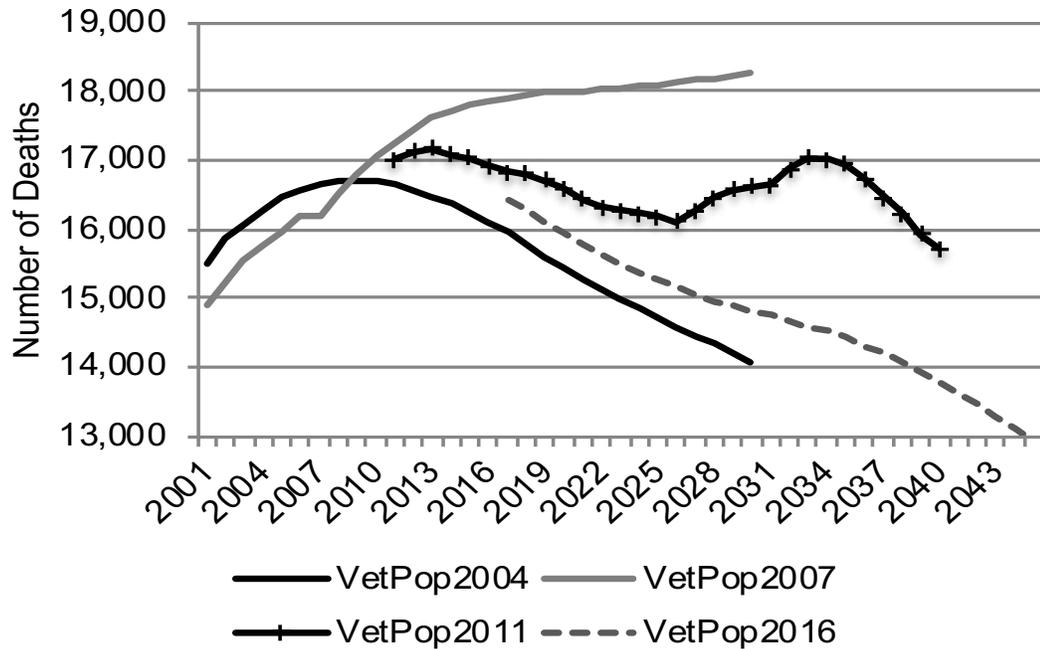
Source: U.S. Department of Veterans Affairs (2017)

**Figure 2.4 Projected Virginia Locality Veteran Population Growth, 2015-2045**



Source: U.S. Department of Veterans Affairs (2017)

**Figure 2.5 Virginia Veteran Deaths by Year, Estimated and Projected, 2001-2045**



Source: U.S. Department of Veterans Affairs (2007, 2008, 2013, 2017)

An analysis of 2008 Veterans Burial Benefits Survey data suggests other demographic and attitudinal correlates with the decision to choose veterans cemeteries (ICF International 2008). They include a strong connection to the military, belonging to an ethnic minority and religiosity. Younger age groups and more recent service era veterans are also more likely to indicate a preference for veterans cemetery interment. Cost and quality are also important but ultimately secondary factors according to a 2010 Veterans survey with 35.8 percent citing “no cost” or “quality of services” as important factors compared to 50.4 percent who cited “connection to the military/past service to county” or “honor of burial in a VA National shrine” as the reason.

The main reason that veterans do not choose a veterans cemetery, according to the most recent Veterans Benefits Survey (Weststat 2010) is that they have already made other arrangements (43.5 percent) or prefer to be buried close to other family members in a private cemetery (35.9 percent), perhaps in family plots. Pre-need contracts and

life insurance coverage for funeral and burial arrangements have become increasingly common. Moreover, since veteran cemetery plots are generally reserved for veterans and their spouses, with special consideration for dependent children and parents in exceptional circumstances, they cannot meet the needs of veterans where such considerations are paramount. However, next in importance are a group of factors which veterans services agencies can influence, including veteran awareness of their memorial benefits and access and convenience to cemetery services. A relatively large share of veterans surveyed indicated either that they “didn’t know eligibility criteria (29.1 percent) or “didn’t know how to make arrangements.” Access and convenience were tertiary concerns with some veterans concerned that “veterans’ cemetery too far away,” (14.4 percent), “travel time to Veterans cemetery too long” (11.0 percent) or that it was “too difficult to make arrangements” (6.3 percent).

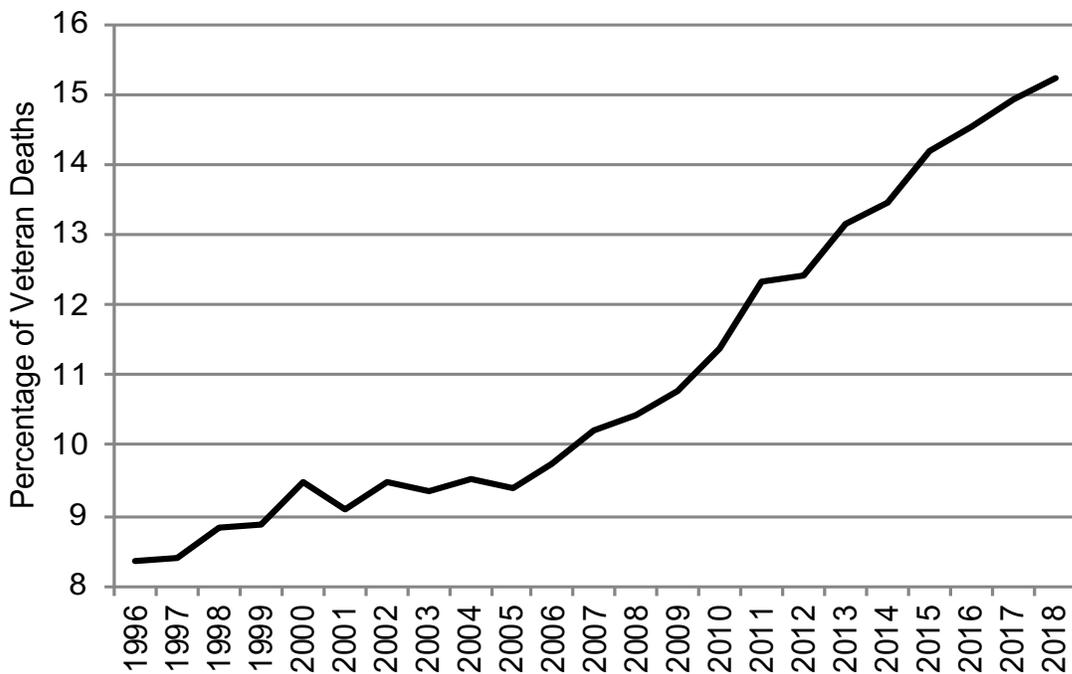
Recent veterans cemetery interment data show that U.S. veterans are increasingly choosing interment

in a national veterans cemetery. Approximately 8.3 percent of veteran deaths were interred in national veterans cemeteries in 1996, expanding to an estimated 12.3 percent in 2011 and 15.2 percent in 2018 (see **Figure 2.6**). When the number of veterans interred in state and tribal trust cemeteries are added to this total, the percentage of veterans interred rises to 15.7 percent in 2011 to 20.1 percent in 2018. No doubt part of this rise is due to USDVA sponsorship of new cemetery establishment in underserved areas. Demographic and attitudinal differences among different service era cohorts may also play a role, since Vietnam-era veterans have indicated in surveys that they are more likely to choose veteran cemetery interment than their predecessors. Improved marketing and outreach efforts by federal and state veterans agencies and veterans organizations may also be important. A 2014 survey of veterans indicates that 24 percent of current veterans are “very likely” to choose burial in a national Veteran’s cemetery in the

future and 21 percent “somewhat likely” (Booz Allen Hamilton Inc. 2014). National Cemetery Administration planning guidelines recommend that allowance be made for 20 percent of veterans living within 75 miles of a veteran’s cemetery to choose interment there. However, based on trend data and veteran stated preferences that percentage is likely now too low.

Distance and travel time to a cemetery is an important factor in veteran interment choices. This preference for proximity is reflected in both “revealed preferences” for burial location and in veteran survey responses. National and state veteran cemetery interment data show a pronounced distance gradient with negligible numbers of veterans electing veteran cemetery burial beyond a 75-mile boundary of their residence. One study found that veterans buried in national or state veteran cemetery are located an average of 19.2 miles from their last residence (ICF International 2008). Moreover the

**Figure 2.6. National Veterans Cemetery Interments as Percentage of Total Veteran Deaths, 1996-2018**



Source: U.S. Department of Veterans Affairs and Author’s calculations

propensity to for a veteran to be buried in a veteran cemetery decreased by 5 percentage points for each incremental 5 miles in distance from a cemetery (ICF International 2008). Recent survey results indicate that 45 percent of veterans indicated that the ability of “family and friends to visit” their burial site was their most important concern in selecting an interment site (Booz Allen Hamilton Inc. 2014).

Distance is a key decision parameter used by the USDVA in allocating funds for new cemetery construction. The NCA currently regards any veteran within 75 miles of a national or state veteran cemetery with casket burial availability as effectively having his/her burial needs met. This service radius standard has now been used for several decades. Although the NCA revisited the service size threshold issue a decade ago, an external consultant recommended retention of the 75-mile standard (ICF International 2008) and the NCA adopted the recommendation. Thus, question of how large the service area should be is no longer a policy issue.

The amount of unserved population needed to “trigger” new cemetery construction has been more fluid. Under older USDVA policy, a new cemetery had to serve at least 170,000 unserved veterans to be eligible for new veterans cemetery construction. This population threshold standard was reviewed by an external consultant, which recommended lowering the population threshold to 110,000 unserved veterans (ICF International 2008). The USDVA adopted a more multi-tiered system in response. The first tier established a population threshold of 80,000 unserved veterans to establish a new national veterans cemetery. The second tier consists of states that are eligible to apply for NCA state cemeteries if 80,000 or fewer veterans would be served.<sup>6</sup> The third tier consists of National Veterans Burial Grounds which are created within existing private or public cemeteries in very low density rural areas with fewer than 25,000 unserved veterans. The NCA also created an “urban initiative” for establishing small cemeteries for cremains in selected cities that are less accessible as measured by travel time and several other criteria.

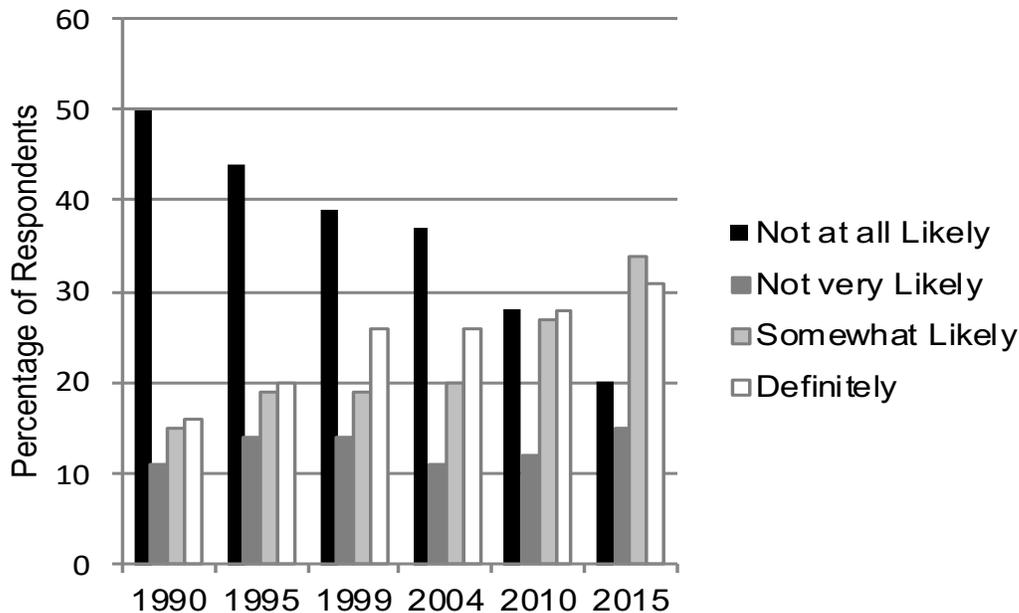
## Interment Type Preferences

Depending on the disposition method chosen, veterans have several choices for placement of their remains. Casketed remains are generally buried in graves or mausoleums, though burial at sea is also an option for military members. Cremains can be interred in ground, in columbaria niches. Alternatively, they may be kept by loved ones at home in urns or they may be scattered in cremation gardens, at sea, or other locations. These choices have not fundamentally changed since the last study. However, green disposition, in which the deceased is buried in a shroud, composted, or otherwise decomposed<sup>7</sup> into cremain type remains have gained some traction as niche choices, primarily among consumers who are concerned about the ecological consequences of cemetery land use, chemicals used in embalming and cemetery lawn care, and the amount of energy used and carbon dioxide released by crematoria (Sloane 2018).

Veterans cemeteries have made some accommodation to these interment choices. Some veterans cemeteries offer scattering gardens (less than one percent of national veterans cemetery cremains were scattered in 2018). Moreover, the NCA is studying the feasibility of offering other green burial options. Introducing this option will have long-term cemetery maintenance cost implications since burial vaults are not used to prevent grave sinkage.

Cremation, itself, has continued to grow to the point where what was once a niche consumer choice is now the most popular consumer choice. The growth is being driven both demand and supply factors. On the demand side, consumer tastes have shifted as cultural and religious mores change, society becomes more transient, environmental considerations become more important and the country becomes more ethnically diverse (IBISWorld 2017; Smith 1996). Two thirds of consumers, now indicate that they are either definitely or somewhat likely to choose cremation for a loved one compared to just 31 percent 20 years ago (see **Figure 2.7**). Consumers prefer the flexibility of cremains. They can be permanently buried or scattered.

**Figure 2.7 Likelihood of Choosing Cremation for a Loved One**



Source: Funeral and Memorialization Information Council (2015)

Alternatively, they may be kept in urns, or compressed to other compact formats such as glass memorials and cremation diamonds that are set in jewelry and easily transported to various locations. Cremation is also much more economical compared to casketed burial. Moreover, it is recognized as a more ecological alternative to casketed burial since memorialization often consumes less land. On the supply side, crematory services are more widely available. A gradual loosening of state regulatory requirements that restricted cremation to mortuary operations may also have reduced crematory costs by freeing them from unnecessary overhead expense.

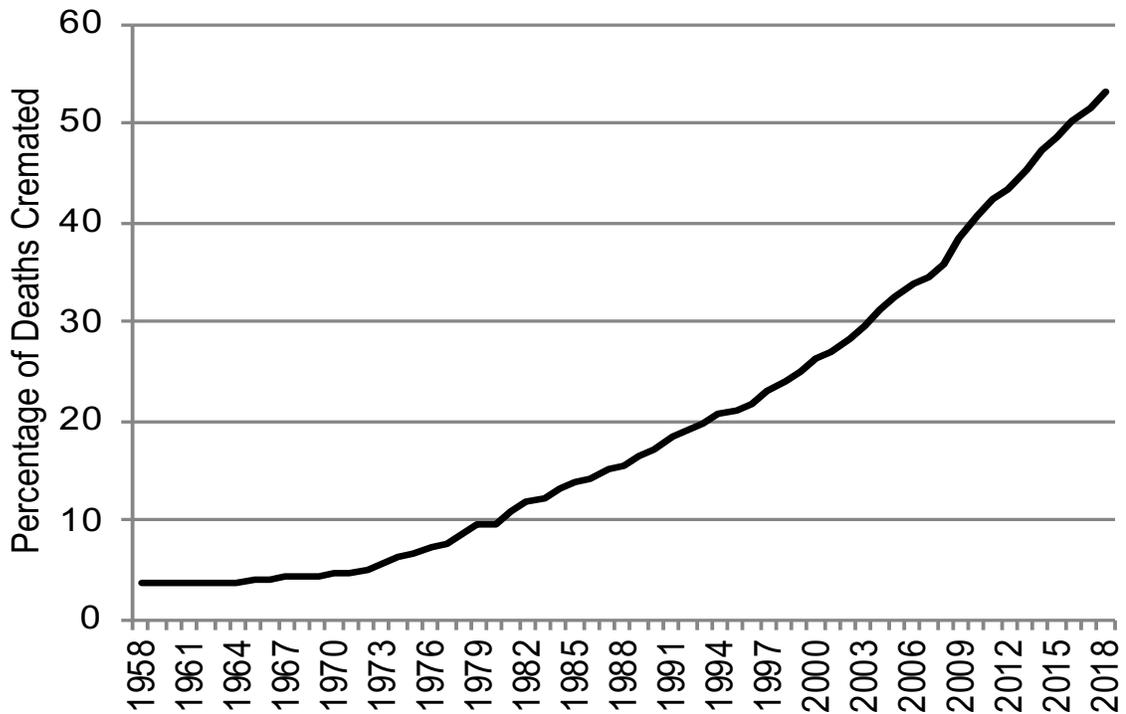
Nationwide, the percentage of all deaths that are cremated has grown from 26 percent in 2000 to 53 percent in 2018 (see **Figure 2.8**). It is now the leading disposition method in half of U.S. states, up from 7 states in 2000. Whereas these “cremation” states were entirely western in 2000, the pattern is now much more geographically dispersed and includes states in New England, the South, the Plains, and the Great Lakes region. Virginia has

experienced a similar growth trajectory, though it lags approximately 5 years behind the national trend in the overall cremation rate. Cremation was used for approximately 20 percent of Virginia deaths in 2000, 28 percent in 2006, 34 percent in 2011, and 45 percent in 2017. It is projected to surpass 51 percent by 2022 (CANA 2018). The Cremation Association of North America projects that approximately 60 percent of U.S. consumers will choose cremation by 2023, after which the rate of increase will begin to slow (CANA 2019).

Veterans interment choices over time in national and state veteran cemeteries generally follow national trends. The most recent veterans survey data regarding veteran plans (see **Table 2.1**) indicates that more veterans (41 percent) would select inurnment over in-ground burial (40 percent). This compares to 29 percent and 54 percent respectively who indicated so in 2008.

Actual veteran interment data show that inurnment is the preferred choice of most veterans. Inurnments constituted 37 percent of interments in national

**Figure 2.8 U.S. Cremation Percentages, 1958-2018**



Source: Cremation Association of North America (2019)

veterans cemeteries in FY 2003 but passed the 50 percent mark in in FY2012, four years before all U.S. consumers breached that threshold. In FY2018, 56 percent of interments were inurnments (see **Figure 2.9**). This percentage is only slightly inflated by the

fact that 17 open national veterans cemeteries can accommodate only cremated remains. If restricted to cemeteries where all burial choices are available, the percentage in FY2018 is still 54 percent.

**Table 2.1 Veteran Interment Plans by Type, Percentage Distribution**

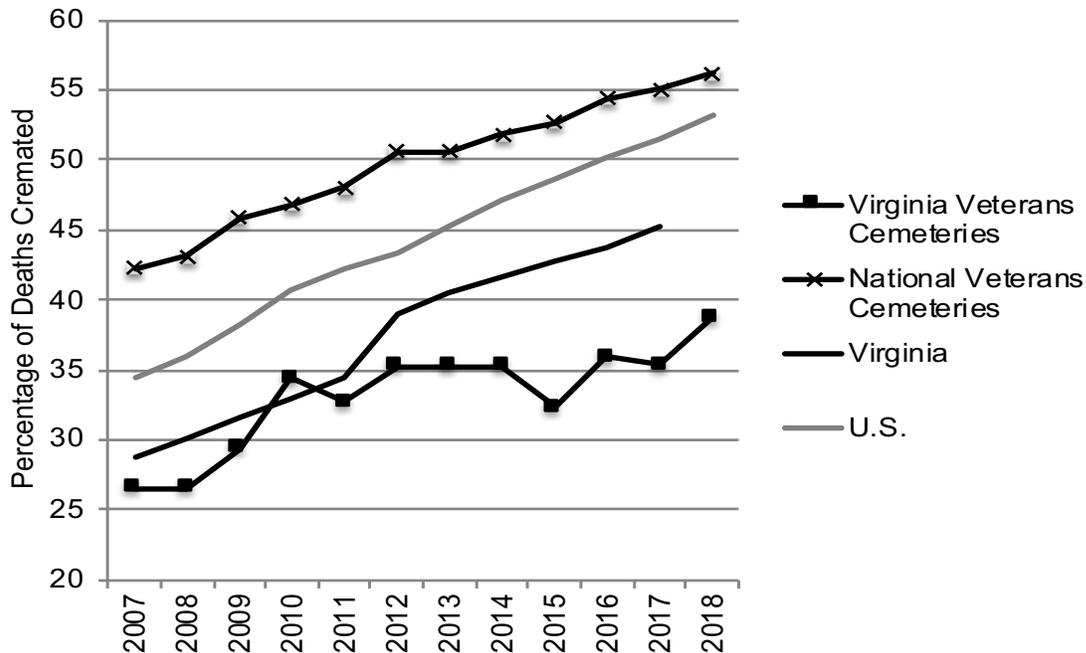
Type	2008	2010	2014
In-ground casket burial	54	41.7	40
Cremation, in-ground burial	20.2	15.2	22
Cremation columbarium	9.2	8.6	19
Mausoleum	3.2	1.5	NA
Something else	7.3	9.1	NA
Don't know	6.1	23.9	19
Total	100	100	100

Source: ICF International (2008), Weststat (2010), and Booz Allen Hamilton (2014)

Note: "Mausoleum" and "Something else" were not options in 2014 survey.

The Virginia state veteran cemetery picture is somewhat different than the national picture. While Virginia state veterans cremation interment growth resembled the state consumer trajectory through the early part of the decade, they have begun to diverge in recent years. In FY2018, 38.7 percent of Virginia veteran cemetery interments were inurnments, up from 35.2 percent in 2012. VDVS pre-applications on file support this slower pattern of cremation adoption. Pre-application data compiled through June 2019 show that 35.6 percent of veterans have settled on inurnment with another 9.4 still undecided (see **Table 2.2**). It is not clear what accounts for this divergence, but the slower rate of cremation growth among Virginia state cemetery veterans will be accounted for later when making veteran interment projections.

**Figure 2.9 Cremation Percentages, Virginia Veterans Cemeteries, National Veterans Cemeteries, Virginia Residents, and U.S. Residents, 2003-2018**



Source: Virginia Department of Veterans Services, U.S. Department of Veterans Affairs, and Cremation Association of North America (2019)  
 Note: CANA U.S. and Virginia cremation percentages are expressed in terms of calendar years and National and Virginia Veterans Cemeteries in terms of federal fiscal years

Although choices between cremation and casketed disposition has received the bulk of attention, less is known about consumer and veteran choices for disposition of cremains. NCA interment figures indicate that cremains burial, although growing, is still more common than columbaria and scattering where both options are available (see **Figure 2.10**).

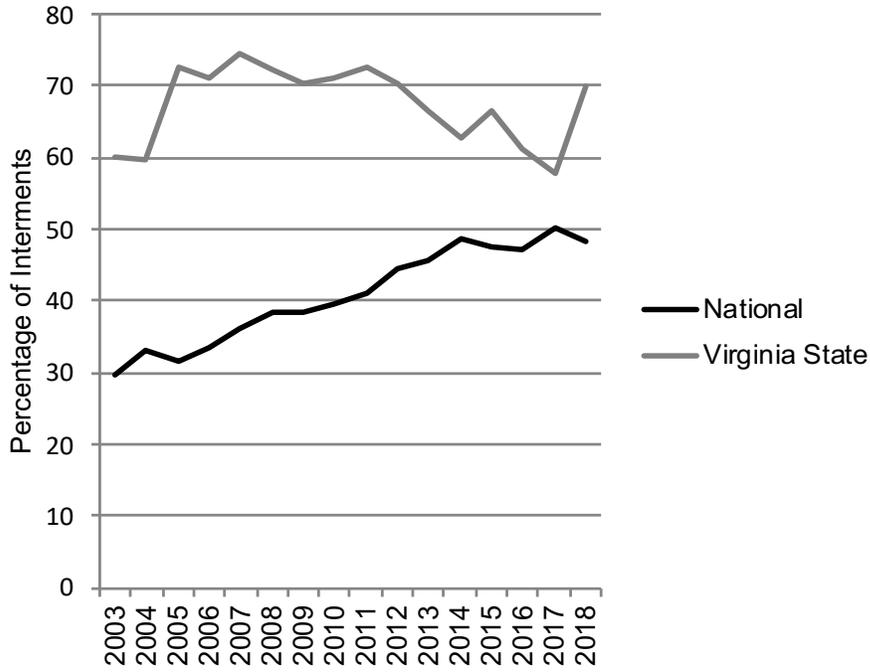
Of the 78 national veterans cemeteries open to casketed and cremain interment, only 66 offered the columbaria option and 24 offered scattering. It seemed until recently that columbaria interment would overtake in-ground cremation, but that has yet not happened. In contrast, at Virginia state veteran cemeteries, columbaria has been the favored

**Table 2.2 Virginia Veterans Cemetery Interments by Type based on Pre-applications, Percentage Distribution**

Type	Percentage of Total			Total
	Albert G. Horton, Jr. Memorial Veterans	Southwest Virginia Veterans	Virginia Veterans	
Full-casket	61.6	60.8	64.4	62.3
In-ground cremains	14.7	13.2	8.7	12.7
Columbaria niche	18.8	15.9	17.1	17.9
Undecided	4.9	10.0	9.7	7.1

Source: Virginia Department of Veterans Services based on 1997-June 2019 approvals.

**Figure 2.10 Veterans Cemetery Columbaria Inurnments as Percentage of Total Inurnments, FY 2003-FY 2018**



Source: U.S. Department of Veterans Affairs, National Cemetery Administration and Virginia Department of Veterans Services

Note: National Cemeteries results only for those with casket, in-ground cremain, and columbaria options

mode throughout the system’s history, VDVS pre-application data indicate that approximately 60

percent of Virginia veteran cemetery users will continue to choose columbaria inurnment over burial.



## SECTION 3 LOCATION ANALYSIS

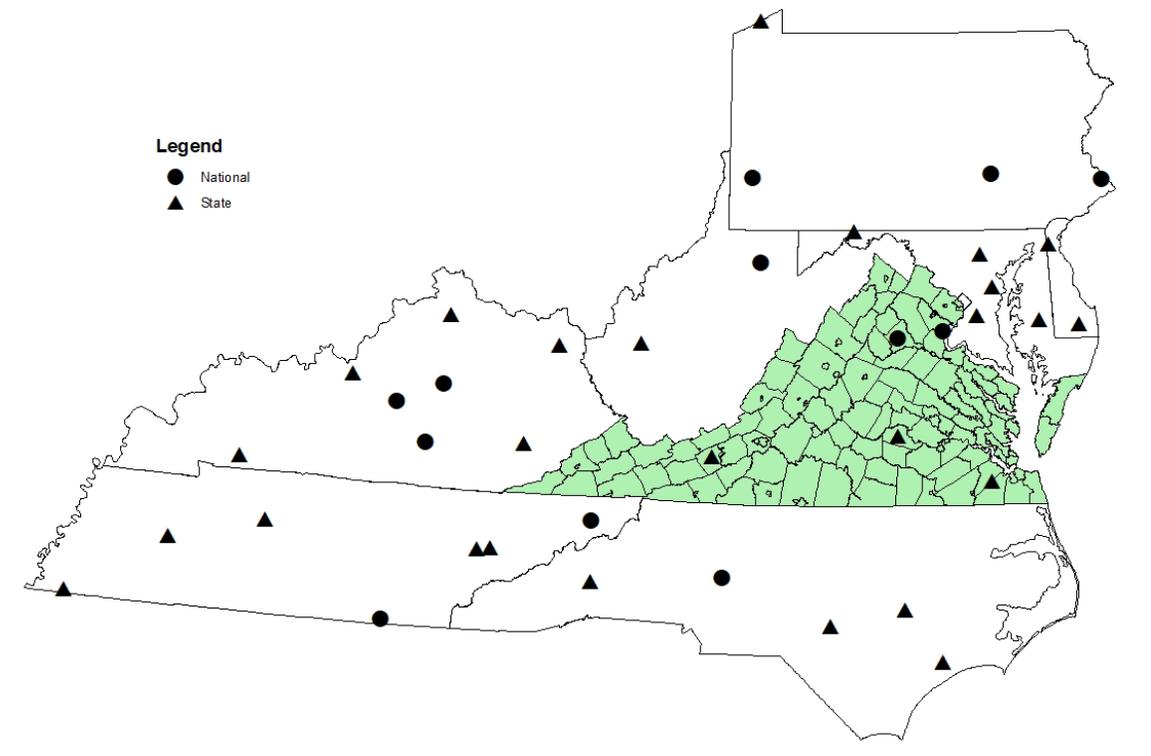
### Existing Cemeteries

**Figure 3.1** shows national and state cemeteries located in states within 75 miles of Virginia. It shows only USDVA national veterans cemeteries that offer casketed burial since this is still the preference of most Virginia veterans. Eleven national cemeteries in Virginia are closed to new interments. Two national veteran cemeteries (Alexandria and Danville) are either still open to new interments or will be reopened in the near future but they accounted for only 45 veteran interments in FY2016. They will be regarded as effectively closed for this analysis. The U.S. Army operates one national veterans cemetery, Arlington National. Arlington has more stringent eligibility criteria for in-ground casket burials than other national cemeteries. Only servicemen who died on active duty, retired military personnel, certain categories

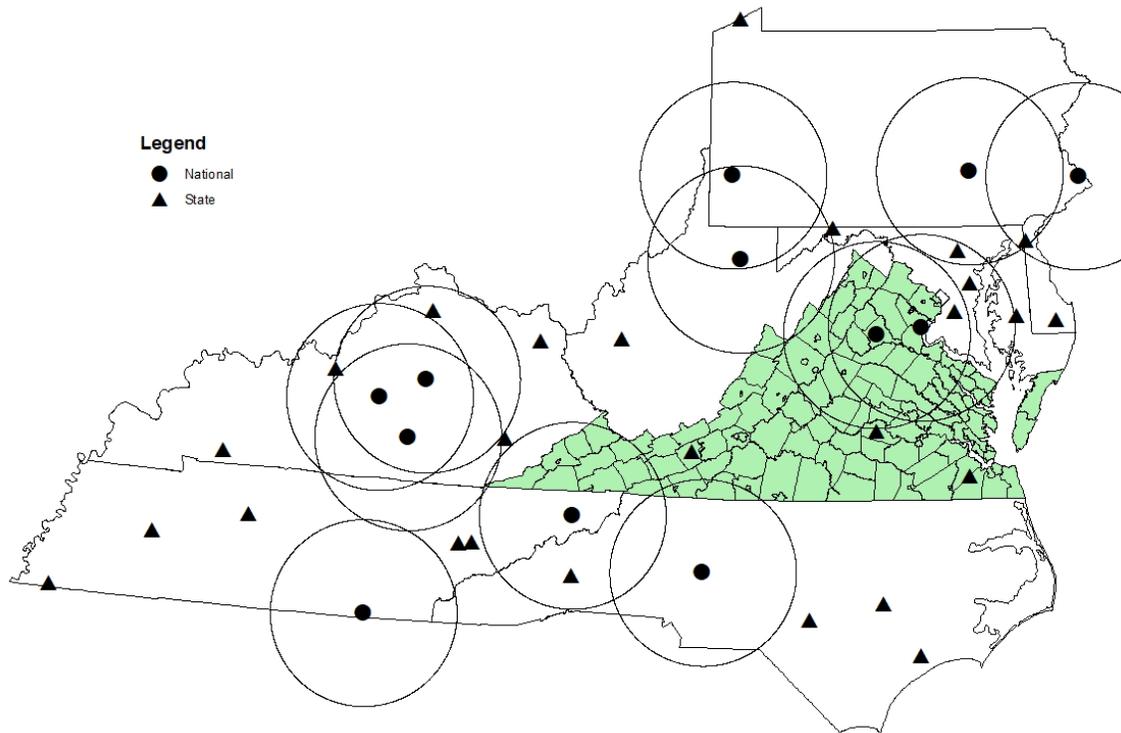
of disabled veterans, highly decorated veterans, and spouses or dependent family members of same are eligible. So for the purposes of this study, it too will be excluded from the analysis.

This study assumes that veteran cemetery services for Virginia veterans are provided by two groups of cemeteries. The first group consists of national veterans cemeteries open to casketed burial located within the state of Virginia or within a 75-mile radius of the Virginia border. These cemeteries are illustrated in **Figure 3.2** with 75-mile circles superimposed. The second group consists of the three Virginia state veterans cemeteries. State veteran's cemeteries in nearby states are not deemed relevant to the current analysis. Virginia's experience has been that few out-of-state veterans elect to be buried in another state's veterans cemetery unless they have a personal or service-

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



**Figure 3.2 75-mile Service Areas for National Veterans Cemeteries in the Region**



era connection to it. The state boundary may form a psychological boundary for veterans in making their interment choices. Intermediate opportunities or distance may also be factors. Out-of-state state veterans cemeteries in adjacent states are also often superseded by closer national cemeteries or are often too remote to be seriously considered viable options for Virginia veterans. Some of the states restrict interments to residents or others with service era connections to the state.

One new state cemetery within the region has been established since the last study: the 42-acre Kentucky Veterans Cemetery Southeast in Hyden. But, Kentucky restricts interments to those with past or current connections to the state. Moreover, region affected is already largely served by Mountain Home National Cemetery in northeastern Tennessee.

**Table 3.1** shows the three state cemeteries and five active national that will be considered in the analysis. All eight cemeteries are estimated to have casketed depletion occurring after 2030. In order to estimate more precise cut-off dates reported in the table, we assume that casketed burial space will be the main constraint on cemetery sustainability. We further assume that the number of current first-casketed burials will be maintained each year in the future. Thus, although the percentage of veterans choosing casketed burial is expected to decrease, cemetery draw rates are expected to increase and create a relatively constant number of casketed burials over the planning horizon. We also assumed that all undeveloped areas are developed to their full potential. The cemeteries include:

1. Albert G. Horton, Jr. Memorial Veterans Cemetery. This cemetery is the second of the three cemeteries operated by the Virginia Department of

Veterans Services and opened in 2004. It is located in the City of Suffolk and occupies 73 acres of which 42 acres have already been developed as part of phase I and II. Phase III described earlier will result in the development of the remaining acreage. The cemetery is expected to have burial capacity for approximately 25 years at current rates of depletion. It serves primarily veterans in the Hampton Roads area of Virginia.

2. Southwestern Virginia Veterans Cemetery. This cemetery was opened in Southwestern Virginia in 2011 and is the third in the VDVS system. It occupies an 80-acre tract in Dublin on land next to the U.S. Army Radford Ammunition plant that was donated by the U.S. Army. The first phase of development consisted of 24 acres. At current depletion rates, the cemetery is projected to last over 270 years. It serves veterans in the west central and valley regions of Virginia.

3. Virginia Veterans Cemetery. This cemetery is the first of the three cemeteries operated by the Virginia Department of Veterans Affairs and opened in 1997. It is located in Amelia County approximately 40 miles southwest of Richmond. The cemetery occupies approximately 129 acres of which 29 acres are currently developed. In FY2020, VDVS applied for approximately \$4.5 million to develop additional acreage by pre-installing burial vaults. NCA has not yet made award decisions. It serves primarily veterans in the Richmond area and Piedmont region of central Virginia and is projected to have burial capacity for over 250 years.

4. Quantico National Cemetery. The cemetery is located on a 727-acre site that was donated by the Department of the Navy and was opened in 1983. At current depletion rates, it would last almost 400 years. Also, the possibility exists to expand the cemetery to meet future needs because of the presence of adjacent publicly owned property. The cemetery primarily serves veterans who reside in Northern Virginia.

5. Culpeper National Cemetery. The civil war era cemetery was established in 1867 and occupies 30 acres. The cemetery was briefly closed 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 1975 to reopen the cemetery, and the Department of Veterans Affairs purchased another 12-acres in 2001 to extend the life of the cemetery. Funding for additional improvements within the current cemetery footprint are expected to sustain the cemetery to at least 2035. Without improvements (columbaria and in-ground cremation sites), inurnment capacity will be exhausted by 2029. Current casketed burial sites will be depleted by 2034 by our estimates. The possibility exists that additional land will be acquired for the cemetery at a later date, but further expanding the cemetery may not be the best way to serve Virginia veterans since its service region in northern and central parts of Virginia largely overlaps the Quantico National Cemetery service area. Rather than extend the cemetery further, a better option may be to establish a new more centrally located national or state cemetery in the Shenandoah Valley/Blue Ridge Mountain region.

6. Mountain Home National Cemetery. This 91-acre cemetery is located in Johnson City, Tennessee on the grounds of the Mountain Home Veterans Administration Center. It was established as a National Cemetery in 1973 and has adequate space to meet the burial needs of veterans at current depletion rates until 2145. This cemetery is approximately 30 miles from the Southwestern Virginia border and is the closest veteran's cemetery for many veterans in that area.

7. Salisbury National Cemetery. The national 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. At current depletion rates, the casketed burial space will be exhausted by 2031. The cemetery received a number of improvements since the 2012, including a 2,400 niche columbarium and development of cremains and traditional gravesites including pre-placed burial vaults. A land donation is expected to significantly prolong the use of the cemetery. Because it is located so far southward, its 75-mile service area intersects only a very small portion of Southside Virginia.

8. West Virginia National Cemetery. This 90-acre national cemetery was opened in 1987 on property donated by the State of West Virginia. The cemetery was provided to replace Grafton National Cemetery, which was closed to casket burial in 1961. It serves primarily veterans in the Northern half of West Virginia. However, its service boundary also intersects small areas of Highland and Rockingham counties in Virginia. At current depletion rates, the cemetery should last until after 2110.

### 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 Virginia state cemetery. For the reasons discussed previously, state veterans cemeteries in other states are not counted as serving Virginia veterans. The previous two studies reported the results of using a 75-mile Euclidean distance standard (Rephann 2007, 2013) used by

the National Cemetery Administration in selecting locations for new national and state cemetery. However, they also discussed the consequences of using other distance criteria, including used a 50-mile Euclidean distance standard (Rephann 2007) and a two-hour distance travelling standard (Rephann 2013).

For this study, the 75-mile straight-line distance standard will be the principal service area standard. This decision is made for basically two reasons. First, the NCA is using this standard in making state cemetery grant establishment decisions and this is unlikely to change in the future. Second, with the maturation of the Virginia veterans cemeteries and continued efforts in outreach and marketing to Virginia veterans by the VDVS, interment draw rates continue to rapidly improve, so much so that the 75-mile standard now seems more congruent with the service areas for these cemeteries.

**Table 3.1 Veteran Cemetery Capacities**

Cemetery	FY 2018 Casket Sites Used	Occupied Casketed Gravesites	Casketed Gravesites		Projected Full-Casket Depletion Date
			Available	Potential	
<b>State -- Virginia</b>					
Albert G. Horton, Jr. Memorial	638	6,881	5,931	13,354	2046
Southwest Virginia Veterans	112	547	7,270	23,751	2296
Virginia Veterans	194	3,021	10,479	39,000	2274
<b>National -- Virginia</b>					
Culpeper	114	10,431	2,530	0	2040
Quantico	619	27,341	1,692	369,150	2617
<b>National -- Out-of-State</b>					
Salisbury, NC	446	26,261	2,107	3,775	2031
Mountain Home, TN	227	14,683	723	28,150	2145
West Virginia, WV	137	4,788	6,574	6,060	2110

Source: U.S. Department of Veterans Affairs and Virginia Department of Veterans Services.

Note: Salisbury National and Culpeper National projected depletion dates do not reflect planned expansions and development at those facilities. Culpeper improvements would increase the depletion date to 2041 and Salisbury to 2050 or beyond based on our assumptions.

Figures 3.3-3.5 show veteran burial draw rates for the Albert G. Horton, Jr. Memorial, Southwest Virginia, and Virginia Veterans Cemeteries by county of residence with concentric 75-mile and 50-mile rings superimposed. These veteran burial draw rates are computed by geocoding veteran addresses from VDVS burial records for FY 2017 and FY 2018,<sup>8</sup> assigning them to counties, tabulating total interments by county, and dividing this total by the estimated number of veteran deaths by county occurring during the time period.<sup>9</sup>

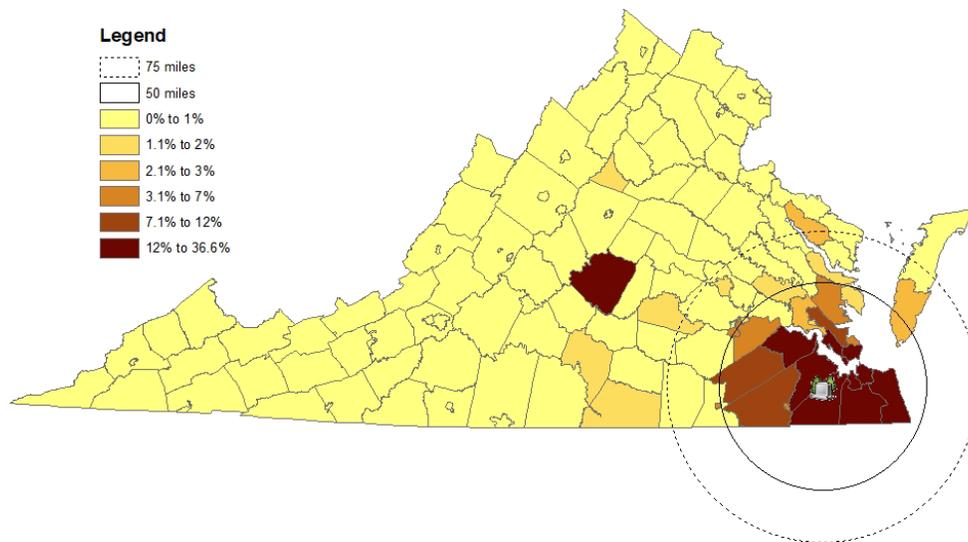
While these figures continue to show higher burial draw rates within 50 miles of each cemetery, the draw rates of counties outside of 50 miles have improved. A comparison of these interment draw maps to maps drawn from previous reports (i.e., Rephann 2007, 2013) shows that density in the 50-75 mile zone incrementally improved. This pattern is illustrated in Figure 3.6 for Virginia Veterans Cemetery in Amelia County. Whereas in 2007, interments were heavily concentrated within 6 counties in the vicinity of the cemetery, this had expanded to the 50 mile ring in 2012 and to a large

portion of the 75 mile ring in 2018 (See Figure 3.6).

### Cemetery Location Models

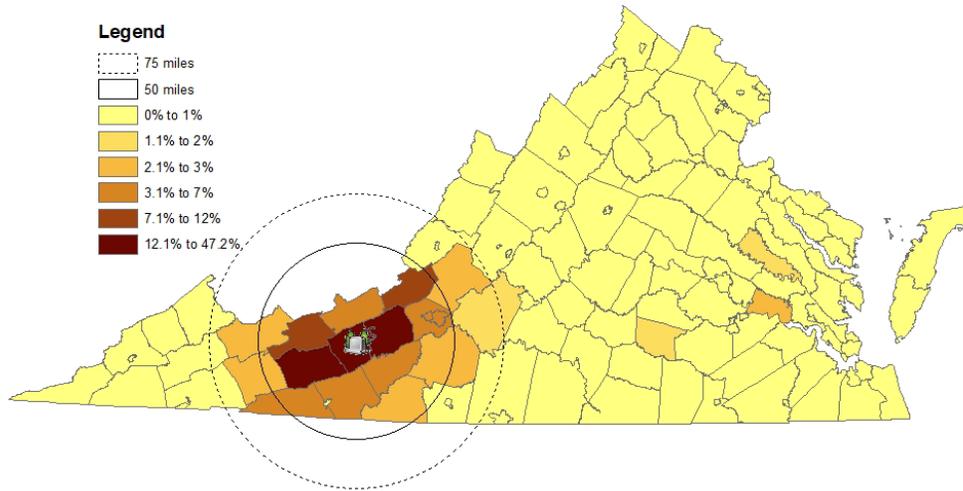
Similar to the previous studies, this study uses a location-allocation model to determine the optimal location for a new cemetery given certain assumptions about travel distance, the geographical distribution of the veteran population, and the location of national/state cemeteries in service. The purpose of location-allocation is to locate service points that supply demand points in the most efficient manner. The cemetery analysis relies on a particular class of location-allocation model that selects the facility(ies) that provide(s) the “maximum coverage” for demand (Church and Reveille 1974). In the case of the veterans cemetery model, for example, the maximal coverage routine can select a predetermined number of cemeteries given the current or future configuration of veteran cemeteries that extend service to the most unserved veterans using the 75-mile Euclidean distance standard. For this analysis, the demand points are the veterans populations located at geographical

**Figure 3.3 Veteran Interment Draw Rates By Locality, Albert G. Horton Veterans Cemetery**



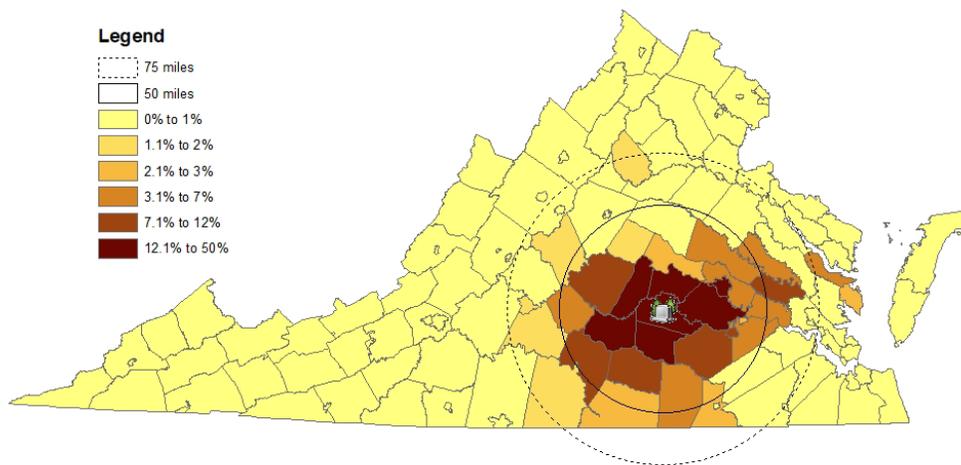
**Figure 3.4 Veteran Interment Draw Rates by Locality, Southwest Virginia Veterans Cemetery**

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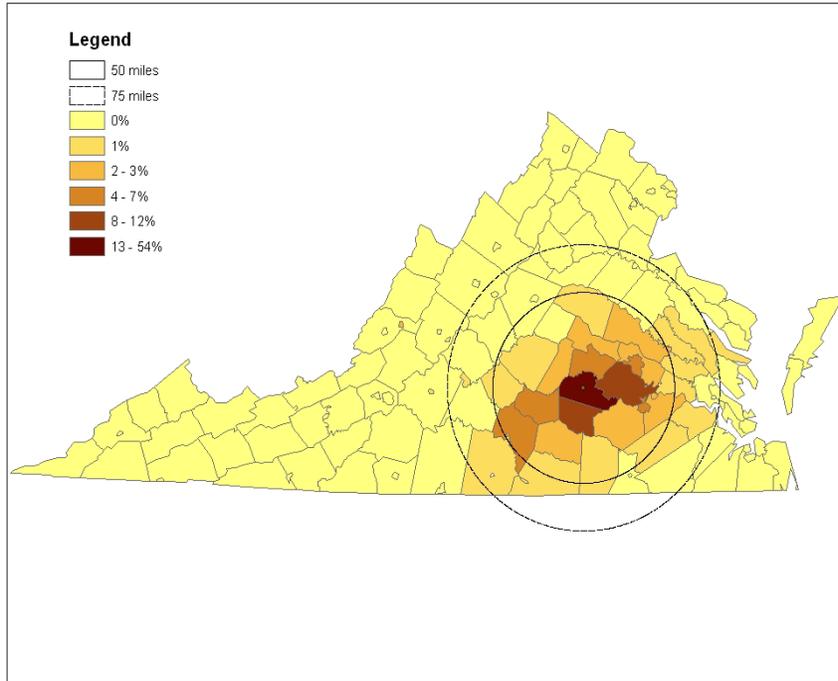
**Figure 3.5 Veteran Interment Draw Rates by Locality, Virginia Veterans Cemetery**

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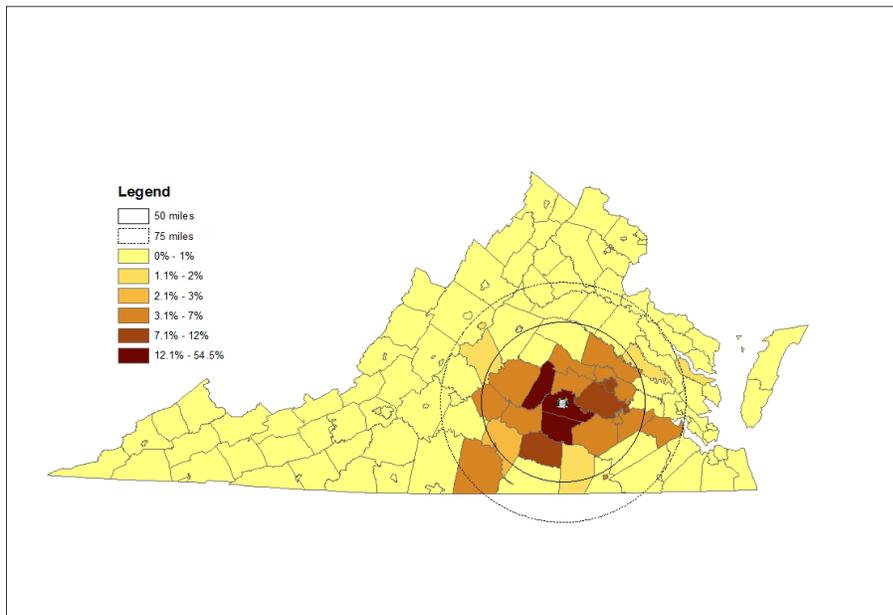


**Figure 3.6 Virginia Veterans Cemetery Interment Draw Rates By Locality Over Time for Virginia Veterans Cemetery, 2007, 2011, and 2018**

**2007**

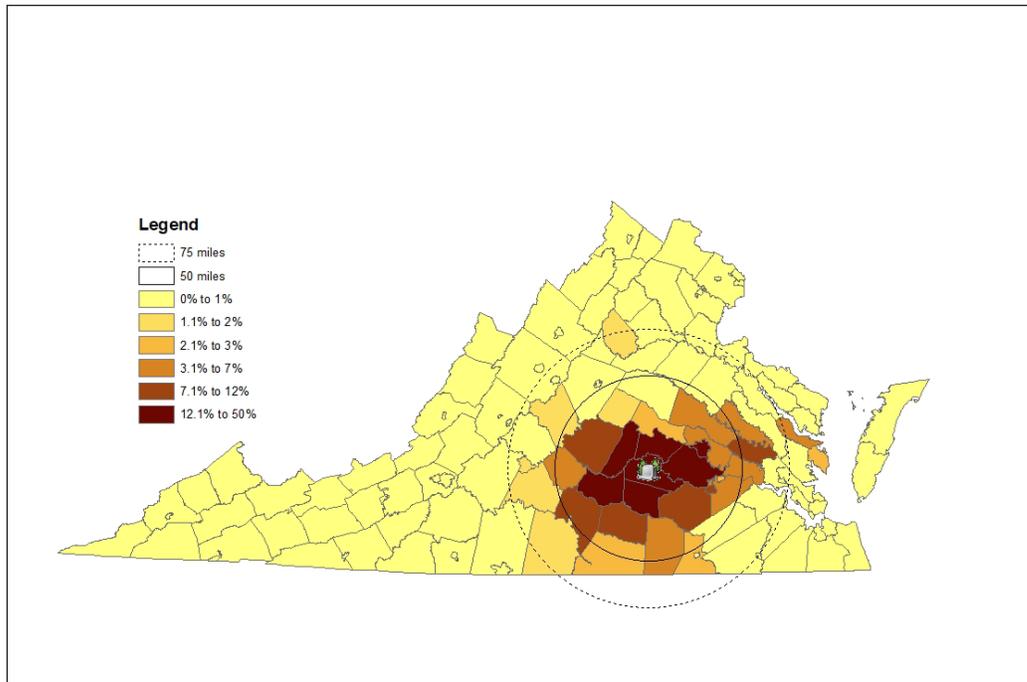


**2011**



**Figure 3.6** Virginia Veterans Cemetery Interment Draw Rates By Locality Over Time for Virginia Veterans Cemetery, 2007, 2011, and 2018 (continued)

**2018**



centroids of either counties or census tracts. The travel impedance factor would be distance from demand points along a flat, featureless plane to existing and prospective cemetery locations, and the impedance cutoff would be 75 miles. ARCGIS Network Analysis provides solutions to these problems. The software solves location allocation problems in both continuous space (using Euclidean distance) and transportation networks including highways and local streets.<sup>10</sup> It also provides the modeler considerable flexibility in varying network characteristics, demand characteristics, maximum travel distance, and the number of existing and solution facilities.

This study uses two alternative geographical units for analyzing cemetery location: counties (used in Rephann 2007) and census tracts<sup>11</sup> (used in Rephann 2013). The NCA requires that counties be used in making determination of underserved veterans and in cemetery siting. Although two studies (ICF International 2008; USGAO 2014) now support the

use of census tracts for greater accuracy, the NCA has decided that they will continue to use county boundaries since they are less subject to change, synchronize with the Veterans Affairs Office of the Actuary county level population estimates and projections, are easier understood by stakeholders, and would make little practical difference in where new cemeteries are established (USGAO 2014). This study uses county units in line with NCA siting requirements. However, similar to the previous study, we conduct additional locational analyses to see how sensitive cemetery market boundaries and site selection are to the geographical unit used.

Several alternative coverage scenarios are illustrated to examine the sensitivity of the results and locations to underlying assumptions. In developing scenarios for analysis and comparison, we make different assumptions about network features, travel impedances, cemetery availability, geographical units, and the distribution of demand. For two sets of scenarios, a flat, featureless plane (FFP) was

used, the impedance factor was Euclidean distance, and the distance cutoff was 75 miles. These choices were made because NCA guidelines stipulate this distance metric and service area limit. In a third set of scenarios, we investigate the sensitivity of the results to varying the network characteristics. In particular, we examine the effect of using a 75-mile road distance standard rather than simple Euclidean (or “as the crow flies”) because it more likely represents the travel distance incurred by veterans in more mountainous western areas of the state where road transportation is less well developed. Moreover, travel distance is one of the criteria that NCA uses in making determination of underserved veterans for both the rural and urban initiatives; thus it represents an alternative distance metric that could be used in NCA award determination at some point.

The ESRI Street Map North America dataset was used as the road and street network for the cemetery travel time analysis (ROAD). This road network accounts for the availability of primary, secondary, and local roads, speed limit restrictions on roadways, one-way streets and other obstacles that can result in travel time differences. It does not include information on traffic volumes during various times of the day and so congestion-related time delays are not included.

In each location modelling scenario a different assumption is made about cemetery choices that are available to veterans. In all baseline (current) scenarios, all eight currently available veterans

cemeteries are selected and their service areas determined. In all “future” cemetery scenarios, Culpeper National and Salisbury National Cemetery are assumed to be depleted because they have estimated closure dates within the 2030-2040 period. One set of scenarios (2, 5, 8) shows how the closure of Culpeper National and Salisbury National Cemetery affects geographical coverage. A second set of scenarios (3, 6, and 9) shows how an additionally optimally located state veterans cemetery changes geographical coverage. In current cemetery scenarios, the 2015 veteran population estimate was used to indicate demand. For future scenarios, the 2035 veteran population projection was used.

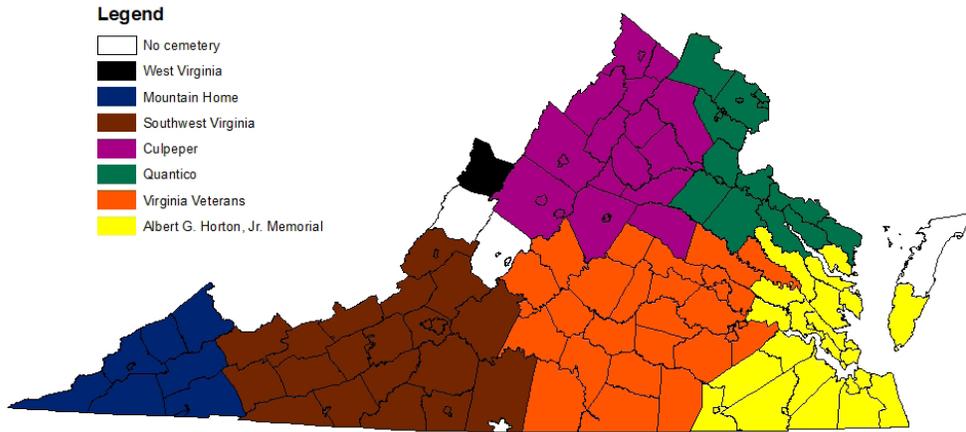
**Table 3.2** summarizes the characteristics and locational choices for each scenario. Scenario 1 and **Figure 3.7** shows the current coverage by national and Virginia state veterans cemeteries using the 75-mile distance standard and county units. Cemetery service area colors illustrate cemetery service regions by assigning census tracts to the nearest cemetery. The map shows four uncovered regions within the state, Danville City, Accomack County, and a small Valley region consisting of Rockbridge County (including Buena Vista and Lexington Cities) and Bath County. In this scenario, 8,738 veterans in total are unserved by a veterans cemetery in 2020. The second scenario (**Figure 3.8**) shows a situation where Culpeper National and Salisbury National are depleted. The loss of Salisbury National has no effect. The loss of Culpeper National has a

**Table 3.2 Cemetery Location Modeling Scenarios**

Scenario	Figure	Network	Geographical Units	Cemetery Depletion	Cemetery Addition?
1	3.7	FFP	Counties	No	No
2	3.8	FFP	Counties	Yes	No
3	3.9	FFP	Counties	Yes	Amherst Co.
4	3.10	FFP	Census Tracts	No	No
5	3.11	FFP	Census Tracts	Yes	No
6	3.12	FFP	Census Tracts	Yes	Amherst Co.
7	3.13	ROAD	Census Tracts	No	No
8	3.14	ROAD	Census Tracts	Yes	No
9	3.15	ROAD	Census Tracts	Yes	Augusta Co.

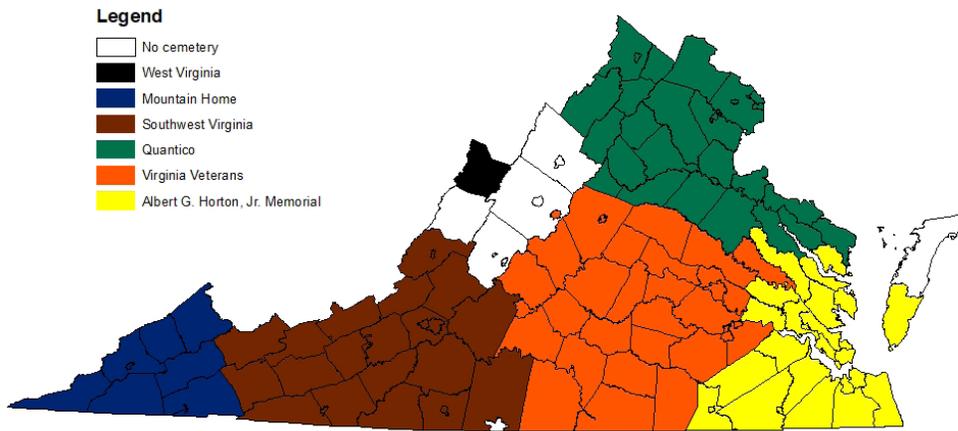
**Figure 3.7 Cemetery Service Areas, 75-Mile Euclidean Distance with Counties**

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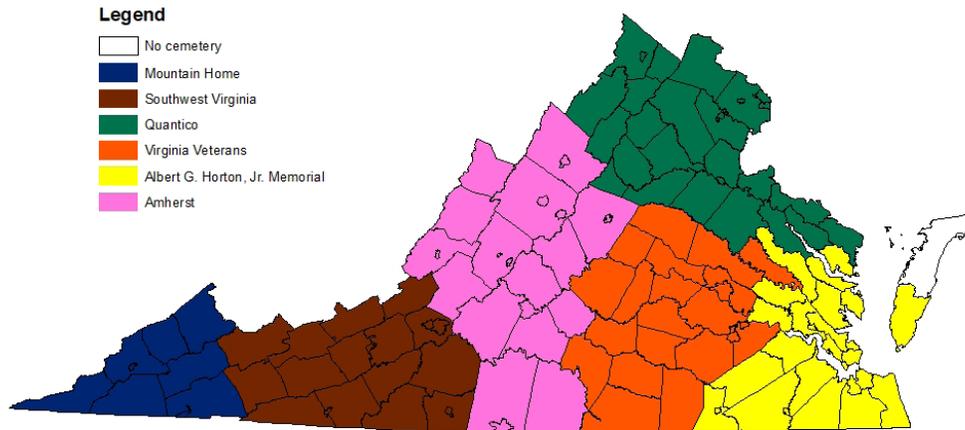


**Figure 3.8 Cemetery Service Areas, 75-Mile Euclidean Distance with Counties, Cemetery Depletion**

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**Figure 3.9 Cemetery Service Areas, 75-Mile Euclidean Distance with Counties, New Cemetery in Amherst County**



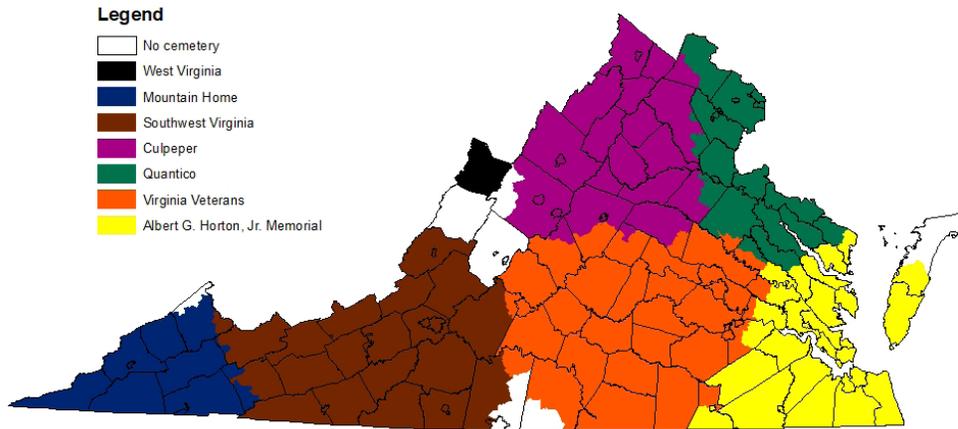
relatively limited effect on coverage with Quantico National Cemetery picking up much of the service area vacated by Culpeper National. However, portions of Rockingham County, Harrisonburg City, Augusta County, and Staunton City are now unserved. Beginning in 2035 (a hypothetical closing date for Culpeper National), 14,194 veterans are unserved by a veterans cemetery. In the third scenario (Figure 3.9), a location-allocation routine is run to select the optimal cemetery to maximize coverage of unserved veterans. This cemetery, located in Amherst County, brings 12,910 unserved veterans into a cemetery service region in 2035.

Scenarios 4-6 illustrate what difference changing from county geographical units to census tracts makes on the analysis. Scenario 4 (Figure 3.10) shows veteran cemetery service areas using census tracts. Doing so, increases the number of unserved veterans to 10,096 in 2020 and creates new unserved regions in the Southwest, Shenandoah Valley, and Southside. Figure 3.11 shows a scenario where Culpeper National and Salisbury National Cemeteries are closed. The effect on veteran coverage in this scenario is much similar to that in the county-unit scenario. Coverage is lost in in

the Shenandoah Valley region. In this scenario, a total of 13,190 veterans would be unserved in 2035. Figure 3.12 shows the effect of locating a single cemetery to provide maximum coverage of the unserved veterans. This results in a location in Amherst County, located slightly east of Amherst town. It brings 11,405 out of 13,190 unserved veterans into a cemetery service region in 2035.

Scenarios 7-9 illustrate how changing from Euclidean distance and road distance affects the analysis. Scenario 4 (Figure 3.13) shows veteran cemetery service areas using roadway distance and census tract units. The effect of using this metric markedly increases the number of unserved veterans from 10,096 to 46,902 in 2020 and exposes unserved regions in the Southwest, Northern Neck, Shenandoah Valley, Southside and Frederick County. Figure 3.14 shows a scenario where Culpeper National and Salisbury National Cemeteries are closed. The effect on veteran coverage in this scenario is much more dramatic than in Scenario 2 which used the 75-mile Euclidean distance standard. The effect is felt principally in the Shenandoah Valley region. A total of 42,234 veterans are unserved in 2035 compared to 32,478 veterans if Culpeper National and Salisbury

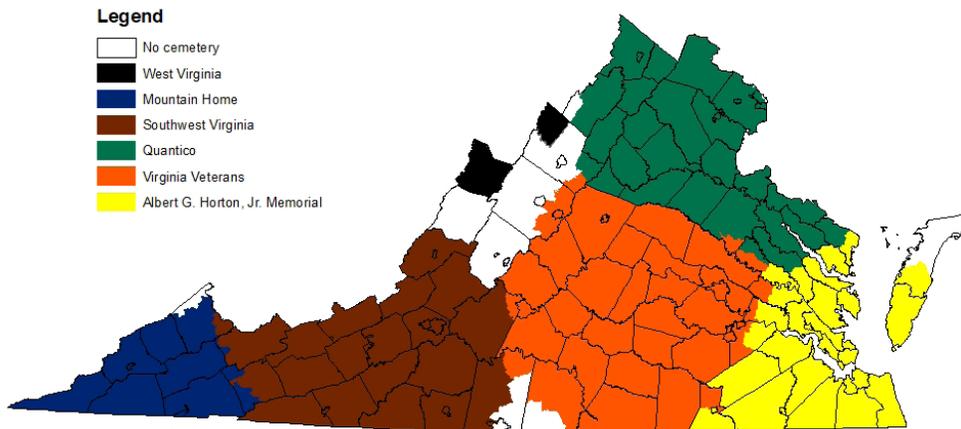
**Figure 3.10 Cemetery Service Areas, 75-Mile Euclidean Distance with Census Tracts**



National were to remain open. **Figure 3.15** shows the effect of locating a single cemetery to provide maximum coverage of the unserved veterans. This

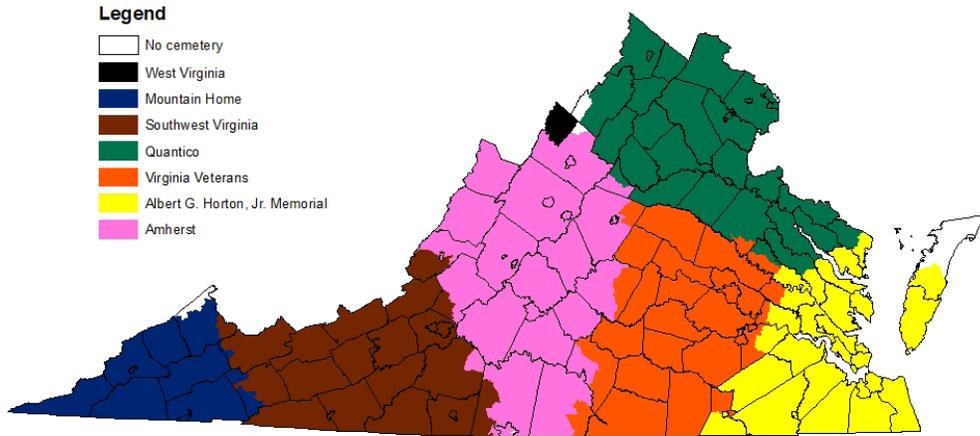
results in a location in Augusta County and brings 21,973 out of 42,234 unserved veterans into a cemetery service region.

**Figure 3.11 Cemetery Service Areas, 75-Mile Euclidean Distance with Census Tracts, Cemetery Depletion**



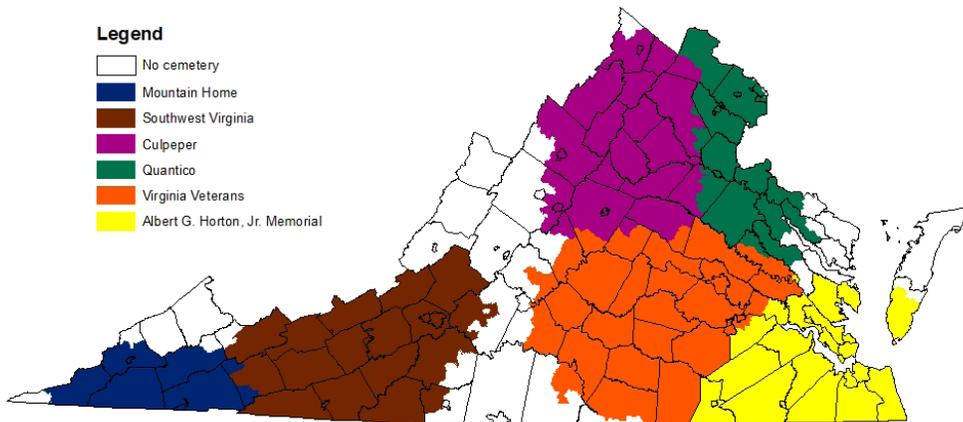
**Figure 3.12 Cemetery Service Areas, 75-Mile Euclidean Distance with Census Tracts, Cemetery Depletion, New Cemetery in Amherst County**

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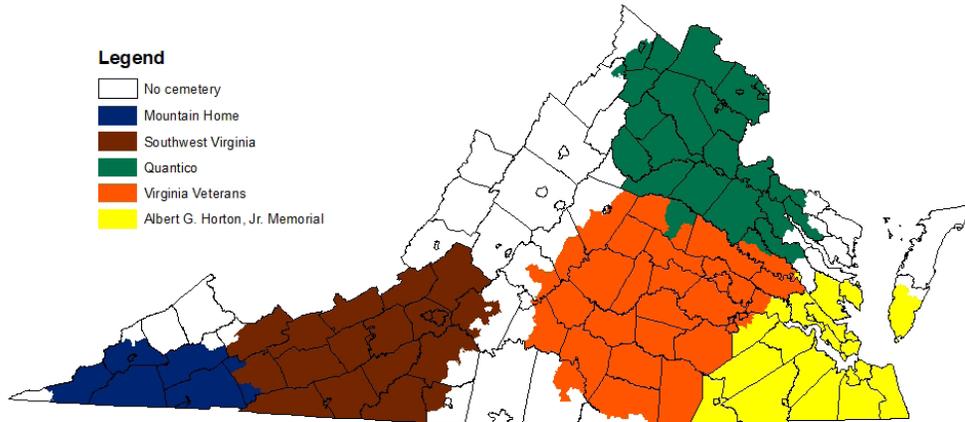
**Figure 3.13 Cemetery Service Areas, 75 Miles Road Distance with Census Tracts**

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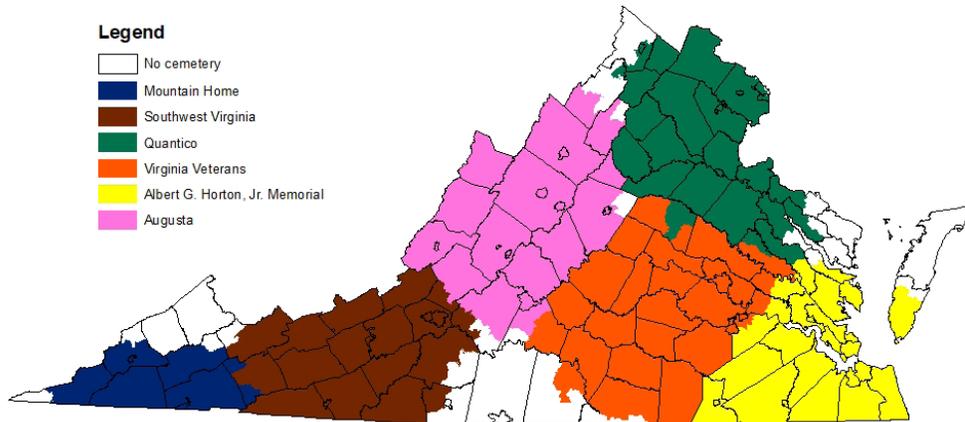
**Figure 3.14 Cemetery Service Areas, 75 Miles Road Distance with Census Tracts, Cemetery Depletion**

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**Figure 3.15 Cemetery Service Areas, 75 Miles Road Distance with Census Tracts, Cemetery Depletion, New Cemetery in Augusta County**

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## SECTION 4 BURIAL NEEDS ANALYSIS

### New Cemetery Needs

The scenarios explored in the previous section result in several possible veteran coverages depending on the distance metric, geographical unit and cemetery closure assumption used. Using the two different distance metrics (Euclidean distance and roadway distance) and geographical units (census tracts and counties), locations are identified within a relatively small region in the lower Shenandoah Valley. They provide similar coverage by improving cemetery access to lower Shenandoah Valley and Southside veterans who are currently either outside an existing or located on the periphery of an existing service region.

Based on NCA guidelines, Amherst County probably represents the only fundable choice and would best position the state for the closures of Culpeper National Cemetery (Salisbury National Cemetery's status has no effect on the results). Indeed, Culpeper National is not optimally located to serve the needs of Virginia veterans and its eventual closure and replacement by Amherst would provide a more centralized cemetery service area solution for the commonwealth. The development of this fourth cemetery would result in four state cemetery bands that run parallel from east to west that serve (1) the Tidewater region, (2) the Piedmont region, (3) a region encompassing southern Shenandoah Valley and part of the Piedmont region, and (4) the Blue Ridge Highlands. Mountain Home National and Quantico National Cemeteries would cover the balance of the state, including the Appalachian region and Northern Virginia respectively. An Amherst County location would also extend coverage to a significant amount of the region uncovered region when roadway distance is considered. While it does not represent the optimal travel time locational solution, it would extend coverage to many of the same areas services by an Augusta County Cemetery.

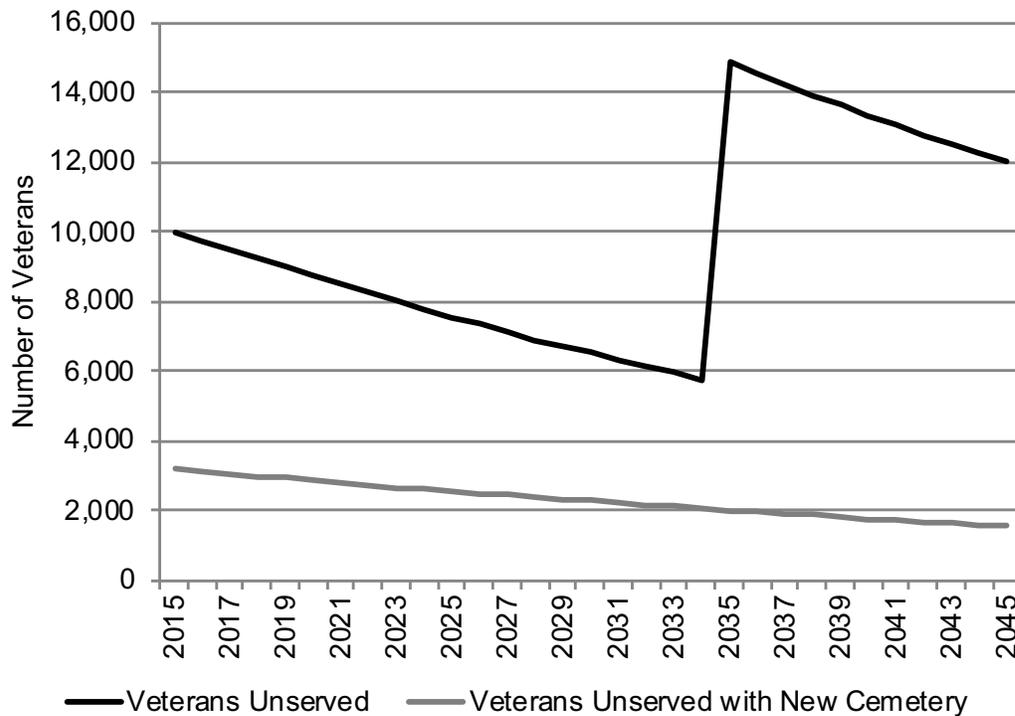
A key constraint on building a new cemetery would be the availability of capital and operational funds. The USDVA State Cemetery Grants Service

Program requires that states secure the land for any new cemetery. The USDVA currently offers a favorable cost share with 100 percent of new cemetery capital improvement costs eligible for funding. There is no guarantee that this program or the favorable cost share will remain in place in the distant future, especially given the size of the national debt. This situation may provide additional impetus to applying for funding sooner rather than later.

Under current program guidelines, a new Virginia state cemetery would likely be assigned a relatively low priority rating by the USDVA. **Figure 4.1** shows the number of veterans who are currently unserved by a national or Virginia state cemetery under a scenario where all eight regional cemeteries remain open until 2035 and Culpeper National is closed by 2035. Under this "worst case" scenario, the Commonwealth does not attain a level of 25,000 uncovered veterans at any time. An Amherst state cemetery would extend service to 6,070 (7,780 using census tracts) if it were available immediately and 12,910 (11,405 with census tracts) veterans in 2035 under a cemetery depletion scenario (see Figure 4.1). Priority rankings are assigned on a competitive basis with higher priority given to project applicants where new cemeteries would serve the greatest number of unserved veterans. The most recent FY 2019 priority lists nine state applicants with matching funds for cemetery establishments, with the additional veteran population served ranging from a high of 42,497 (Sioux Falls, SD) to a low of 1,707 (Angel Fire, NM) (USDVA 2018a). So, Virginia could conceivably receive federal funding for new cemetery establishment now or later.

The USDVA has two additional initiatives to provide service to hard-to-reach rural veteran populations: the rural initiative, described previously in the first section as a program to create National Veteran Burial Grounds in combination with private and public cemeteries to create access in areas for veteran populations below the 25,000 threshold. The USDVA is funding eight rural initiative

**Figure 4.1 Projected Number of Veterans Residing Outside of National or Virginia State Veterans Cemetery Service Region, 2015-2045**



cemeteries (one in Yellowstone, MT was recently opened). Whether this initiative might be extended in the future is unknown at this time; if so, Virginia’s underserved regions could conceivably benefit. The other initiative (“Final 5 percent”) would extend burial options to the five percent of veterans who are living in remote rural regions and will not be served by a national or state cemetery when current NCA national cemetery expansion plans are completed (NCA plans currently include providing reasonable access to 95 percent of veterans). Rather than funding new cemetery construction, the proposed program would provide a transportation allowance to reimburse rural veterans and their dependents for transporting remains to the national or state cemetery or increase the burial and plot allowance above the baseline \$300 burial and \$762 plot allowance otherwise available to veterans choosing private cemeteries (USDVA, NCA 2018).

### Interment Projections

Interment projections are provided for two purposes. First, they can assist decision-makers in determining when existing cemeteries are likely to be depleted and when additional development or land acquisition is likely to be needed. Second, they provide data for operations and budget planning since annual interment numbers and interment by mode have ramifications for personnel workload, staffing needs, and materials purchases.

The methodology used to generate Virginia veterans cemetery interment projections is consistent with that used elsewhere in the planning literature. Coutts, Basmajian, and Chapin (2011) use similar input data, including: (a) the number of deaths by time and place, (b) the percentage of the local population who will choose local interment, and (c)

the percentage choosing each interment mode (i.e., cremation or casket burial). They then combine this information to produce interment projections.

County veteran death projections for 2020-2045 are obtained from the VetPop2016 model, which provides the projected number of deaths by time and place.<sup>12</sup> Veteran burial draw rates by county for the three existing cemeteries based on VDVS interment records for each cemetery for FY2017-FY2018 provide the percentage of the relevant population that will choose interment.<sup>13</sup> Veteran burials were aggregated by county of residence for each cemetery and divided by estimated deaths for each county to compute a county draw rate.<sup>14</sup> .<sup>15</sup> County veteran draw rates for a prospective Amherst County veterans cemetery are based on a quadratic least squares regression equation that measures the decreasing attraction of a cemetery to veterans who reside further away.<sup>16</sup> These county draw rates were then multiplied by county death projections and aggregated for each cemetery to obtain projections of veteran interments for each cemetery.

These calculations provide projections of the number of veteran interments. However, veteran interments do not represent “first interments” which are the number of new gravesites that are used because veteran spouses and dependents may be interred first. Interment data from the last six years of interment data for Virginia veterans cemeteries indicate that approximately 85 percent of first interments are veterans. This translates into 1.18 total burials for every veteran burial. Therefore, in order to estimate first interments, the projections are inflated by a factor of 1.18. Finally, a ratio of total interments to veterans of 1.5 (i.e., five spouse and dependent interments for every 10 veteran interments) based on the cumulative NCA historical average is to inflate the veteran deaths in order to obtain projections of total interments.<sup>17</sup> This adjustment factor accounts for spouse and dependent interments that occur after veteran burial. Current VDVS interment data to date show that there are approximately three spouses and dependents interred for every ten veterans. Pre-application information indicates approximately 8 spouse and dependents will be buried for every 10 veterans.<sup>18</sup>

The low number of family interments at this point may reflect the fact that the state cemeteries are relatively young and that female spouses live longer on average than males. As in previous studies and per NCA planning guidelines, preparation should be made for 5 dependent interments for every 10 veteran interments. This 5 in 10 ratio also represents an average of the pre-application and historical interment ratios for Virginia veterans cemeteries.

**Table 4.1** presents the projections by cemetery and for the entire system using the methodology described previously assuming that the future interment draw rates in the future will be the same as the 2017-2018 period. It also assumes that an Amherst County veterans cemetery will be established by FY 2035. Under this scenario, interments would gradually drop from 1,918 to 1,884 before the new cemetery is established and then jump to 2,240 in 2035 before declining again to 2,097 by 2045. Over the entire 2020-2045, over 52,000 interments would occur. The Albert G. Horton, Jr. Memorial Veterans Cemetery in Suffolk would have the largest number of interments and would also be the only cemetery to experience growth over the period. The next most productive cemeteries would be Virginia Veterans followed by a new Amherst cemetery but each would experience a declining number of interments. Southwest Virginia would see the least activity and interments would drop by almost 40 percent. The declining interment numbers are attributable to the projected drop in the number of veteran deaths (and veterans) within each of those cemetery service regions.

The constant burial yield projection scenario should be viewed as baseline scenario. It assumes that no improvements in marketing or outreach or cemetery exposure over time increases burial draw rates. This assumption seems unrealistic given the substantial growth in yield rates over the last twenty years that has occurred. With increasing exposure, each cemetery should become more visible over time and veteran burial draw rates may improve. **Figure 4.2** shows that draw rates at the cemeteries have been growing, with the Albert G. Horton, Jr. Memorial experiencing the highest yield rates, largely because of its close proximity to the Hampton Roads area.

**Table 4.1 Interment Projections by Cemetery, Constant Draw Rate**

	Albert G. Horton, Jr. Memorial	Southwest Virginia	Virginia Veterans	Amherst	Total
2020	1,250	226	442	0	1,918
2021	1,248	223	440	0	1,911
2022	1,245	220	437	0	1,901
2023	1,244	217	435	0	1,896
2024	1,242	213	432	0	1,888
2025	1,243	210	430	0	1,884
2026	1,245	207	428	0	1,880
2027	1,245	204	427	0	1,875
2028	1,248	200	425	0	1,874
2029	1,253	197	424	0	1,874
2030	1,256	194	424	0	1,874
2031	1,262	192	424	0	1,877
2032	1,266	189	423	0	1,878
2033	1,273	186	422	0	1,881
2034	1,279	183	422	0	1,884
2035	1,283	179	420	358	2,240
2036	1,289	176	418	353	2,235
2037	1,292	172	416	347	2,227
2038	1,297	168	412	341	2,218
2039	1,299	164	408	335	2,205
2040	1,303	159	403	328	2,192
2041	1,302	155	398	321	2,175
2042	1,303	150	392	313	2,159
2043	1,303	146	386	306	2,140
2044	1,301	141	379	298	2,119
2045	1,298	137	371	291	2,097
Total	33,069	4,809	10,836	3,589	52,303

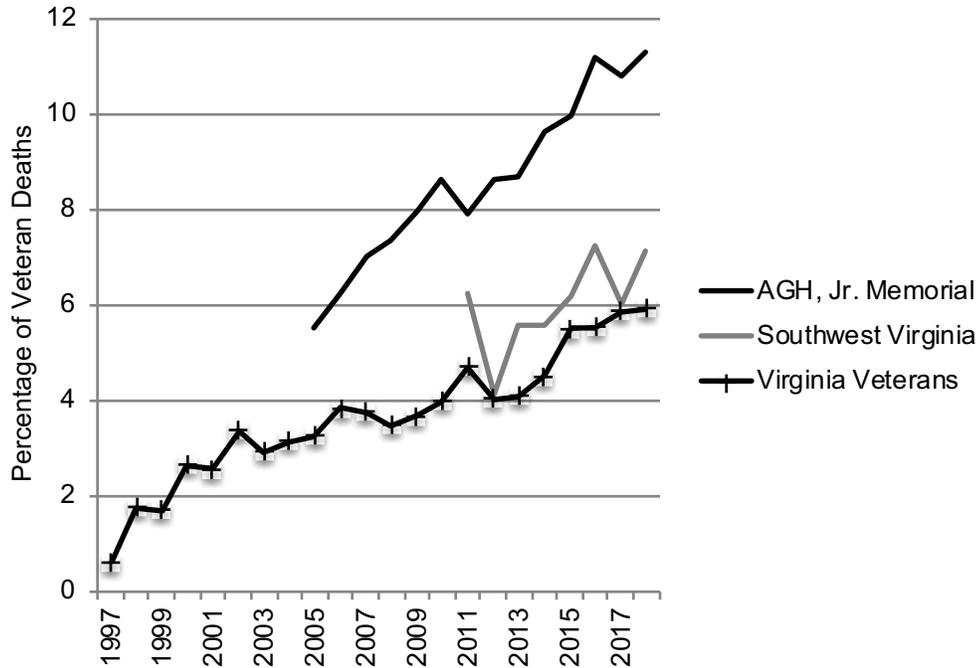
With increasing marketing and exposure, each cemetery should become more visible over time and veteran burial draw rates should improve further. Moreover, the cemeteries still have room to approach the national cemetery nationwide draw-rates of National Veterans Cemeteries in FY2018 of 15.2 percent. Thus, prospects for future draw rate growth appear promising.

**Table 4.2** presents an alternative and more realistic projection scenario in which burial draw rates at each cemetery increase by 0.3 percentage point each year (or 3 percentage points per decade) through 2045. This would still place the Virginia state veterans cemeteries collective 75-mile draw rate at 21 percent by 2045, which is only slightly higher than the national and state combined draw

rate nationwide of 20 percent in FY2018. This assumption results in higher interment numbers for each cemetery over the 2020--2045 period. In this scenario, Albert G. Horton, Jr. Memorial grows by 123 percent, Virginia Veterans Cemetery by 93 percent, and Southwest Virginia by 43 percent.

**Tables 4.3-4.6** presents total interments by burial type for each cemetery under the increasing interment draw rate scenario. The cremain-casket burial split is projected using a constant .75 percentage point annual increase in Virginia veteran cremation preference based on historical data (1998-2018).<sup>19</sup> Cremation percentage baselines are assumed to be different for each cemetery since Albert G. Horton, Jr. Memorial, Virginia Veterans and Southwest Virginia veterans cemeteries exhibit different

**Figure 4.2 Virginia State Veterans Cemetery 75-Mile Radius Veteran Interment Draw Rate by Cemetery, FY1997-2018**



inurnment rates, with rates decreasing from east to west because of varying veteran demographics and regional preferences. Each baseline rate represents the average inurnment rate by cemetery for the 2014-2018 period (34.1 percent for Albert G. Horton, Jr. Memorial, 38.4 percent for Virginia Veterans, and 42 percent for Southwest Virginia). These projected rates are illustrated in **Figure**

**4.3.** The trajectory for a future Amherst Cemetery is assumed to be the same as Virginia Veterans Cemetery. Also, it is assumed that columbarium inurnments will represent approximately 64 percent of all inurnments based on the average seen over the same 2014-2018 period. Inurnment preferences varied little over the three cemeteries.

**Table 4.2 State Cemetery Interment Projections by Cemetery, Growing Yield Rate**

	Albert G. Horton, Jr. Memorial	Southwest Virginia	Virginia Veterans	Amherst	Total
2020	1,328	242	473	0	2,043
2021	1,368	247	486	0	2,101
2022	1,406	252	499	0	2,158
2023	1,449	257	514	0	2,220
2024	1,492	262	528	0	2,282
2025	1,493	258	526	0	2,277
2026	1,589	272	560	0	2,421
2027	1,639	277	577	0	2,493
2028	1,693	283	594	0	2,570
2029	1,753	288	613	0	2,654
2030	1,812	294	633	0	2,739
2031	1,876	300	654	0	2,830
2032	1,941	306	676	0	2,923
2033	2,013	311	698	0	3,022
2034	2,085	317	720	0	3,122
2035	2,156	322	742	653	3,873
2036	2,233	327	763	666	3,989
2037	2,309	331	784	678	4,102
2038	2,388	334	804	690	4,217
2039	2,467	337	823	701	4,327
2040	2,550	340	840	710	4,440
2041	2,628	342	858	719	4,547
2042	2,711	343	874	728	4,656
2043	2,795	345	889	735	4,764
2044	2,877	346	903	742	4,868
2045	2,959	346	916	748	4,970
Total	53,011	7,881	17,946	7,770	86,608

**Table 4.3 Albert G. Horton, Jr. Memorial Veterans Cemetery Projections**

	First Interments				Total Interments			
	Casket	Columbarium	Cremain Burial	Total	Casket	Columbarium	Cremain Burial	Total
2020	681	232	132	1,045	866	296	167	1,328
2021	693	245	138	1,076	881	311	176	1,368
2022	704	257	145	1,106	895	326	185	1,406
2023	718	270	153	1,140	912	343	194	1,449
2024	730	284	160	1,174	928	360	204	1,492
2025	722	289	164	1,175	917	368	208	1,493
2026	759	314	178	1,250	964	399	226	1,589
2027	773	330	187	1,289	982	419	237	1,639
2028	789	347	196	1,332	1,002	441	250	1,693
2029	806	366	207	1,379	1,024	465	263	1,753
2030	823	385	218	1,426	1,046	490	277	1,812
2031	841	406	230	1,476	1,069	516	292	1,876
2032	858	427	242	1,527	1,091	543	307	1,941
2033	878	450	255	1,583	1,116	572	324	2,013
2034	897	474	268	1,640	1,141	603	341	2,085
2035	915	499	282	1,696	1,164	634	359	2,156
2036	935	525	297	1,757	1,188	667	377	2,233
2037	953	551	312	1,816	1,211	701	396	2,309
2038	972	579	328	1,879	1,235	736	417	2,388
2039	989	607	344	1,940	1,258	772	437	2,467
2040	1,008	638	361	2,006	1,281	810	458	2,550
2041	1,023	667	377	2,067	1,301	848	480	2,628
2042	1,040	698	395	2,133	1,322	888	502	2,711
2043	1,055	730	413	2,199	1,341	928	525	2,795
2044	1,069	763	431	2,263	1,360	969	548	2,877
2045	1,083	795	450	2,328	1,376	1,011	572	2,959
Total	22,713	12,128	6,861	41,702	28,873	15,417	8,721	53,011

**Table 4.4 Southwest Virginia Veterans Cemetery Projections**

	First Interments				Total Interments			
	Casket	Colum- barium	Cremain Burial	Total	Casket	Colum- barium	Cremain Burial	Total
2020	116	48	27	191	147	60	34	242
2021	117	50	28	194	149	63	36	247
2022	118	51	29	198	150	65	37	252
2023	119	53	30	202	151	68	38	257
2024	119	55	31	206	152	70	40	262
2025	116	56	31	203	148	71	40	258
2026	121	60	34	214	154	76	43	272
2027	121	62	35	218	154	79	44	277
2028	122	64	36	222	155	81	46	283
2029	123	66	38	227	156	84	48	288
2030	123	69	39	231	157	87	49	294
2031	124	71	40	236	158	91	51	300
2032	125	74	42	241	159	94	53	306
2033	125	76	43	245	159	97	55	311
2034	126	79	45	249	160	100	57	317
2035	126	81	46	253	160	103	59	322
2036	126	84	47	257	160	107	60	327
2037	125	86	49	260	160	109	62	331
2038	125	88	50	263	159	112	63	334
2039	124	90	51	265	158	115	65	337
2040	123	92	52	267	156	117	66	340
2041	122	94	53	269	155	120	68	342
2042	120	96	54	270	153	122	69	343
2043	119	98	55	271	151	124	70	345
2044	117	99	56	272	149	126	71	346
2045	115	100	57	272	146	128	72	346

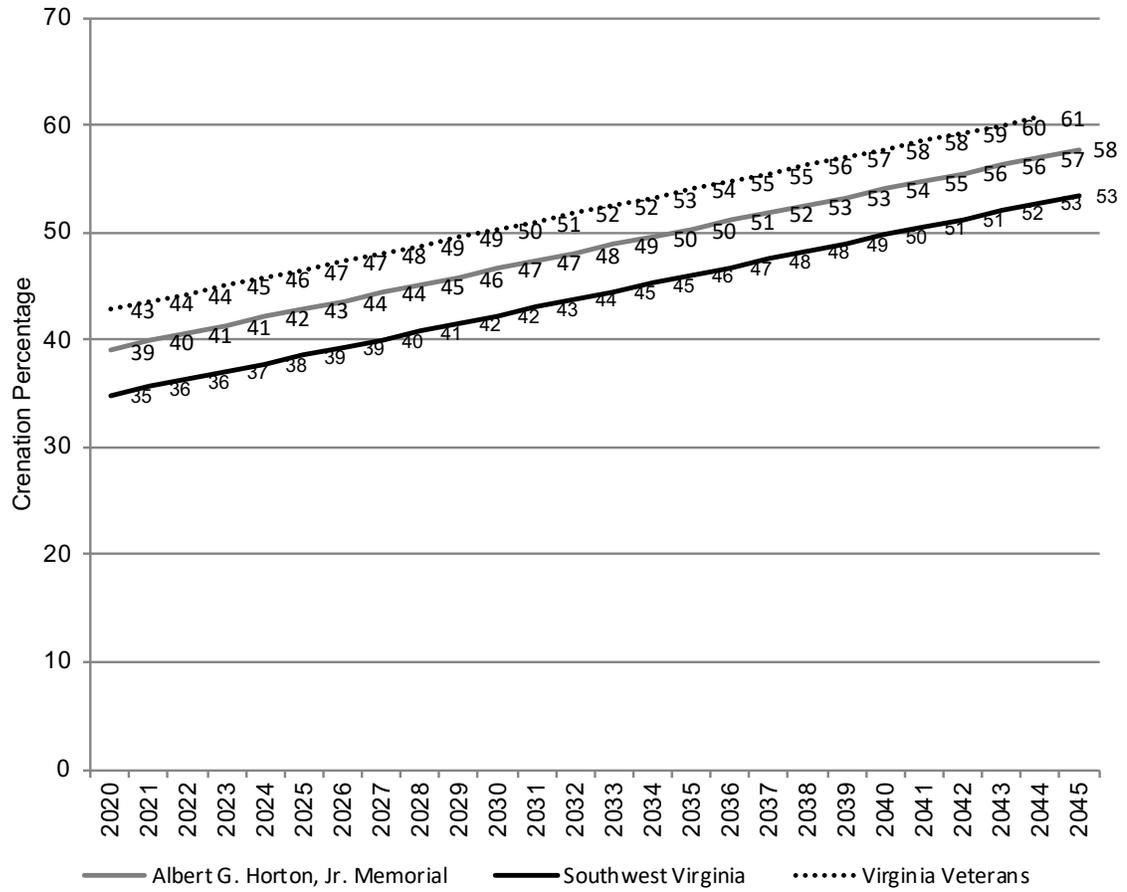
**Table 4.5 Virginia Veterans Cemetery Projections**

	First Interments				Total Interments			
	Casket	Columbarium	Creman Burial	Total	Casket	Columbarium	Creman Burial	Total
2020	213	102	57	372	270	129	73	473
2021	216	106	60	382	274	135	76	486
2022	219	111	63	393	278	141	80	499
2023	222	116	66	404	283	148	84	514
2024	225	121	69	416	286	154	87	528
2025	221	123	70	414	281	156	88	526
2026	232	133	75	440	295	169	96	560
2027	236	139	79	454	300	177	100	577
2028	239	146	82	467	304	185	105	594
2029	243	152	86	482	309	194	110	613
2030	248	160	90	498	315	203	115	633
2031	252	168	95	515	321	213	121	654
2032	257	176	99	532	326	223	126	676
2033	261	184	104	549	331	234	132	698
2034	265	193	109	567	337	245	139	720
2035	269	201	114	583	341	256	145	742
2036	272	210	119	600	346	267	151	763
2037	275	219	124	617	349	278	157	784
2038	277	227	128	632	352	289	163	804
2039	279	235	133	647	354	299	169	823
2040	279	244	138	661	355	310	175	840
2041	280	252	143	675	356	320	181	858
2042	281	260	147	688	357	331	187	874
2043	280	268	152	700	356	341	193	889
2044	279	275	156	711	355	350	198	903
2045	278	283	160	721	353	360	203	916
<b>Total</b>	<b>6,598</b>	<b>4,803</b>	<b>2,717</b>	<b>14,118</b>	<b>8,387</b>	<b>6,105</b>	<b>3,454</b>	<b>17,946</b>

**Table 4.6 Amherst County Veterans Cemetery Projections**

	First Interments				Total Interments			
	Casket	Columbarium	Cremaian Burial	Total	Casket	Columbarium	Cremaian Burial	Total
2020	0	0	0	0	0	0	0	0
2021	0	0	0	0	0	0	0	0
2022	0	0	0	0	0	0	0	0
2023	0	0	0	0	0	0	0	0
2024	0	0	0	0	0	0	0	0
2025	0	0	0	0	0	0	0	0
2026	0	0	0	0	0	0	0	0
2027	0	0	0	0	0	0	0	0
2028	0	0	0	0	0	0	0	0
2029	0	0	0	0	0	0	0	0
2030	0	0	0	0	0	0	0	0
2031	0	0	0	0	0	0	0	0
2032	0	0	0	0	0	0	0	0
2033	0	0	0	0	0	0	0	0
2034	0	0	0	0	0	0	0	0
2035	273	204	116	593	300	225	127	653
2036	274	211	120	605	302	233	132	666
2037	274	218	123	616	302	240	136	678
2038	274	225	127	626	302	248	140	690
2039	274	231	131	636	302	255	144	701
2040	273	238	134	645	300	262	148	710
2041	271	244	138	653	299	269	152	719
2042	269	250	141	660	297	275	156	728
2043	267	256	145	667	294	281	159	735
2044	265	261	148	673	292	288	163	742
2045	262	267	151	679	288	294	166	748
<b>Total</b>	<b>2,976</b>	<b>2,604</b>	<b>1,473</b>	<b>7,053</b>	<b>3,278</b>	<b>2,869</b>	<b>1,623</b>	<b>7,770</b>

**Figure 4.3 Cremation Percentage Projection Assumptions**



Source: Based on cremation interment mode by cemetery and author's extrapolation of historical trends



## SECTION 5 IMPROVING AWARENESS AND USE OF VIRGINIA STATE VETERANS CEMETERIES

### Outreach and Marketing

Awareness and use of veteran interment options has clearly improved since the last veterans cemetery study. At the national level, USDVA cemetery locations, burial options, and marketing outreach has raised veteran interment rates at national and state veterans cemeteries from an estimated 15.7 percent of deceased veterans in FY2011 to 20.1 percent in FY2018. The state-wide draw rate of Virginia veterans cemeteries over the same period increased from 5.2 percent to 8.7 percent. Still some veteran remain unaware of their of their memorial benefits. According to a 2014 survey, 32 percent of veterans indicated that they were not aware of their interment benefits, with younger age cohorts indicating less familiarity than older ones (Booz Allen Hamilton Inc. 2014).

Veteran next-of-kin respondents to a 2018 USDVA State or Tribal Veterans Cemeteries indicated that they received information about their benefits primarily from traditional sources such as family members/friends (38.6 percent), funeral homes (16.1 percent), veteran service organizations (15.2 percent), military discharge materials (13.9 percent), and other veteran/active duty member (USDVA 2018b). When asked the best way for state veterans cemeteries to convey information regarding benefits they identified both traditional and electronic media. The leading choices were traditional media such as newsletter/flyer (27.2 percent) and local newspaper/television reports (22.5 percent) (see **Table 5.1**). Electronic media were secondary but also potentially effective ways for contact, including email (17.9 percent), state or tribal/VA/NCA website (13.1 percent), and social media (4.2 percent). Personal contact through professional/military association meetings and public events was identified by 2.6 percent.

Funeral directors, who are key information gatekeepers and custodians, identified a different set of contact methods. The most effective means is

outreach by cemetery staff (42.8 percent) followed by state or tribal/VA/NCA website (32.2 percent), veterans service officers (12.4 percent), and professional association/conventions (7.5 percent). One challenge with traditional cemetery outreach is that the cemetery industry is rapidly transforming from numerous, smaller, privately owned cemeteries to fewer, vertically integrated national level, publicly traded companies that offer funeral, cremation, and cemetery services at numerous sites. This continued industry consolidation and standardization means that such companies prefer to bundle services and may be less likely to refer consumers to alternative, less expensive burial options, including veterans cemeteries. Approximately half of Virginia cemetery ownership is in the hands of such large, publicly traded companies.

The VDVS has continued its program of reaching out to traditional media, veterans groups, and funeral directors. Media exposure from local newspaper, radio, and television outlets play an important part in informing the public, with special events surrounding cemetery improvements and Memorial Day and Veterans Day ceremonies. The VDVS “Virginia Military Funeral Honors for Unclaimed Veterans’ Cremains Program” partners with other government agencies, funeral homes, crematories, and private organizations to identify unclaimed

**Table 5.1 Best Way for State Veterans Cemetery to Convey Information Regarding Benefits According to Next of Kin**

Sources	%
Newsletter/flyer	27.2
Local newspaper/television news reports	22.5
E-mail	17.9
Professional/military association meetings	5.4
State or Tribal/VA/NCA social media	4.2
Public events	2.6
Other	7.1

Source: USDVA (2018b)

remains of indigent veterans or those with no next-of-kin that may be eligible for interment in a veterans cemetery, has resulted in a significant number of new interments. Since the 2013 report, an estimated 70 veterans have been laid to rest through these efforts.<sup>20</sup>

The VDVS has upgraded its electronic media presence since the last report. The department now posts updates about veteran services and events on a variety of social media formats, including Facebook, Twitter, Flickr, LinkedIn, and YouTube. The Departmental website is accessible through smartphone browsing, including Apple and Android operating systems. The VDVS cemetery website section remains similar in basic format to before and provides the same information. The general section describes cemetery eligibility requirements, and a pdf informational brochure. Individual pages for each veterans cemetery provide photo, contact information and hours of operation, pre-application information and downloadable forms, and a list of special commemorative events recognized by the cemeteries. The VDVS does not yet offer a pre-need online application that can be filed online such as is available for national cemeteries at the USDVA website. Another enhancement would be to show a schedule of each day's burials and events in real time on state veteran cemetery websites.

The USDVA Veterans Legacy Initiative shows the potential for further building outreach activity and digital services to engage new audiences, honor American veterans, and increase public recognition of veterans cemeteries. The program has two major components. The first part consists of educational outreach. It develops resources, electronic tools for community engagement, and research activities arranged around veteran experiences. The initiative promotes partnerships between national veteran cemeteries and K-12 and university teachers and students to conduct research, develop lesson plans, and develop digital media such as interactive websites and documentary films to recognize veteran contributions. These products serve to engage a wider audience that creates greater awareness of veterans cemeteries. The second part consists of website portal and other digital

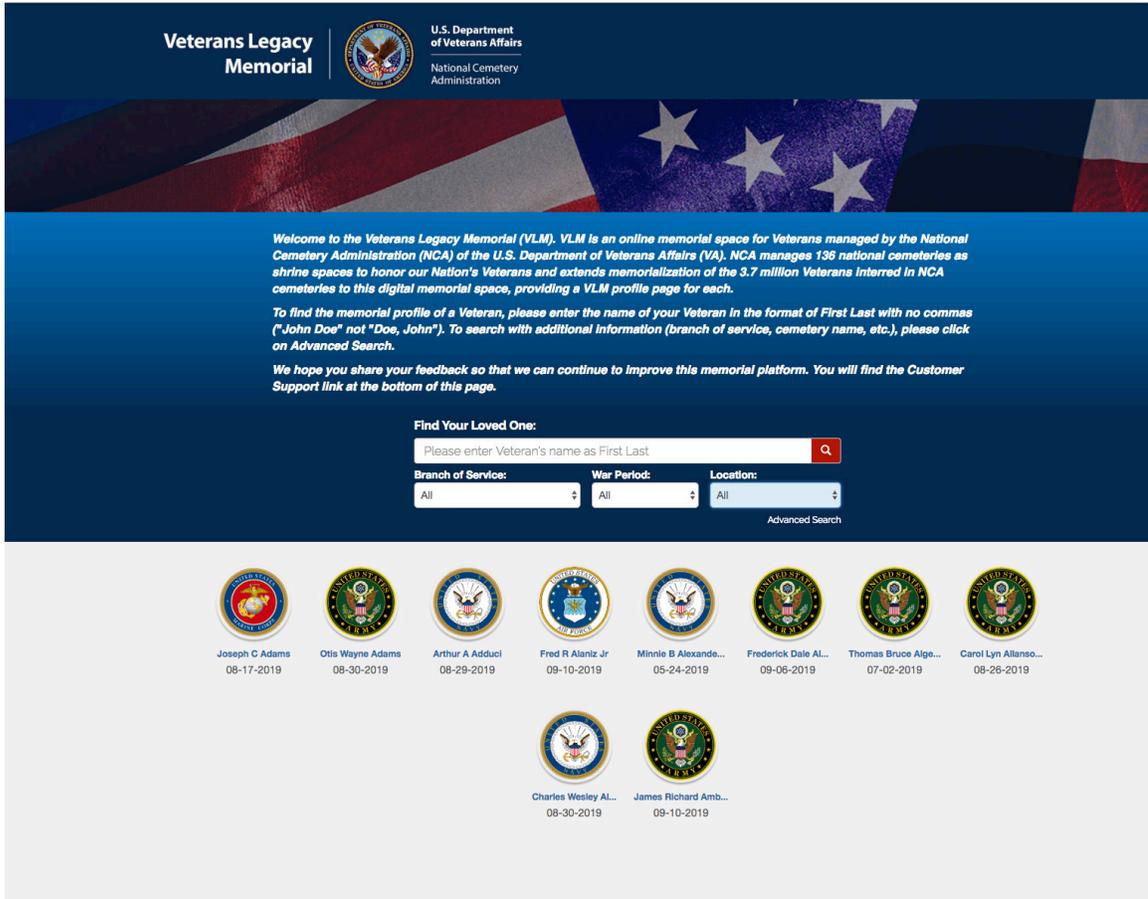
device enabled software that connects users to a repository of veteran information. The centerpiece of the digital engagement effort is the Veterans Legacy Memorial website (see **Figure 5.1**) which archives information about each veteran interred. The digital memorial website, which was unveiled in Spring 2019, currently allows users to retrieve information about gravesite locations and veterans military service. In the future, it will allow next-of-kin to post information on other aspects of their loved-ones lives, such as pictures and videos. This information is also expected to become available at cemetery and gravesite locations via handheld smartphones and other digital devices through scanning veteran headstones.<sup>21</sup> Participating in these USDVA programs would help to raise awareness of Virginia veterans and ensure that the state does not fall behind NCA best practices.

## **New Memorial Products and Services**

The death care industry continues to see substantial changes in how consumers choose to be memorialized. Ecological concerns and the availability of innovative digital media memorialization products are shaping consumer preferences (Sloane 2018). Private providers are rapidly filling the void. There are almost 100 registered green burial cemeteries in the U.S. and at least two in Virginia (Duck Run Natural Cemetery in Harrisonburg and Forest Rest Natural Cemetery in Boones Mill).<sup>22</sup> Digital memorialization has become standard offering among established major cemeteries and include grave locator services, digital tours, and digital media memorials that provide information about grave occupant such as obituaries and other information posted by family members (Nansen et. al. 2017).<sup>23</sup>

The USDVA sponsored a study of emerging burial practices in 2014 to ensure that NCA services continue to align with veteran needs. The study presents information about emerging interment and memorial methods and gauges veteran perceptions of the new practices through surveys and focus groups. The study examined some traditional interment options (such as Mausoleums) as well as new environmentally friendly options such as

Figure 5.1 Veterans Legacy Website



green burial<sup>24</sup> as well as digital memorialization offerings. The report found that veterans accepted the availability of other interment options at veterans cemeteries but would not generally choose the new options for themselves. (see **Table 5.2**). Veterans showed a high level of interest in new digital memorialization options, with more interest in veteran locational services and digital information about military service and less interest in having information posted about private life outside the military.

As a result of this study, the USDVA has made significant changes in policy. As evident in the digital aspect of the Veterans Legacy initiative, the USDVA/NCA has forged ahead with veterans digital memorials and see is as a signature feature of its

memorial offerings that also expands accessibility, engagement, and recognition of physical memorialization. The USDVA/NCA has also submitted a legislative proposal to establish “natural burial sections” in VA National cemeteries. Many existing national cemeteries already offer remains scattering gardens, but they receive limited use.

The VDVS has considered introducing scattering gardens as part of Wood Walkway projects. However, the need to fund memorial improvements from private donations has hindered progress. The relatively low volume at other USDVA national veteran cemeteries suggests such gardens will likely see little use. The introduction of green burial options at VDVS cemeteries would also likely introduce some complications. Green burial

**Table 5.2 Interment Mode Options, Percentage of Veterans that “Strongly Agree or Somewhat Agree” They Would Choose Option**

Option	%
Interment Mode Option	
Natural appearance	30
Green burial (biodegradable casket or shroud)	25
Mausoleum	23
Burial at sea	20
Scattered from air	20
Coral reef	19
Memorialization Option	
Information about burial location on website or handheld device	59
Information about military service available on website or handheld device	56
Information about life after military and family available on a website or handheld device	39

Source: Booz Allen Hamilton (2014)

sites are subject to subsidence of the gravesite and headstones and more likely to be disturbed by heavy equipment. It is not clear if the savings in burial vault costs compensate for the increased maintenance and operations costs of operating cemetery gardens set aside for green burial.

### Cost Competitiveness

The VDVS has been responsive to the need to provide affordable veteran interment choices. Survey data show that veterans are sensitive to memorialization costs. With financial assistance from NCA State Cemetery Grants Program, double depth burial crypts have now been installed at all three state cemeteries. These burial vaults now ensure that veterans and their spouses do not incur a charge for what would ordinarily cost over \$1,000 each to install. The only charge that veterans’ families incur is a \$300 interment fee for spouses and dependents because VDVS is not reimbursed by the USDVA for the cost of interring spouses and dependents.

Virginia Veterans Cemetery fees continue to be comparable to those of other state cemeteries. Based on information from 65 state veterans cemeteries from elsewhere in the U.S. obtained from information posted online and solicited through email and telephone inquiries, we found that fees charged for spouses and dependents at state cemeteries elsewhere in the U.S. vary from zero to \$800. Several states have tiered price structures based on whether the interment is casket burial or cremains. The average casketed burial fee is \$325. When information for 17 cemeteries on this list that also appeared in a survey of 36 state veterans cemetery cemeteries conducted by the National Cemetery Administration in 2007 were compared, the average casketed burial fee increased from \$235 in 2007 to \$329 in 2013, but decreased to \$314 in 2019. These findings show that VDVS fee treatment and stability has been consistent with other veteran cemeteries experience in recent years.

**Table 5.3** provides up-to-date costs of casketed burial for national and state veterans cemeteries and private cemeteries. These costs include the prices of a plot, perpetual care, grave opening/closing, headstone/marker, headstone installation, and grave liner/burial vaults. Veterans, spouses, and eligible dependents interred in cemeteries maintained by the NCA incur no cemetery related costs. Veterans who elect to be interred in a private cemetery are eligible for some USDVA benefits such as a headstone through the Headstones and Markers Program, \$300 burial allowance and \$762 plot allowance.<sup>25</sup> In addition, some private cemeteries offer “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 incur a cost for the cemetery plot and many of the same burial costs again.

**Table 5.3 National Veterans, Virginia State Veterans, and Private Cemetery Interment Costs**

Type	National	State	Private Veteran	FCAVBR
Plot/Perpetual care -- veteran	\$0	\$0	\$2,070	\$1,302
Plot/Perpetual care – spouse	\$0	\$0	\$2,070	\$1,302
Grave opening/closing -- veteran	\$0	\$0	\$1,538	\$1,277
Grave opening/closing – spouse	\$0	\$300	\$1,538	\$1,277
Burial vault -- veteran	\$0	\$0	\$1,298	\$1,441
Burial vault – spouse	\$0	\$0	\$1,298	\$1,441
Marker – veterana	\$0	\$0	\$917	--
Marker --- veteran and spouse	\$0	\$0	\$1,300	--
Administrative fees	\$0	\$0	\$172	--
Average veteran cost	\$0	\$0	\$6,378	
Average veteran cost with VA benefits	\$0	\$0	\$4,933	
Average veteran and spouse cost with VA benefits	\$0	\$300	\$11,311	

a The prices are for flush-markers with a 28-inch by 16-inch granite base installed. All averages are based on minimum cost option for each item.

The table shows updated 2019 costs based on four private cemeteries that were contacted for price information as part of the previous studies. They included cemeteries located in Mecklenburg County, Lexington City, Russell County, and Virginia Beach City. The table shows that whereas these cemeteries offered discounted veteran plots when last contacted in 2013, none of them continue to offer these discounts. The average cost of a veteran casketed burial is \$4,933 when veteran benefits are accounted for. With a spouse included, the cost is \$11,311. Costs of lots, opening/closing, vault/liner and administrative fees had increased significantly over 2013 reported levels because of general increases in cemetery costs and the discontinuance of veteran discounts.

These cemetery costs are slightly higher than estimates of memorial costs based on a surveys of licensed and municipal cemeteries provided by the Funeral Consumers Alliance of the Virginia Blue Ridge (FCAVBR) (2013 and 2019). Table 5.3 indicates that plot/perpetual care, grave opening/closing, and burial vault minimum costs for 65 FCAVBR Blue Ridge Valley, Southwest, and

Central Virginia cemeteries averaged \$8,040 for a couple compared to \$9,812 for the four benchmark cemeteries.

These results indicate that DVDS veterans cemeteries offer an approximately \$5,000 cost advantage for a veteran compared to private cemetery alternatives. When a spouse is included, the cost advantage rises to approximately \$10,000. The value of the DVDS benefits for veterans and spouses, which was estimated to be \$1,500/\$4,400 in 2007, and \$4,400/\$7,450 in 2013 continues to rise as private cemetery costs continue to escalate while Virginia veteran cemetery fees remain the same.

### Performance Assessment

Virginia state veterans cemeteries place a strong emphasis on maintaining a high standard of appearance and service. To ensure that quality standards are met, the Department of Veterans Services annually monitors several performance measures as part of its strategic planning efforts (VDVS 2017a, 2017b). These measures include the number of interments, number of pre-applications

on file, and the percentage of headstones/markers placed within 60 working days of the interment or inurnment.

Since the last report, the VDVS has introduced a process for soliciting information from next of kin/ family members about their experiences with the state veterans cemeteries. Two surveys instruments have been used. The first survey “State Veterans Cemetery Evaluation” was administered during calendar years 2015 and 2016. It was a closed-form survey that asked the contact to evaluate various aspects of cemetery on a numerical scale (from 1 to 10), including overall satisfaction, satisfaction with the funeral service, appearance of the facility, and helpfulness of staff. The performance ratings on these various features of the cemetery experience are high, with approximately 90 percent or more of respondents providing a top rating (“10” on a scale of 10) of “very good.”

A second survey was introduced to replace the first one more recently (2017 to present) because staff did not believe that the information provided actionable information on performance, including greater specificity about what the cemeteries are doing well and what could be improved further. The survey, called “Cares, Concerns and Compliments” was entirely open-ended and asked respondents to

“Please provide your care, concern, or compliment.”

The survey contains an administrative use section that detailed corrective actions taken in response to any quality issues. A review of comments provided on these forms showed that respondents were quite satisfied with their cemetery experiences, including the caring attitude, helpfulness, and professionalism of staff members as well as the appearance and upkeep of facilities. A handful of comments indicated concerns about the time amount of time allotted to the interment ceremony and confusion about gravestone inscription and scheduling.

The USDVA currently conducts separate satisfaction surveys for national veterans cemeteries and state and tribal veterans cemeteries. The last reports was issued in 2018 (USDVA 2018b, 2018c). Two groups are surveyed: veteran next-of-kin who provide information about their experience at the cemetery including appearance of the cemetery (headstones/markers/columbaria, committal shelters, signage), committal service, and other aspects of the cemetery. Funeral directors are asked similar questions, with a focus more on their interaction with veteran cemeteries, including quality of communication, customer service, etc. In the past, the USDVA has provided VDVS with cemetery summary results that can be used to benchmark Virginia veteran cemetery satisfaction on the various metrics with VA national

**Table 5.4 Next of Kin/Family Member Satisfaction with Virginia State Veterans Cemeteries**

Performance Area	5	6	7	8	9	10	Average Rating	Number of responses
Overall satisfaction	0.0	0.0	0.4	3.4	7.3	88.9	9.8	261
Information provided useful and complete	0.0	0.0	0.8	3.1	6.9	89.2	9.8	260
Funeral service @ Cemetery Satisfactory	0.9	0.4	1.8	4.0	3.1	89.8	9.8	225
Simplicity of applying	0.0	0.0	0.8	1.3	6.3	91.6	9.9	238
Helpfulness of staff	0.0	0.4	0.0	2.3	3.9	93.4	9.9	258
Appearance of facility and ground areas	0.0	0.0	0.4	1.9	2.7	95.0	9.9	261
Likelihood that would refer family member or friend	0.0	1.2	0.0	1.9	2.7	94.2	9.9	257

Note: State Veterans Cemetery Evaluation used in 2015 and 2016. Scale is based on 10 points, ranging from 1=Needs Improvement to 10=Very good; 1-4 are not shown since no responses were received in these categories

and other state and tribal veterans cemeteries. It is unclear if this will become a permanent service provided by USDVA to state veterans cemeteries.

If not, the VDVS could combine the best approaches of both its current survey and the USDVA one in a way that provides optimal data for performance benchmarking and tracking with specific areas for intervention. The first part of the survey would ask a group of closed ended questions that match the national question wording and scale. These metrics could be tracked on an annual basis and compared to national survey results. The second part of the survey would solicit open-ended responses on cemetery performance, including additional information about responses on particular closed-ended responses. A USDVA type questionnaire might not be appropriate for the agency since it is used for research purposes and performance management for a much larger cemetery system; moreover, it would require considerably more resources than could be justified. A representative

survey measure could then be added to the annual performance measures in a fashion similar to NCA such as the percentage of respondents who rate state cemetery appearance as excellent, percent of respondents who rate the quality of service provided by the national cemeteries as excellent, and percent of respondents who are willing to recommend a national cemetery to veteran families in their time of need.

The USDVA also monitors the quality of its state cemetery grant program recipients, including Virginia Veterans Cemetery, through a triannual compliance review. During this review, USDVA inspects and assesses grounds operations, equipment, turf, facilities, and burial/cremains cemetery for compliance with their standards. Cemeteries must make corrective actions in order to continue to be eligible for USDVA financial support. This process ensures that state cemeteries continue to meet the requirements expected of a national shrine.



## END NOTES

- 1 The VDVS receives 100 percent of construction and initial equipment expenses for establishing a new cemetery and has received similar cost share on recent large-scale improvements to existing cemeteries. In addition, the VDVS received a plot allowance of \$780 in FY2019 to cover the expense of each veteran burial. The Commonwealth costs include the cost of cemetery property acquisition, operational costs in excess of the plot allowance, routine maintenance and equipment replacement costs. In FY 2019, the VDVS was allotted \$1,129,809 from the General Fund and received \$1,946,585 from the Non-General Fund. This latter amount is derived from federal plot allowances and interment related fees.
- 2 These calculations are based on service areas assigned to each state and national cemetery according to closest proximity.
- 3 The U.S. Government Accountability Office (2014) reviewed the NCA’s methodology for determining unserved veteran population and recommended certain changes (discussed further in section four). The Department of Veteran Affairs disagreed with the GAO’s assessment.
- 4 However only 77 are currently accepting casketed burials. Seventeen accept cremated remains or the remains of family members in a gravesite of an interred family member. The remaining cemeteries are either closed or accept only the remains of family members in a gravesite of an already interred family member.
- 5 The USDVA/NCA has submitted a legislative proposal to increase funding allowed for state and tribal cemetery operation and maintenance to include headstone improvements, marker height and alignment, leveling of gravesites and turf. If adopted, the change could provide an additional source of funding for state veterans cemeteries (USDVA 2019).
- 6 In fact, the FY19 Priority List of Pending State and Tribal Government Cemetery Construction Grant Pre-Applications show state applicants applying for new cemeteries for areas with unserved veteran populations ranging from 42,497 to 1,707 using the 75-mile distance standard (USDVA 2018a).
- 7 “Resomation” or chemical decomposition of remains and “promession or freeze drying through liquid nitrogen and vacuum drying the remains are two recent innovations. The former is legal in some U.S. states. Neither of the byproducts would be treated differently by cemeteries since they would resemble cremains.
- 8 State cemetery interment data obtained from VDVS contained the address of each interment and fields to indicate whether the interment was a veteran, spouse of a veteran, or dependent of a veteran. Addresses were then geocoded using ARCGIS.
- 9 Estimated and projected deaths by county were obtained from the VetPop2016 projection model.
- 10 A flat-featureless plane is replicated in ARGIS Network Analysis by creating an artificial network that contains lines connecting each demand point to existing and candidate facility locations.

- 11 Census blocks are subunits of counties that permit more detailed analysis of demand and prospective site locations. Since the VetPop2016 projection model provides county-level estimates and projections, census-tract level data was computed by allocating county veterans population to census tracts within each county using weights determined by veteran population counts from the U.S. Census Bureau. These census tract veteran populations are assigned to the geographical centroids of the corresponding census tracts and serve as the demand points for the analyses.
- 12 Veteran death projections were not published online with the VetPop2016 veteran population projections as they had been with early versions of the model. The USDVA Office of the Actuary provided these numbers by request.
- 13 VDVS interment records contained addresses for veterans or next-of-kin. These addresses were geocoded using ARCGIS and assigned to individual counties and independent cities.
- 14 Deaths over the 2-year period form the base of the draw rate were estimated by based on estimated deaths by county obtained from the VetPop2016 model.
- 15 For out-of-state veterans interred in Virginia state veterans cemeteries, residual national draw rates were estimated by dividing out-of-state resident interments by total estimated out-of-state deaths.
- 16 County interment draw rates were regressed on distance of county of residence from state cemetery of interment (where distance was measured from each locality's veteran population centroid--i.e., coordinates of the estimated center of the county or independent city veteran population) and distance squared. County draw rates and distances for all three cemeteries were included in the estimation. Thus, the expectation is that any state cemetery established in the future will experience a draw rate-distance relationship similar to the three existing cemeteries. Estimated county draw rates that are positive in value are multiplied by death projections by county by year to obtain interment projections for each cemetery. The estimated equation was  $YIELD\_RATE=13.5781431-0.1669476DISTANCE+0.00044725DISTANCE\_SQUARED$ .
- 17 For the Amherst Cemetery, a lower dependent to veteran ratio of 1.3 is used, which is more representative of the experience of the Virginia veterans cemeteries during their first decade after opening.
- 18 This calculation is based on Virginia Veterans and Southwest Virginia pre-application data. Albert G. Horton, Jr. Memorial dependent data was incomplete.
- 19 CANA provides 5-year projections for states. The projection assumptions here assume that Virginia veteran inurnment rates do not reach cremation rates of all Virginia residents achieved in 2017 (45.2 percent) until 2029 and 2022 CANA projections of Virginia residents of 51.7 percent until 2038.
- 20 The USDVA has submitted legislative proposal to "authorize to pay cost of transporting unclaimed remains of veterans to state or tribal cemetery" which could provide additional financial assistance for this initiative.

- 21 The adoption of these new visitor technologies will also assist VA cemeteries planning and mapping of veteran gravesites since it will be integrated with Geographical Information Systems that are linked with other cemetery management information systems (USDVA 2019).
- 22 <http://www.us-funerals.com/funeral-articles/directory-of-green-burial-sites-in-the-united-states.html#XZ4rkxlKgvo>
- 23 See, for example, Hollywood Cemetery in Richmond. <https://www.hollywoodcemetery.org/>
- 24 “Green burial” here refers to varied environmentally sensitive interment methods such as placing unembalmed bodies in a wooden box or shroud, scattering gardens for cremains, living memorials such as the “spirit trees” which receive nutrients from cremains in a biodegradable urn, and cremains deposited in artificial underwater reef structures. Many green burial advocates no longer consider remain interment a “green” interment choice. Although it reduces land use needs, the process of cremation results in high energy uses and emissions of carbon and mercury.
- 25 These benefits are for non-service-connected deaths. Maximum burial allowance for a veteran service-connected death is \$2,000. If a veteran was hospitalized by the VA at the time of their death, they can receive a \$762 burial allowance, \$762 plot allowance and compensation for the costs of moving remains.



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