Planning for the Deceased

Christopher Coutts, Carlton Basmajian, Dwight Merriam, FAICP, and Patricia Salkin

Christopher Coutts is an assistant professor in the Department of Urban and Regional Planning and a research associate in the Center for Demography and Population Health at Florida State University. His research examines the influence of ecologically sensitive land-use practices on community health and health behavior. His planning for the deceased research is inspired by the demographic and environmental realities that must be confronted to sustainably accommodate the deceased.

Carlton Wade Basmajian is an assistant professor in the Department of Community and Regional Planning at Iowa State University. His research focuses on the history of regional planning, rural planning, and housing in the United States. His interest in planning for the deceased has its origins in a random conversation on a sunny winter's day four years ago.

Dwight H. Merriam, FAICP, Past Chair of the American Bar Association's Section of State and Local Government Law, founded Robinson & Cole's Land Use Group in 1978. He represents land owners, developers, governments, and individuals in land-use matters. Dwight is a Fellow and past president of the American Institute of Certified Planners, a former director of the American Planning Association, a former chair of APA's Planning and Law Division, a Fellow of the American Bar Foundation, a member of the Rocky Mountain Land Use Institute National Advisory Board, and a Fellow of the American College of Real Estate Lawyers. He teaches land-use law at the University of Connecticut School of Law and at the Vermont Law School and has published more than 200 articles and nine books.

Patricia E. Salkin, Dean and Professor of Law at Touro College Jacob D. Fuchsberg Law Center in Central Islip, New York, is a nationally recognized scholar on land-use law and zoning. She is the author of the popular blog *Law of the Land* (http://lawoftheland.wordpress.com/), and her land-use publications include the five-volume 5th edition of *American Law of Zoning* as well as more than 100 articles, columns, and chapters in books and other publications on a range of topics including sustainable development and land-use law. Salkin is the chair of APA's Amicus Curiae committee, and she is an appointed member of the U.S. Environmental Protection Agency's National Environmental Justice Advisory Council. She has served on the board of directors of the New York Planning Federation, and has been active in land-use reform efforts including membership on the Land Use Advisory Committee of the NYS Legislative Commission on Rural Resources.

PLANNING FOR THE DECEASED

CHRISTOPHER COUTTS, CARLTON BASMAJIAN,
DWIGHT MERRIAM, FAICP, AND PATRICIA SALKIN

TABLE OF CONTENTS

The Need to Plan for the Deceased

Cemeteries are one of the oldest and most sacred human uses of land. As sites of community memory, burial grounds are important parts of the public realm. Like most land uses, cemeteries are subject to local land-use regulations. In many places, they also must adhere to state regulations. Yet burial grounds also possess social and cultural meanings that set them apart from almost every other land use.

Cemeteries are essentially permanent land uses, protected by their spiritual status as final resting places for the deceased. They contain a visible record of a community's history; they symbolize the emotions associated with belief in the afterlife; and they help anchor individuals and families to places of significance. The permanence and cultural importance of cemeteries influences how the public perceives these uses and how governing bodies address the many issues surrounding interment.

In most instances, existing cemeteries are viewed as community assets to be maintained and protected from encroachment by incompatible uses and perhaps even celebrated for their historical importance or their value as open space. This is particularly true in the case of historic cemeteries that are celebrated for their beauty and cultural significance, such as Mount Auburn outside Boston or Forest Lawn in Glendale, California. Both are active burial grounds and also have historical importance for their communities. But when cemeteries expand their footprints—usually to meet growing demand for interment space—they can quickly turn from community assets into community nuisances.

Though they are considered community assets, American burial grounds are not always publicly owned entities. While in some cases cemetery properties are owned and managed by municipal corporations, in most parts of the United States they are private properties held by private corporations (Habenstein and Lamers 1963; Sloane 1991). Some of these corporations are religious entities—churches, synagogues, mosques—while others are benevolent societies or nonprofit charitable organizations. A significant number of cemeteries, though, are owned by private, for-profit companies.

Contemporary burial practices produce a number of potentially negative environmental externalities, few of which have been examined in depth. The extent to which the chemicals and materials used as part of the embalment process endanger groundwater supplies, contribute to soil erosion, or disrupt animal habitats is potentially significant enough to warrant caution. Further, while established cemeteries can support significant biotic diversity, unlike other uses such as golf courses, they are not necessarily managed in ways that are beneficial to the plants and animals that share the space (Barrett and Barrett 2001; Wheeler and Nauright 2006). Many cemeteries use large quantities of chemicals, petroleum-based fuels, and municipal water to maintain a bucolic, lawn-park appearance.

Cremation, while seemingly less environmentally damaging than embalmed burial, is also not without problematic side effects. Though the material remains from cremation (cremains) present little obvious danger, the air pollution associated with combustion and the fuel required for the process may produce substantial community risk (Hylander and Goodsite 2006; Santarsiero, Cutilli, Cappiello, and Minelli 2000). Even ostensibly environmentally friendly practices like unembalmed burial have the potential to introduce unexpected negative environmental effects. Without research to understand the extent of the problems associated with all forms of final disposition, much remains unknown. Yet despite the lack of reliable information, community planners must balance the emotional significance of cemeteries against the potential harms resulting from human disposition practices.

Although death and burial would seem to be important issues for planners, the discipline has been conspicuously quiet on the issue, especially as of late (American Society of Planning Officials 1950; Capels and Senville 2006; Francaviglia 1971; Pattison 1955; Rugg 2006; Whyte 1968). As Wilbur Zelinsky noted (1994, 30), the few existing studies of cemetery geography

Cemeteries at capacity
Tom Hilton / Creative Commons 2.0

have usually been limited to considerations of burial conditions in "specific localities or at best subnational regions," of which Pattison's 1955 study of Chicago cemeteries stands as perhaps the best example. More recent examples are scarce (Harvey 2006). In spite of the recognized importance of death and burial, the planning issues associated with cemeteries remain remarkably understudied.

As sites of cultural expression, however, the historical dimensions of death and burial have been well studied, particularly in Western Europe and the United States (Aries 1981; Bloch and Parry 1982; Curl 1999; Jackson and Vergara 1996; Prothero 2001; Rugg 2000; Laderman 1999; Sanders 2008; Sloane 1991). Burial practices since the early 19th century have been especially thoroughly studied, though mostly for their social and cultural value and rarely for their implications for land use and community. A few researchers have examined the economics of burial decisions (Harrington and Krynski 2002), and recently cemeteries and burial practices have begun to receive attention from environmental scientists seeking to understand their impacts (Dent, Forbes, and Stuart 2003; Sachs 2010).

Since the late 1960s, other methods of final disposition, primarily cremation, have become increasingly common and in some places have begun to displace burial as the most common form of interment (Prothero 2001; Rugg 2000). Advances in life expectancy and survival among the baby boomer generation have been used to project significant growth in the populations of the old (over 65 years of age) and the very old (over 80 years of age). Their growing numbers have led planners to attempt to reshape communities so that they provide suitable space for the elderly. Many community plans now identify ways to increase walkability, make open space more active, and improve the prospects for aging in place. While plans to make communities more elder-friendly have proliferated, the increase in the total population of old and very old individuals points to substantial growth in the annual number of deaths over the next 30 years, a prospect often left out of community plans (Frey 2007).

This increase in numbers will likely increase demand for physical cemetery space. In places where land is at a premium, a step as simple as the expansion or modification of an existing cemetery can become fraught with conflict. Plans will be necessary to determine where new burial facilities should be located, how they will be designed, and how existing cemeteries can be managed as community resources in perpetuity (Harrington and Krynski 2002). The growing number of deaths within a context of new environmental regulations designed to protect fragile ecosystems may make it more difficult for communities to accommodate human remains. This will be compounded by space limitations if boomers expect to be interred in the metropolitan places where most lived out their lives.

The resources needed to handle these deaths are likely to be significant. Given the limited land resources available, declining public funds, and environmental regulations, these issues will likely become an even more significant problem in the future. Moreover, the ethnic, religious, and lifestyle diversity of the baby boomers seems likely to induce demand for a range of after-death treatments beyond embalmed burial and basic cremation. These may have additional impacts on land use and regulation. In many communities, planners will be on the front lines in negotiations over how increasingly diverse demands for final disposition can be managed so that the impacts on future land use and resources might be minimized.

There are a number of terms used throughout the report to refer to the various facilities used to house the dead. The term "final disposition" refers to the final resting place of bodies (embalmed or unembalmed)

Figure 1.1. *The Fostoria mausoleum in Fostoria, Ohio*

Nyttend

and cremains (the remains after cremation). Final disposition of bodies has historically taken place in cemeteries, which are typically parcels of land dedicated to the purpose of disposition, though they can take a variety of forms. Mausoleums are structures specially designed to hold interred bodies, and are usually included as parts of cemeteries (Figure 1.1). Final disposition for cremains has long occurred in a wide variety of places, few of which could be characterized as proper cemeteries. In some places, cremains are commonly placed in a columbarium, a structure specifically designed for housing cremains. While many of these structures are part of cemeteries, stand-alone columbaria are not uncommon. "Burial grounds" refers broadly to the range of locations for the final disposition of bodies and cremains.

This report examines the wide range of challenges that final disposition presents to planners and the communities in which they work. In the following chapter, we begin by very briefly outlining the history of burial and cremation in the United States. We then present an overview of recent after-death practices, how those practices have changed, and how those changes are likely to shape future planning decisions. We examine both current conditions and how the rapidly expanding ranks of the elderly will likely influence after-death practices for decades to come. Chapter 3 presents a detailed look at the range of land-use regulations that shape decisions about disposition. We review examples from communities across the country and describe the different strategies they have taken in regulating burial grounds within their boundaries. We also highlight innovative practices that can provide guidance to community planners facing the task of creating plans for burial facilities. Chapter 4 explores a number of emerging alternatives to traditional burial and cremation. As concern about the environmental side effects of embalmed burial becomes more widespread, individuals have begun to seek less-damaging forms of final disposition. We examine a number of these alternative methods, many of which go beyond basic cremation and attempt not only to conserve land but actively improve the environment. We conclude with a set of case studies of existing burial grounds in Needham, Massachusetts; Brooklyn, New York; London; and Hong Kong, explaining how they and their communities have addressed some of the challenges of burial in the 21st century.
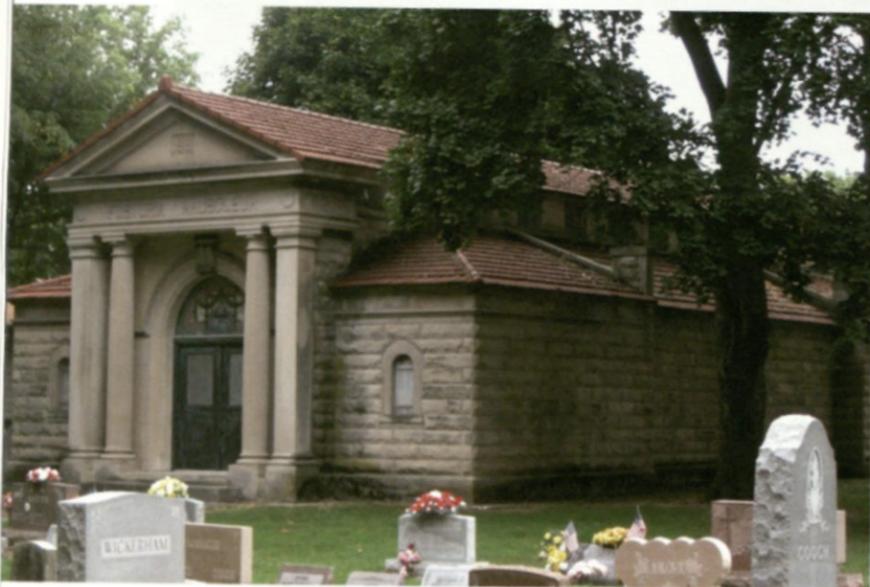
CHAPTER 2

The Death Care Industry

▶ Burial grounds are among the oldest marks humans have left on the earth. At the beginning of *The City in History*, Lewis Mumford reminds us that "soon after one picks up man's trail in the earliest campfire or chipped stone tool one finds evidence of interests and anxieties that have no animal counterpart; in particular, a ceremonious concern for the dead, manifested in their deliberate burial" (1961, 6–7). In North America, burial grounds represent some of the most visible remains of the civilizations that occupied the continent before European contact. The earliest European migrants to arrive in North America established cemeteries as one of the main elements of their communities. Many of these burial grounds still exist and serve as important sites of memory and community history (Sloane 1991).

Figure 2.1. *Mount Auburn cemetery, circa 1914*

Library of Congress Prints and Photographs Division, Stereograph Cards Collection, Underwood & Underwood, publishers, LC-DIG-stereo-1s01856

Before the early 1800s, American cemeteries tended to be small and informal. They were usually managed by churches or particular families, though townships, counties, and cities did maintain "potters' fields"— places designated for burial of the indigent at public expense (Sloane 1991). As the country's economy expanded in the early 19th century, cities absorbed an increasing share of the population and urban populations suffered increasing mortality rates, creating a growing need for space in which to dispose of human remains. In response, a series of design and management innovations transformed American burial grounds.

The earliest of these new cemeteries was Mount Auburn, founded in 1831 on the outskirts of Boston (Figure 2.1). Designed by Henry Dearborn, Jacob Bigelow, and Alexander Wadsworth, Mount Auburn was not only a beautiful landscape but also a refuge, a quasi-public green space accessible to urban residents (Linden-Ward 1989). Distinctly different from the typical urban cemeteries of the day, Mount Auburn's landscape was characterized by its open green space, hilly topography, and lush vegetation. Images of Mount Auburn were widely published, and the formal, picturesque design of the cemetery helped spark a boom in the development of similar cemeteries on the fringes of cities across the country (Sloane

Figure 2.2. *Spring Grove Cemetery, Cincinnati, 1858*

Library of Congress, Prints and Photographs Division

1991). Mount Auburn's design ultimately proved to be a major influence on the development of urban parks and suburbs as well (Bender 1974; Jackson and Vergara 1996; Schuyler 1986; Sloane 1991).

In the mid-1850s, Adolph Strauch, the superintendent of Spring Grove Cemetery in Cincinnati, introduced the second major innovation in the design of American cemeteries by restricting the placement of traditional monument-style gravestones to create an open, unobstructed view of the rolling landscape (Figure 2.2). Strauch's move led to a landscape lawn that also made maintenance much easier and cheaper (Sloane 1991).

In 1913, a third major change in the design and management of American cemeteries arrived when Hubert Eaton took control of Forest Lawn Memorial Park in Glendale, California. Over the next 50 years, drawing both from Stauch's example at Spring Grove and from his own ideas about the visual disruptions that stone monuments create, Eaton transformed Forest Lawn into a cemetery comprising open spaces completely free of monument-style grave markers, creating the country's first modern memorial park (Figure 2.3). Forest Lawn quickly grew into one of the most profitable cemeteries in the country, a result of the efficiency of maintenance that came with the absence of monuments and a highly commercialized grave-selling operation, one in which high-pressure sales tactics helped commodify the process of final disposition for the middle class (McNamara 2002; Sloane 1991).

Cemetery proprietors around the country learned from the innovations developed at Spring Grove and Forest Lawn, particularly the importance of generating markets for their products and satisfying the demands of the rapidly growing suburban middle class for burial spaces that matched their worldly aspirations (McNamara 2002; Rugg 2006; Sloane 1991; Yalom and Yalom 2008). During the first

Figure 2.3. *Forest Lawn Memorial Park, Glendale, California, 2002*

Carlton Basmajian

half of the 20th century, for-profit cemetery owners learned to thrive on self-promotion while being careful to maintain restrictions on the ways cemeteries looked. By combining religion, business acumen, and elaborate decoration, they found ways to be financially successful in an industry that had long operated on narrow profit margins (Llewellyn 1998; Walter 2005).

By the middle of the 20th century, burial in the United States had become a specialized part of a multibillion-dollar death-care industry, employing modern marketing to attract buyers, adopting new technology to streamline operations, developing economies of scale, and forming industry trade groups to promote the interests of cemetery owners in the political arena (Bowman 1959; Mitford 1963; Sanders 2008; Sloane 1991; Walter 2005; Waugh 1948). With the rapid expansion of suburbia in the postwar period, memorial park–style cemeteries appeared along the fringes of every metropolitan area. Most were small, privately owned, and designed to appeal to the growing ranks of middle-class suburban home owners by offering affordable individual plots and guaranteed perpetual care.

Briefly popular in the United States in the mid-19th century, mausoleums—the above-ground structures designed to hold multiple interred bodies—began to be added to existing cemeteries in large

Figure 2.4. Forest Lawn Memorial Park mausoleum, Glendale California, 2012
Carlton Basmajian

numbers in the 1950s (Figure 2.4). They offer a simpler, cheaper, and more compact footprint for embalmed burial than dug graves. Because the mausoleum structures can be designed to blend into both traditional monument and open memorial-park cemeteries, they have proven to be easy additions to almost any existing cemetery (Sloane 1991). In places where cremation remains unpopular for religious or cultural reasons, mausoleums have provided much-needed high-density burial space. They have been used to create extra capacity in existing cemeteries and to reduce the amount of land needed for new cemeteries (Keister 1997). For example, Green-Wood Cemetery in Brooklyn, one of the nation's oldest and most scenic burial grounds, faced dwindling space in the late 20th century. A recently completed mausoleum and columbarium (an above-ground structure designed to hold multiple cinerary urns) added nearly 5,200 burial spaces and 8,000 niches for cremated remains, potentially extending the cemetery's life for another quarter century (Dunlap 2002).

In the 1970s, larger cemetery-holding companies emerged and in the span of barely three decades amassed ownership of significant numbers of burial grounds. As a small handful of corporations grew to own hundreds of cemeteries, mausoleums, and columbaria, the economics of the disposition business changed significantly. While private nonprofit burial grounds, such as those owned by religious organizations, still exist, they no longer represent the most common form of ownership. Rather, the majority of privately held burial grounds are commodity properties, bought, held, and sold for their investment value. By the late 20th century, final disposition had become corporate.

CURRENT NATIONAL TRENDS

With approximately 2.5 million Americans dying every year (Kung, Hoyert, Xu, and Murphy 2008) and the demographic bubble of baby boomers moving into higher-mortality age cohorts over the next three decades, the nation will be forced to confront a significantly greater need for space in which to inter its dead (Frey 2007).

The majority of Americans still choose to be buried. In 2007, 70 percent of deaths in the United States used caskets and were accompanied by some type of ritual or ceremony (National Funeral Directors Association 2007). Of that majority, a large percentage are embalmed, casketed, and interred in a concrete vault buried in the ground. A smaller but still significant percentage of burials come to final rest in mausoleums. A small but growing percentage of Americans choose unembalmed burial, sometimes referred to as green burial (Figure 2.5). While still in its infancy, the movement appears to be gaining in popularity because it promises to reduce the environmental impact of burial (Friend 2005; Warpole 2003). Chapter 4 discusses green burial in more detail.

By far the most common alternative to embalmed interment, however, is cremation. Although an ancient and widespread practice, cremation remained controversial in the United States for many years because it conflicted with prevailing Christian beliefs that the body remained sacred even after death. It emerged as an alternative to burial only in the mid-19th century, and then only for a very small subset of the population (Davies 1996; Prothero 2001; Sloane 1991; Walter 2005). As recently as the 1950s, just 4 percent of Americans chose cremation over burial (American Society of Planning Officials 1950).

Encouraged by increasing acceptance among the general population, cremation began to gain popularity in the 1960s. This trend has continued,

Figure 2.5. A green burial site, Eloise Woods Community Natural Burial Ground, Texas
Larry D. Moore / Creative Commons 3.0

with cremation accounting for final disposition of 15 percent of deaths by 1990, 25 percent by 2000, and 40 percent in 2011. Rates are projected to rise as high as 51 percent by 2025 (Cremation Association of North America 2005; National Funeral Directors Association 2005; Sack 2011; Sanders 2008). The 2009 recession may have given those numbers an added boost, as cremation has come to be seen as an economical alternative to burial (Chapman 2010).

Of course, cremation also leaves remains which must have some ultimate disposition. Of those choosing cremation, 24 percent planned to place their cremains in a cemetery, with the balance expected to request that their cremains be scattered or remain permanently in the possession of family members (Cremation Association of North America 2005). A very small percentage of individuals choose other alternatives, which are described further in Chapter 4.

Variations in Trends

Interment practices vary by region and state. Embalmed burial, either in the ground or in mausoleums, remains the most popular practice in most parts of the United States. Green, or unembalmed, burial remains uncommon enough that any meaningful geographic variability is difficult to gauge. Rates of cremation however, vary widely, likely in relation to the social and cultural acceptability of this practice within different communities.

Table 2.1 provides a recent look at the numbers of cremations and cremation rates in all 50 states. Cremation rates tend to be the highest in western states and the lowest in the South. For example, Nevada, the state with the highest incidence of cremation, has a rate of more than 70 percent, while in Mississippi, the state with the lowest rate, cremation is the preferred method of final interment for just 12 percent of the population. In almost all states, however, cremation rates have increased—in Vermont's case dramatically—since 2005.

Race, ethnicity, religion, and geography all influence cremation rates. In Texas, for example, the percentage of deaths that ended with cremation rose from 7 percent in 1989 to more than 20 percent in 2003. In this state, cremation rates for Asian Americans varied depending on national origin. During this period, South Asians had the highest rate of cremation—55 percent—while other Asian ethnic groups on average choose cremation 35 percent of the time. For whites, the cremation rate was much lower at 16 percent. Latinos and African Americans were even less inclined to choose cremation; only 7 percent and 4 percent, respectively, did so (Texas Department of State Health Services 2012).

This disinclination for cremation may be changing. A national survey commissioned by the International Funeral and Cemetery Association in 2005 suggested that at least 40 percent of whites and Latinos would choose cremation for themselves or family members. But while cremation has become an increasingly popular option among white Protestants, especially since the early 1970s, this has not necessarily been the case for African Americans, whose preference for cremation over burial tends to be much lower than other racial groups. By some measures, only about 20 percent opt for cremation in

State	Number of Deaths, 2009	Number of Cremations, 2009	Cremation Rate, 2009 (%)	Change in Cremation Rate From 2005 (%)
Alabama	46,833	7,249	15.5	+ 6.1
Alaska	3,571	2,129	59.6	+ 2.9
Arizona	46,429	29,275	63.1	+ 4.4
Arkansas	28,426	7,246	25.5	+ 5.8
California	231,764	107,769	46.4	- 4.5
Colorado	31,591	19,589	62.0	+ 6.2
Connecticut	28,143	12,029	42.7	+ 7.8
Delaware	7,498	2,928	39.1	+ 7.0
District of Columbia	6,005	2,135	35.6	- 0.6
Florida	171,321	97,245	56.8	+ 6.0
Georgia	67,402	18,527	27.5	+ 6.8
Hawaii	9,948	6,863	69.0	+ 3.7
Idaho	10,937	5,796	53.0	+ 5.4
Illinois	100,431	33,206	33.1	+ 7.8
Indiana	56,088	13,692	24.4	+ 4.4
Iowa	27,450	7,986	29.1	+ 7.7
Kansas	23,997	8,194	34.2	+ 8.0
Kentucky	40,905	7,131	17.4	+ 5.0
Louisiana	40,450	7,777	19.2	+ 4.4
Maine	12,480	7,862	63.0	+ 9.6
Maryland	43,648	14,465	33.1	+ 5.4
Massachusetts	51,912	18,868	36.4	+ 6.7
Michigan	85,263	38,876	45.6	+ 8.5
Minnesota	37,852	17,775	47.0	+ 8.7
Mississippi	28,081	3,522	12.5	+ 2.9
Missouri	56,148	17,192	30.6	+ 7.4
Montana	8,739	5,664	64.8	+ 5.6
Nebraska	15,075	5,302	35.2	+ 8.8
Nevada	19,868	14,504	73.0	+ 7.9
New Hampshire	10,157	6,049	59.6	+ 7.6
New Jersey	68,902	23,355	33.9	+ 6.3
New Mexico	15,197	8,062	53.1	+ 7.1
New York	145,447	48,423	33.3	+ 8.9
North Carolina	77,883	26,124	33.5	+ 10.9
North Dakota	6,443	1,716	26.6	+ 5.6
Ohio	109,898	36,809	33.5	+ 6.7
Oklahoma	34,689	9,922	28.6	+ 8.4
Oregon	31,623	21,447	67.8	+ 4.0
Pennsylvania	123,924	42,936	34.7	+ 7.4
Rhode Island	9,607	3,417	35.6	+ 5.9
South Carolina	39,669	11,271	28.4	+ 9.1
South Dakota	7,140	1,851	25.9	+ 4.7
Tennessee	58,067	13,270	22.9	+ 12.4
Texas	165,412	49,696	30.0	+ 7.8
Utah	14,611	4,053	27.7	+ 5.7
Vermont	4,985	2,969	59.6	+ 21.0
Virginia	57,980	18,268	31.5	+ 5.7
Washington	48,344	33,658	69.6	+ 5.9
West Virginia	21,025	4,581	21.8	+ 1.2
Wisconsin	45,598	19,636	43.1	+ 8.9

Table 2.1. *Cremation numbers and rates of U.S. states, 2009*
Source: The Cremationist of North America 2011 (Vol. 47, No. 4: 6–21)

lieu of burial, though recent anecdotal evidence suggests that the recession has made cremation more attractive to African Americans (Sack 2011; Wirthlin Worldwide 2005). In contrast, Asian Americans have long chosen cremation at a much higher rate than whites, though as noted above this rate appears to vary by national origin (Prothero 2001, 204; Texas State Department of Health Services 2012). Latinos fall somewhere in between. Recent interment practices among Latinos suggest that many individuals remain partial to burial, but this group appears neither as adverse to cremation as African Americans, nor as embracing of the practice as Asians. As the country's population becomes more diverse along ethnic and religious lines, the popularity of various beliefs about appropriate after-death practices is expected to change.

Cremation rates also vary significantly between urban and rural areas. Broadly, states that are highly urbanized tend to have higher cremation rates, while states that are less urbanized tend to have lower rates. Again, the states with the highest and lowest national rates of cremation—Nevada, a state in which 91 percent of the population lives in urban areas, and Mississippi, where only 48 percent lives in urban areas—are prime examples. Similarly, on a finer geographic scale, counties with the lowest rates of cremation tend to be the smallest and most rural. In Texas, the counties with the highest rates of cremation tended to be within the state's major urban areas and included the core counties in the metropolitan Dallas, Houston, San Antonio, and Austin regions. (See Table 2.2.) Of the 254 counties in Texas, 19 had no cremations in 2009, while cremation rates in 94 counties were below 10 percent. The counties with the lowest rates of cremation were the smallest and least urbanized, and they tended to be clustered in the central and western parts of the state (Texas Department of State Health Services 2012).

Table 2.2. *Texas counties with highest cremation rates, 2003*
Source: Texas Department of State Health Services 2010

County	Deaths	Burials	Cremations	Cremation Rate (%)
Arkansas	263	113	138	52.5
Kerr	622	336	271	43.6
Irion	15	9	6	40.0
Bandera	169	96	66	39.1
Travis	4,085	2,497	1,308	32.0
Comal	699	444	222	31.8
Denton	1,951	1,105	618	31.7
Kendall	264	173	83	31.4
Collin	2,096	1,168	648	30.9
Montgomery	2,260	1,366	687	30.4

Regional differences in after-death practices are influenced by religious affiliation. While reliable data connecting the religious beliefs of the recently deceased to their interment preferences do not exist, there is enough anecdotal evidence to make a few basic generalizations. Among the major religions in the United States, liberal Protestants tend to express the greatest acceptance of cremation. Catholics tend to be less accepting, though after the Vatican relaxed its 80-year ban on cremation in 1963, rates among American Catholics increased markedly (Archdiocese of Milwaukee 2004). Judaism still officially forbids cremation, though evidence does suggest that the number of Jews choosing to be cremated is on the rise (Nathan-Kazis 2012). For Muslims, unembalmed burial is an important component of religious obligation. Islam specifies a set of steps for burial, forbids cremation and embalming, and

discourages the use of a casket (Esposito 2011, 128–29). Most South Asians in the U.S. are Hindus, for whom the preferred method of final disposition is cremation (Alagiakrishnan and Chopra 2001).

Like religious affiliation, ethnic identity has had a strong influence on after-death practices as well as the design of American burial grounds since at least the mid-19th century. Burial practices and cemetery designs among different ethnic groups vary widely, from the ornate density of Jewish cemeteries in the Northeast to the clusters of cedar trees of austere Czech cemeteries in the Great Plains to the simple concrete crosses of Mexican cemeteries in the Southwest (Barber 1993; Halporn 1993; Kiest 1993). The variety of patterns found in historic burial grounds also extends to the present. Modern burial grounds range from highly decorative family mausoleums to small granite monuments flush to the ground to no permanent markers at all.

Aerial view of a Connecticut cemetery
tocs / Creative Commons 2.0

STATE AND FEDERAL OVERSIGHT

What is done with human remains in the United States has long been governed by religion, culture, and wealth. In addition, different levels of government have come to impose guidelines on the physical dimensions of burial grounds, the safe interment of cremains, and the location of cemeteries and crematoriums. And while the days of haphazard church graveyards and potters' fields are past, the rules and regulations governing burial remain fragmented among cities, states, and the federal government.

Local governments tend to rely on a basic and general approach, simply describing the zoning categories in which cemeteries can be built and specifying minimum lot sizes and setbacks. Determining the location of cemeteries is an exclusively local function. Most often burial grounds are included in zoning ordinances as by-right or conditional uses in specified districts. Occasionally they are governed by separate ordinances. Most significantly for planners, the regulation of cemetery development and burial practices that most directly affects land use remains at the local level. These regulations are discussed at length in Chapter 3.

Most states have laws concerning the operation of cemeteries, though they display wide variability in the focus and breadth of their regulations. While some states take a comprehensive approach and others regulate only the essentials, they are most frequently concerned with the long-term financial stability of cemetery corporations and the qualifications of cemetery and crematory operators. Depending on the state, cemetery statutes may regulate the kinds of corollary services cemetery owners can provide, the structure of endowment care trusts to ensure long-term financial solvency, and the size, depth, and materials of graves and urns (Harrington and Krynski 2002; Iowa Cemetery Act 2009; Llewellyn 1998; Sloane 1991).

Most states have a board of funeral services that oversees funeral homes, cemeteries, and crematoriums. Some states also have separate boards to oversee public cemeteries. The scope of powers these boards possess varies from state to state, but in most cases state laws grant a small range of powers to these regulatory authorities, including the authority to adopt or enforce minimum burial standards, including the size of graves, depth of burial, and dimensions of underground concrete vaults; collect data on financial expenditures related to endowment care; and oversee the licensing of cemetery operators.

Federal oversight of cemeteries, crematoriums, and mausoleums remains largely hands-off. Aside from ownership of veterans' cemeteries, it was not until the late 20th century that federal legislation addressing the funeral industry was adopted. In 1984, the Federal Trade Commission (FTC) introduced the Funeral Trade Rule, which governs the way funeral and funeral-related services are priced. Designed to protect consumers from fraudulent behavior by funeral industry representatives and cemetery agents, the rule requires "funeral directors to give [consumers] itemized prices... and also requires funeral directors to give [consumers] other information about their goods and services" to allow price comparisons (FTC 2000). The rule also prohibits funeral service providers from misrepresenting legal requirements for cremation or interment and from requiring the purchase of one service as a precondition for receiving another service. The intent of the rule is to empower consumers who may face these expenditures in moments of crisis. The FTC made minor revisions to the rule in 1994, and it remains focused on disclosure of funeral services and pricing.

CEMETERY OWNERSHIP AND LOCATION

Though individual spaces created by after-death rituals vary widely, burial grounds can be sorted into typologies based on age, location, and ownership (Jackson and Vergara 1996; Rugg 2000; Sloane 1991; Walter 2005). If there is such a thing as a typical American cemetery in the early 21st century, it is of modest size and owned by a religious society or a private for-profit corporation. The most common exceptions are federal military cemeteries and publicly owned historic cemeteries, many of which are closed to new interments.

Public cemeteries still dominate in a few states, but most have a preponderance of private cemeteries, a broad category that includes the religiously and ethnically affiliated. Historically, cemetery ownership in the United States has been a mixed bag, with churches, local governments, private corporations (both for-profit and nonprofit), and the federal government all responsible for building and maintaining cemeteries. Over the 20th century, though, private ownership became more common while the number of publicly owned cemeteries declined, in many places quite significantly (Pattison 1955).

Zelinsky (1994) estimated the number of known, named cemeteries in the United States at more than 100,000, though they were unevenly distributed, ranging from 31 in Hawaii to more than 12,000 in Tennessee. Named cemeteries vary considerably in size. The largest federal cemetery is Arlington National Cemetery in northern Virginia, which covers more than 600 acres and contains 300,000 graves (Figure 2.6). The largest private cemeteries include Spring Grove in Cincinnati (730 acres), Rose Hills in Whittier, California (1,500 acres), Green-Wood in Brooklyn, New York (478 acres and 560,000 graves), and Forest Lawn in Glendale, California (300 acres and more than 250,000 graves). Smaller private and municipal cemeteries covering 5 to 100 acres are far more common. Other abandoned, unnamed, or forgotten cemeteries sometimes come to light when they turn up in the path of new development (Copeland 2000). It is reasonable to assume that these are primarily small family graveyards, potters' fields, and church yards (Paumgarten 2009).

Figure 2.6. Arlington National Cemetery, aerial view
Library of Congress, Prints and Photographs Division collection, 1980–2006, photograph by Carol M. Highsmith

Almost all federally owned cemeteries are related to the military. Historic federal cemeteries, of which the greatest numbers are associated with the Civil War, are usually no longer active and instead serve as public monuments or parks. Most are operated by the National Park Service. Some, like the Vicksburg National Cemetery in Mississippi (part of the larger Vicksburg National Military Park), are themselves major tourist attractions (Figure 2.7). Modern military cemeteries, of which there are 131 managed by the Department of Veterans Affairs (VA), are usually open only to individuals who served active duty or their dependents. Active federal military cemeteries are scattered around the country, and with the number of aging veterans from the Korean and Vietnam wars who are expected to choose interment within a federal cemetery, the VA has planned a handful of new cemeteries to be built on the outskirts of major metropolitan areas (U.S. Department of Veterans Affairs 2009).

Like their federal counterparts, the majority of state-owned cemeteries are military-related burial grounds, and most states maintain at least one active cemetery for residents who are veterans of the Armed Forces, National Guard, or Reserves and their dependent family members. Many states also own cemeteries associated with state-supported schools and colleges, hospitals, prisons, and asylums. These burial grounds tend to be small, scattered, not intensively used, and open only to residents or employees of those institutions.

Figure 2.7. Vicksburg National Cemetery, Mississippi
Father of JGKlein

By far, though, the most typical form of public ownership is municipal. In the U.S., city, county, or township ownership of burial grounds is quite common, especially in the Midwest and Great Plains regions. This includes historic 18th- and 19th-century cemeteries no longer in use, as well as modern cemeteries that are the final resting places of most community residents. Community cemeteries are supported by taxes collected by local governments and proceeds from the sale of plots.

Since the early 19th century, cemeteries have tended to be located either adjacent to religious institutions or toward the outskirts of towns. This is where they are still found in many small towns. In larger cities, though, cemeteries that were at the edge of town at the time they were laid out have often been surrounded by newer development, and burial in small urban churchyards became impractical long ago. As American cities have grown outward and urbanized cores have expanded, older cemeteries, especially those dating to the 19th century, have come to be much closer to the middle of town, in some cases occupying land in the densest parts of cities. Not surprisingly, these cemeteries tend to be the most historically significant, quite often the most valued, and in many cases the most in demand. Yet hemmed in by urban development, they also face the most challenging prospects for physical expansion. Perhaps the best examples of large, active cemeteries close to the urban core include Mount Auburn in Cambridge, Laurel Hill

Crematory, Green-Wood Cemetery, Brooklyn, New York, 1955

Library of Congress, Prints and Photographs Division, Gottscho-Schleisner Collection

in Philadelphia, and Green-Wood in Brooklyn. A discussion of the issues surrounding Green-Wood, and how the managers have attempted to extend the cemetery's active life, is included in Chapter 5.

CREMATORIUM OWNERSHIP AND LOCATION

In the 19th century, cremation was often handled by nonprofit cremation societies. By the turn of the 20th century, however, for-profit cremation businesses had replaced many of these organizations, a trend that continued over the next hundred years. As cremation became increasingly common in the middle of the 20th century, cemetery owners began to invest in crematories, and by the 1960s they owned a significant majority of these facilities.

Latney's Funeral Home, established in 1938, near intersection of Randolph Street NW, Washington, D.C.

Library of Congress, Prints & Photographs Division, George F. Landegger Collection of District of Columbia Photographs in Carol M. Highsmith's America

At present, cemeteries and crematoriums are still often under the same ownership, and a large number of crematoriums are located within cemeteries. Funeral home owners, too, have increasingly invested in crematoriums. A few for-profit facilities remain independently owned and operated, while some large public hospitals operate crematoriums for the indigent, and a dwindling number of cremation societies still provide services to their members. While cremation in the late 19th century was seen as a way to reduce potential environmental hazards associated with burial, by the late 20th century the most important perceived benefits of cremation had become economy and efficiency, preservation of land and natural resources, and the minimization of human impact (Prothero 2001).

FUNERAL HOME OWNERSHIP AND LOCATION

Though of only peripheral interest to most planners, funeral homes are important parts of the death-care industry. Almost all funeral homes in the United States are (and always have been) privately owned and operated for profit, though a very small percentage are owned by religious organizations and benevolent societies.

Even more than cemeteries, funeral homes have long maintained strong ethnic and religious affiliations. Many of these date from the 19th century, reflecting both Jim Crow racial segregation in the South and the lingering influence of European immigration in the Northeast and Midwest on the cultural practices associated with sending off the dead. Ownership of a funeral home and burial ground by the same individual or corporation appears to be increasingly common. Often centrally located in commercial districts, funeral homes act as anchor institutions in many communities, and funeral directors can play important roles in helping individuals and families determine final interment decisions.

CONCLUSION

The history of final interment in the United States reveals a wide range of practices that have been constrained by relatively few regulations. Though states have established oversight of basic burial practices, and the federal government regulates the selling of funeral services, the bulk of the laws that deal with interment operate at the local level. County, city, and township governments are the gatekeepers of land use and zoning, and as such retain the public power that most directly influences the location of burial facilities. Yet local governments vary widely in how they use zoning to regulate cemeteries. Though burial grounds are often considered conditional uses, approved or rejected based on perceived compatibility with the surrounding area, some jurisdictions strictly limit the location of cemeteries while others permit them almost everywhere (Mandelker 1997). The next chapter examines some of the ways in which local governments address the land-use issues burial presents.

Planning and Regulating Cemeteries

How should planners plan for and regulate places of burial? The process of planning and regulating burial grounds starts with treating them like any other land use and disregarding for the moment the social and cultural sanctities that are often attached to them. As with many planning processes, planning for cemeteries should begin with an inventory of existing facilities, followed by the development of ideals, goals, and objectives for these facilities; identification of possible plans of action; crafting of implementation strategies, including regulations; and adoption and enaction of these plans. Planners should also monitor and assess progress on and achievement of the plan's objectives and action items.

Cemeteries as land use—Woodbine and Green Mountain cemeteries near Ranier, Oregon
Wenewombat / Creative Commons 3.0

INVENTORYING CAPACITY

Planning for cemeteries starts with an inventory of all the cemeteries in the community (e.g., Arizona State Historic Preservation Office n.d.). There are, in general, six cemetery types: (1) religious cemeteries associated with churches; (2) public cemeteries owned by the government and open to the public; (3) private cemeteries owned by organizations, the military, or families; (4) ethnic cemeteries owned and operated to support specific religions (these can also fit in the other categories as well); (5) mass graves, often for victims of a disaster; and (6) commercial for-profit, nondenominational cemeteries. Most communities contain more than one type.

The initial inventory, augmented by trend information which will aid in forecasting future land-use needs, should include the following information:

- name
- ownership of the cemetery (for-profit, nonprofit, corporate organization, tribal, religious affiliation)
- contact information of the owner, record keeper, burial authority
- age of the facility and a history of burials from the starting date, including the number of burials per year
- location, either for a single burial site or of the corners of a parcel with multiple burials, including street address, latitude and longitude, Geographic Information System (GPS) and Universal Transverse Mercator (UTM) data
- tax parcel number
- tax-exempt status
- description of the facility including
  - number of graves (actual or approximate)
  - description of grave markers (stone, wood, handmade, obelisk, military, concrete, zinc/white bronze, mausoleums, statuary, other)
  - additional features
  - condition of the premises (well-maintained, poorly maintained, soil disturbed, disturbed markers, vandalized, overgrown, gravesites readily identifiable or not readily identifiable, other conditions)
- photographs
- maps and plans
- land area, including metes and bounds description if available
- land title information
- capacity remaining; opportunities for physical expansion
  - horizontally by acquisition
  - vertically (deeper, stacked burials; structures above ground)
  - intensification (more cremation, fewer casket burials, addition or expansion of mausoleums or columbaria)

There are, however, several considerations that can make compiling a cemetery inventory more challenging than developing other kinds of resource inventories.

Getting Data

Local planners might start compiling their inventories with Internet searches, but that should be just a first step, particularly if there is reason to believe that there are informal or "lost" cemeteries within a municipality. More intensive strategies for finding lost cemeteries include reviewing death records to determine if places of burial are identified; contacting local, county, and state historical societies; and reaching out to local religious institutions.

Equally important in developing an inventory is canvassing the community directly for information. Elderly residents can provide valuable information about old burial grounds, especially the long-forgotten small family plots that dot the countryside. Prominent postings on local government websites asking for information leading to the identification of places of burial may be helpful in bringing in leads on sites that are otherwise unrecorded. Planners might consider setting up a dedicated website or blog for exchanging burial ground information. Sometimes even local high schools and colleges can help by developing course assignments for history and geography classes in which students research the local history of burials. This is real detective work, and for planners to complete a comprehensive inventory of burial sites it is important to establish networks of people who might be able to provide information. Planners must learn to explore their communities to find abandoned or long-forgotten burial grounds.

Using GIS to Survey and Manage Cemeteries

One of the most significant problems in inventorying burial sites is the lack of good recordkeeping. It is important that planners learn to properly archive cemetery information using Geographic Information Systems (GIS). Not only will this information be useful in planning for future cemeteries, but it can permanently record the location of otherwise unmarked gravesites. As noted later in Chapter 4, the trend toward green burials with unmarked gravesites suggests certain challenges in finding gravesites in the future. Accurate GIS information makes finding gravesites possible, even where there are no obvious markers.

Commercial software to create a cemetery information system is available. These programs usually include several databases for sales, location of burial sites, interments, space availability, and mapping, but the cost can be prohibitive for many small communities (NewCom Technologies 2008). This is why a "do-it-yourself" program in Dodge County, Minnesota, is of particular interest. A retired information technology manager there has developed a process using community volunteers to convert paper records into a digital database that can then be used in a GIS environment (Figure 3.1).

Figure 3.1. Using GIS to inventory and locate gravesites
Dave Deschene

The Dodge County process begins with the creation of electronic versions of the paper maps, plans, and other records for the cemeteries. Older cemeteries usually have some addressing scheme, such as block-row-plot, that is added during this first stage. Exact burial locations are then verified by walking the cemetery, recording information from gravestone markers, and placing temporary marker flags along lot boundaries. That information is entered on a spreadsheet and checked against the paper records. The database information is merged with the burial-space attribute table in the GIS so that it then can be printed using the free TatukGIS viewer (Deschene 2011).

Forgotten gravesites near Taughannock Falls, New York
Lisa Foster

Lost and Forgotten Places of Burial

The most difficult problem for local planners in developing an accurate burial inventory is finding forgotten burial grounds, which are sometimes not even known to those who live on the land where remains are interred. To say that there is a significant problem of lost places of burial is to understate the impact of recent revelations of lost bodies and desecrated grave sites. Americans have a long history of burying their dead on their own properties, and, over time in a highly mobile society, these gravesites have been neglected, forgotten, and sometimes damaged—accidently or intentionally.

Over the years, countless family burial plots across the country have simply been forgotten, only to be suddenly rediscovered. Stumbling over lost burial sites is nothing new. An article in the (Brattleboro) *Vermont Phoenix* on May 27, 1887, entitled "An Unexpected Find," tells the story of construction workers who, after excavating for a foundation, came across the skeletal remains of three individuals (Brattleboro History n.d.). On an even broader scale, an entire church site in England was itself lost and rediscovered only recently underneath a parking lot. This story made global headlines as the remains of England's King Richard III were found under the asphalt, buried beneath the church (Pappas 2012; BBC 2013).

Marginalized Populations

Poor people, members of racial and ethnic minorities, and other marginalized groups have been more likely to have their burial places desecrated or graves simply lost. Numerous African American gravesites have been lost or forgotten, often a result of malfeasance by callous public officials, land developers, or negligent caretakers (Black Hope Cemetery 2011; Minority News 2012).

In New York City, a colonial-era burial ground for African Americans became the site of a Metropolitan Transit Authority (MTA) bus depot (Resto-Montero 2010). The quarter-acre site was part of the original Elmendorf Reformed Church and serves as an important historical connection to the slaves who built the church at a time when Manhattan was largely undeveloped. The Harlem African Burial Ground Task Force was formed to restore and memorialize the burial ground (Harlem African Burial Ground n.d). As a result of the advocacy of the task force and others, the MTA agreed to search for remains in the burial ground before going forward with plans to rebuild the depot in 2015 (Resto-Montero 2011).

▶ REDISCOVERING THE CEMETERIES OF MARGINALIZED POPULATIONS

The National Endowment for the Humanities, the Virginia Foundation for the Humanities, the Carter G. Woodson Institute for African-American and African Studies at the University of Virginia, and Sweet Briar College have teamed up on a project to identify and preserve African-American cemeteries in Albemarle and Amherst counties in Virginia (Rainville 2011). One hundred and fifty years ago the populations of these counties were about 50 percent African American, but because of outmigration that number has dwindled to just 10 to 15 percent. This outmigration has resulted in the loss of much family history and heritage. The project endeavors to reconstruct that cultural history.

Gathering and preserving the data begins with documenting burial sites, family cemeteries, and church graveyards through a broad public-outreach strategy soliciting information from many individuals. Data includes the location of the cemeteries, the number of burials, who is buried there, and any information about the individuals and their extended families. A project website (www2.vcdh.virginia.edu/cem/index.shtml) with many readily accessible links provides downloadable PDF forms for documenting this information.

One feature of the project is connecting people with a wide variety of preservation resources. The website provides information on African American cemeteries, including their classifications, landscape features, gravestone variability, epitaphs and inscriptions, mortuary practices, and other resources. As is the case with many similar projects supporting cemetery preservation, the website offers an extensive section on locating cemeteries. Of particular note is information on self-guided walking tours. In addition, a person-search function enables searches by name, by the decade in which the individual died, and within any of 40 named cemeteries. ◀

▶ COMMUNITY INVOLVEMENT IN INVENTORYING LOST AND FORGOTTEN BURIAL SITES

One cemetery in danger of being forgotten was the small burial ground on the Woodlands site in New Westminster, British Columbia (de Courcy 2011a). For a little over a century, the 64-acre site had held a psychiatric hospital, first developed in 1876 as a lunatic asylum. In 1897 it became The Provincial Hospital for the Insane, and in 1950 it was repurposed as the Woodlands School for the mentally handicapped until it was closed in 1996 (de Courcy 2011b). Thereafter, the site was redeveloped for private residential use with upscale condominiums and townhouses.

The asylum had a 2.2-acre cemetery, which opened in 1920 in a secluded area of the site. As at many similar facilities for the mentally handicapped in the 19th and early 20th centuries, some residents had been abused and mistreated; the cemetery is their final resting place. It closed as a burial site in 1958. More than 3,000 grave markers of institutionalized persons who died there were removed in 1977.

In 2003, a local artist, Michael de Courcy, began a project chronicling the history of the cemetery at Woodlands.

As an artist, my interest in the former cemetery has been driven by what I perceived as a great injustice served upon those who were buried there as their last vestiges of notoriety, the grave markers were unceremoniously removed and disposed of. This exhibition/archive . . . has given me the opportunity firstly to examine, interpret and record the former cemetery's complex history and then, through remapping and global positioning technology, return the cemetery at Woodlands to its original function. (de Courcy 2011a)

De Courcy has assembled a vast archive of information on his website and has left the door open for people to post additional comments. He has identified by name the residents buried there and digitized the location of the now-unmarked graves. In 2006, the cemetery was rededicated as a memorial garden. ◀

The federal government has adopted legislation to provide enhanced legal protection for Native American graves and burial grounds. The Native American Graves and Repatriation Act of 1990 was enacted "to address the rights of lineal descendants, Indian tribes, and Native Hawaiian organizations to Native American cultural items, including human remains, funerary objects, sacred objects, and objects of cultural patrimony" (National Park Service 1990). Under the law, the Secretary of the Interior publishes notices to museums, creates and maintains databases, makes grants to assist museums and native groups, and levies civil penalties against museums for violations of the act. Other duties required by the law include the provision of technical assistance and staff support to the review committee, an annual report to Congress, and the promulgation of implementing regulations.

Analogous state burial laws fill in where the Native American Graves Protection and Repatriation Act leaves off. An indispensable resource for researching state-level laws is the State Burial Laws Project at American University Washington College of Law (www.wcl.american.edu/burial/), which compiles state laws and tracks changes to them. The State Burial Laws Project is a student-run endeavor with direct links to the majority of the states seeking "to assist the public by providing a centralized source for researching various state laws dealing with burials" (American University 2012). The chief objective of the project is to direct website visitors to summaries of relevant state legislation.

The students involved in the project compile information addressing a wide variety of issues ranging from how states have dealt with Native American remains and cultural burial objects to the state laws protecting burial grounds and imposing criminal sanctions for hate crimes. The State Burial Laws Project operates in partnership with Westlaw, an online legal research service, to maintain currency in the information provided. Those using the website may search for specific information by state or they may explore the data provided to determine how many states address a specific issue.

VISIONING AND GOAL SETTING

Planners describe the articulation of ideals, goals, and objectives as "visioning." This process starts with the global and subjective and moves to the narrow and objective. Ideals are aspirational: they are rarely fully achievable and not readily measurable. An ideal when planning for the dead might be "to provide for sustainable, orderly, respectful, and culturally appropriate final arrangements for the dead."

Rural cemetery in Fischer, Illinois
edcrowle / Creative Commons 2.0

Goals begin to circumscribe the vision. A goal in planning for the dead might be "to provide sufficient burial sites to meet the needs of the current and projected population of our town through 2050 and to reserve sufficient additional land area to meet burial needs through 2100."

Finally, plans need to be grounded in measurable objectives. With regard to local government planning for burials, goals in a smaller community might include the following:

- to provide burial plots for casketed remains and cremated remains each year through 2050 in accordance with a designated schedule

- to amend current zoning regulations to provide that new cemeteries and existing cemeteries with additional interments provide adequate evidence of sufficient, secured capital reserves to guarantee the perpetual maintenance of the facilities

- to identify and acquire a specified amount of additional land within the municipal boundaries or in areas to be annexed to meet the needs of the community from 2050 through 2100

The results of the visioning process may end up as a stand-alone master plan for burial grounds or as a section of a community's comprehensive plan. In larger communities, where land-use constraints and population demographics indicate burial issues will likely become significant in the future, a stand-alone plan offers the most complete statement of goals and objectives. It provides space for greater depth of analysis of existing conditions and parameters and provides a forum for a diverse community to come together to strategize how goals will be accomplished. In smaller communities, where constraints on space are typically less intense and demographic issues less complicated, it might be more appropriate to include burial goals as a separate chapter of the local comprehensive plan. Putting burial into its own chapter avoids confusing the issue with regular land-use or infrastructure needs and allows the preferences of the population to be integrated into the community's overall strategy for managing its future. In either case, whether the final product is a separate burial plan or a section of a comprehensive plan, the process of visioning, goal setting, and identifying objectives remains the same.

CATEGORIZING USE: STANDARDS, POLICIES, AND INCENTIVES

Ideally, municipalities should address cemeteries and other places of burial in their comprehensive plans. However, comprehensive plans that have explicit ideals, goals, and objectives for cemeteries and burials are hard to find. When cemeteries are addressed within a comprehensive plan, they are often conjoined with or subsumed within other, more traditional land-use elements, such as open space. As such, it may be most practical and intuitive to for planners to characterize cemeteries and places of burial as special land uses that are part of the generic category of "open space"—but they must recognize that cemeteries, like every other element of the open-space system, have specific attributes that will affect their use. Planners should identify what functionalities the community expects of cemeteries and other places of burial and explore whether these sites should be preserved as locations for solemn memorials only, or whether they can provide other uses, including passive green space (Figure 3.2, page 28).

The Davis Cemetery District in Davis, California, adopted a master plan for the Davis Cemetery District in 2005, which the trustees describe as a visioning plan.

In the introduction to the plan, Valente Dolcini, chair of the Davis Cemetery District Board of Trustees, notes, "The Trustees envisioned a long-range plan that would include various projects such as gates, road extensions, significant tree plantings, a columbarium, and a gathering shelter as well as a program to acquire and/or commission works of art. In addition, the Trustees expressed a desire to connect the cemetery with the community of Davis, develop a deeper horticultural interest, and highlight the historical aspects of the community. The goal is a gradual transformation of the cemetery as a natural habitat and center of local history, celebrating the diverse cultural heritage of the people of Davis" (Indigo / Hammond & Playle Architects 2005, "From the Board of Trustees").

Jonathan Hammond, the architect hired to create the plan, notes in his introduction, "Central to our design concept has been the importance of creating a flexible landscape that encourages individuals and their loved ones to express their memories and spiritual aspirations. This expression gives meaning to the space, increasing the richness and resonance of the grounds as a whole. A landscape matrix that weaves native California oak woodlands with softening turf-grass, flowering plants, and wetlands, pays homage to our natural environment as well as the diverse cultural origins of our community. Architectural elements such as the proposed columbarium and gathering shelter will increase the functionality and capacity of the cemetery while enhancing its timeless beauty and healing qualities."

Hammond's introduction continues by explaining, "Part and parcel to enhancing these healing qualities has been the formulation of a design that balances human comfort with ecological sustainability. Acting as thoroughfares for walking and repose, serpentine ribbons of turf interlock with peninsulas of unirrigated, unmown native plantings. This means that approximately 70% of the 'new' cemetery doubles as wildlife refuge. In addition to climate-appropriate landscaping will be increased options for sustainable interment. Not only will the proposed columbarium increase the capacity of the cemetery, but the option of 'green burial' will be available for plot holders who wish to be buried without vaults, caskets, or embalming chemicals" (Indigo / Hammond & Playle Architects 2005, "From the Architect"). ◀

The allocation of land uses is a zero-sum game. Cemeteries are just like any other land use in that they require space. Yet some people believe that cemeteries are not acceptable locations for uses associated with generic open space; moreover, cemeteries can be seen as undesirable neighbors, making other areas and uses undesirable by association. That belief seemed to come into play in changes suggested for the comprehensive plan of the Town of Southwest Ranches, Florida, following a zoning amendment to allow cemeteries in one of the town's agricultural districts.

The town council adopted an ordinance amending the text of the unified land development code to allow cemetery uses within certain lands zoned Agricultural Estate District. The comprehensive plan permitted cemeteries as an open space use in almost all districts within the town, and the rationale for the zoning amendment was that "[t]he Comprehensive Plan authorizes cemetery use within the Agricultural land use plan category as an open space use" (Southwest Ranches 2011). In response, the Comprehensive Plan Advisory Board (CPAB) reviewed the list of permitted recreation and open space uses in the comprehensive plan and recommended that cemeteries be limited to land designated Agricultural on the future land-use map—and allowed on at most only five percent of those lands—as it felt that cemeteries were a "community facilities" use not in keeping with the intent of recreation and open space in the town (Southwest Ranches 2012). In contrast, New York City classifies cemeteries as "open space and recreation," and the Department of City Planning reports that "more than one-quarter of the city's lot area is occupied by public parks, playgrounds and nature preserves, cemeteries, amusement areas, beaches, stadiums and golf courses" (New York City Department of City Planning 2012).

Manchester, New Hampshire, integrates cemetery planning with its parks and recreation planning through an omnibus Parks, Recreation & Cemeteries Commission. The planning and implementation process is set out in the city's parks and recreation master plan update (Manchester 2006). The plan is careful to define existing cemeteries as part of the overall system and includes proposals such as connecting cemeteries with parks and other open spaces. It may prove most effective to treat all types of open space, including cemeteries and other special sites such as closed and reclaimed landfills, on equal terms with public parks.

The Town of Searsmont, Maine, 39 square miles in size and home to about 1,200 people, is incorporating express policies and strategies for cemeteries into its comprehensive plan. The September 2012 draft proposes this historic preservation strategy: "Continue to map cemeteries and maintain them," which it reports as "on-going" and under the responsibility of the Cemetery Committee. It also includes the following three strategies within its Public Facilities Plan:

- PF-10. Continue to inventory markers and update maps of each cemetery [to be completed in 2015 by the Cemetery Committee]
- PF-11. Develop a capital plan for marker repair [completed in 2013 by the Cemetery Committee]
- PF-12. Regularly review and update the Cemetery Operations Manual [an on-going process by the Cemetery Committee] (Searsmont 2012)

In considering cemeteries in their own municipalities, planners might create a table or matrix with types of open space as rows (public park, baseball fields, wetland preserve, etc.) and the contributing attributes as columns (active recreation, hiking, picnicking, etc.). They can then use this tool to help determine where cemeteries and other places of burial have the greatest potential to contribute to existing open space plans and to overall connectivity.

ZONING AND LAND USE

Local governments must be prepared to orchestrate a variety of regulatory, taxation, and investment strategies, and to manage the incentives and disincentives that result, to enable the expansion of existing cemeteries or the creation of new cemeteries in conjunction with changes to the long-range comprehensive plan. Implementation of the plan typically relies on zoning as the principal tool for controlling land use.

Zoning and other types of public regulation are not the only ways land uses are controlled, however. First and foremost comes the market. If land prices are such that cemeteries are not economically feasible, developers will not be interested in such projects unless the market is manipulated by outside forces. Second, planners must consider private land-use restrictions which may negate permissive zoning. Private covenants may limit or prohibit cemeteries; for example, one private West Virginia community limits cemeteries to sites of five acres or more on sites accessed by collector or arterial streets (Glade Springs Village 2001). Third, the tax structures at the federal, state, and local levels all affect the economics of cemetery development and operations. Most private cemeteries are owned by nonprofits and do not pay real property taxes, though they may pay taxes on the services

they provide. For-profit cemetery operators may be induced to undertake development and expansion plans when provided with tax abatements or other real-property preferential tax concessions. Fourth, as with any land use, public investment, including investment in infrastructure, can dramatically affect cemeteries. If a local government wants to stimulate the creation, development, and expansion of cemeteries, it could provide road and utility infrastructure to a site, purchase and sell a site at a discount, assemble land by eminent domain, or purchase land and become the developer and operator.

One potential land-use approach for planning for future burial grounds involves temporal zoning. In communities experiencing population growth and perhaps expanding their physical areas through annexation, forecasted needs for burial space may reveal a need for additional land area (Coutts, Basmajian, and Chapin 2011). In such instances, the reserved space for future burials might be dedicated to other uses in the interim before the area is needed for expansion. If the comprehensive plan and implementing regulations, for example, were to require densification and infilling of existing cemeteries before expansion could occur in the reserve areas, those reserve areas could be put to use for active recreation and outdoor entertainment without conflicting with the need to protect the land for future use as burial grounds.

In such a temporal zoning scenario, a community plan might identify a private nonprofit cemetery, such as one run by a religious organization, for expansion into presently undeveloped areas. The municipality could acquire from the religious organization a long-term lease or easement on the expansion area to construct and operate athletic fields during the period when it will not be needed. In this way, a community can protect the long-term expansion needs of new or existing cemeteries while realizing value from land that might otherwise lie fallow. A real-life example of this situation is in Portland, Maine, where the expansion area for Evergreen Cemetery is in temporary use as a community garden and fruit-tree orchard. Similarly, Abney Park Cemetery in the London Borough of Hackney originated as a park before becoming a cemetery.

Even uses that might seem permanent may be possible under temporal zoning in cemetery expansion areas. Consider drive-in theaters or even big-box retail stores, which seem to have useful lives of 20 years or so and are often more cheaply demolished than repurposed (Berke 2012; Leavenworth 2012). Many buildings could be designed and built for relatively short life spans and then razed when the cemetery needs the land. But careful long-term planning is required for such a temporal scheme to work. An expansion area might be permitted for commercial development with restrictions built into the conveyancing terms and zoning approval to require the removal of physical improvements when the expansion area is required for the cemetery use.

Temporary use of cemetery expansion areas for a predetermined number of years could also generate funds to bolster capital reserves for the sustainable maintenance of the cemeteries. Gate of Heaven Cemetery in East Hanover, New Jersey, is such a case. The cemetery entered into a deal with Borrego Solar where 1,008 solar panels were installed in a currently undeveloped section of the cemetery grounds at no cost to the cemetery to offset its electricity use. Borrego Solar will recover its investment by charging the cemetery a few cents more than the cost per kilowatt hour to produce the electricity, and the energy costs will still be substantially less than what it would otherwise cost the cemetery to purchase power from the electric company. Much of this electricity, equal to that consumed by about 50 homes, is used to heat and cool the cemetery's mausoleum. Once the project is completed, an estimated 57 percent of the mausoleum's electricity will come from the solar array, enough to save the cemetery's owners hundreds of thousands of dollars over the coming decade (Goldberg 2012).

One of the significant benefits of this solar project is that it did not require any public subsidy; the entire project was financed privately. However, there is a role for government to play in finding interim uses for lands reserved for future cemetery expansion, in developing additional revenue for support of public cemeteries, and in promoting green energy. A federal and state government project, funded at a cost of $170,000, involved the installation of a 30 kilowatt-hour solar array at the Southern Arizona Veterans Memorial Cemetery operated by the Arizona Department of Veterans' Services. The installation is saving the cemetery $1,400 to $1,500 per month in electricity costs (Hess 2012).

Even when the land best suited for a future cemetery expansion has already been developed, opportunities may still exist to negotiate a plan that allows a future change in use. For example, the municipality can approach a property owner for a voluntary sale of a parcel, or wait and buy the property when it comes on the open market. Negotiating and acquiring a "right of first refusal" can ensure that the property does not get sold to another private owner before the municipality has an opportunity for purchase. For example, suppose that a community has a good cemetery in an ideal location, but build-out appears likely in another decade or two and the site offers little opportunity for intensification. Abutting the cemetery is a 10-lot subdivision of single-family homes built in the 1960s that appears to be the best place for a future expansion because of its location and land composition. One possible solution might be for the cemetery owner to negotiate the voluntary purchase of those homes with the right of the homeowners to remain in them for a predetermined number of years until the land is needed for the cemetery. If there were holdouts, this could be an appropriate situation in which to consider the use of the eminent domain power.

Typical Provisions in Zoning and Land Use Regulations

Most local governments rely on a basic approach to burial ground regulations. Cemeteries are included in the zoning ordinance, usually listed as permissable uses in certain zoning districts, and like any other use they are subject to minimum lot sizes and setbacks. Some zoning regulations start with a definitive statement of purpose, often in a section called "Title, Authority, Purpose." Cemetery regulations are occasionally included here as well.

A few communities have special stand-alone ordinances governing burial grounds. Presque

A CEMETERY ZONING WISH LIST

From the International Cemetery, Cremation and Funeral Association's model guidelines for zoning and related construction standards for cemeteries (ICCFA1998b):

BACKGROUND

Zoning ordinances are developed and enforced under the local jurisdiction of cities, counties, towns, and villages. As a result, zoning requirements for cemetery usage can vary significantly from one local jurisdiction to another and courts will generally enforce such regulations unless they are clearly unreasonable, arbitrary, or capricious.

A number of zoning ordinances do not consider the diverse functions of cemetery acreage for mausoleum, crematory, flower shop, retail monument company, columbarium, mortuary, or chapel facilities. As a result, land dedicated and zoned for cemetery uses should be granted permits for clearly related functions such as the inurnment of cremated remains or the entombment of casketed human remains in a mausoleum crypt. Some zoning ordinances consider mausoleum usage separate and distinct from cemetery usage, requiring a special use permit or approval as a nonconforming use in order to proceed with construction. In addition, many jurisdictions have not enacted building standards for cemetery-related structures or inappropriately extend to mausoleums construction standards developed for other types of buildings.

PRINCIPLES

1. Zoning ordinances regulating cemetery development should be geared, as a matter of policy, to maximize the efficient use of acreage for the interment of human remains and related services. Cemetery construction approval should not be unreasonably withheld where the local population demographics indicate the need for a cemetery or where the resulting construction will stimulate competition among existing cemeteries in the area and provide purchasers with a wider variety of options for making their plans for final disposition.

2. Cemetery zoning ordinances should permit all types of cemetery-related land usages. Also, public occupancy standards, such as parking, fire sprinklers, and rest room facilities, should not apply to structures, such as a mausoleum or a columbarium.

3. Mausoleum and columbarium construction should be encouraged in order to maximize the use of interment acreage. Zoning ordinances should unambiguously state that mausoleum and columbarium usage is consistent with cemetery usage. Zoning ordinances should not require special use or nonconforming use permits for mausoleum construction and other cemetery-related structures on acreage dedicated for cemetery operation.

4. Construction standards should be consistent with the purpose and uses of the particular structure. For example, mausoleum construction standards should include appropriate drainage and venting requirements for mausoleum crypts. Adapting construction standards developed for other types of structures should be avoided because such standards tend to address issues irrelevant to mausoleum construction and ignore issues of special concern to the cemetery authority and its purchasers.

Isle Township, Maine, for example, has a zoning ordinance but addresses cemeteries in a separate regulatory document. It offers this statement of purpose for the separate ordinance: "to protect the public health, safety, and general welfare by establishing regulations relating to the operation, control and management of cemeteries owned by the Township" (Presque Isle n.d.). The ordinance addresses the reservation of cemetery plots by current township property owners, grave-opening fees, design standards for markers and memorials, interment regulations, and standards for maintenance and perpetual care.

The key to effective and defensible regulation is often found in the definitions of terms. Burial grounds should be carefully defined so that a range of disposition practices appropriate to the community can be legally included. This means that some communities may define burial grounds to include multiple types of disposition, while others would choose to be more restrictive. While there is no one perfect definition, there are many good examples. The wide range of possible definitions includes the following:

> *Cemetery:* Land used or intended to be used for the burial of one or more dead human bodies or cremated remains thereof, including columbariums, crematories, mausoleums and mortuaries when operated in conjunction with and within the boundary of such cemetery. (San Diego County 2013, Sec. 1110)

> *Cemetery:* A place used to inter the remains of human dead. A cemetery may include a burial park for earth interments, a mausoleum for vault or crypt interments, a columbarium for cinerary interments, or a combination of such. A cemetery may include a funeral home, or facilities for cremation, or both if such home or facility are located and operated completely within the boundaries of the cemetery and accessory to the cemetery. (Murfreesboro 2013, Sec. 2)

Figure 3.3. Methodist church and cemetery, Loom, West Virginia
Justin A. Wilcox / Creative Commons 3.0

A community might also broaden its definitions to include additional aspects of final disposition, as in this use-oriented definition from Kalamazoo, Michigan:

> *Funeral and Interment Service:* Provision of services involving the care, preparation or disposition of the dead. The following are funeral and interment services use types:.

> *a) Cemeteries and Mausoleums:* A parcel of land designated to be used for the burial of human remains or stroage of cremated remains of the dead, includ[ing] columbaria, crematories, mausoleums and mortuaries, if operated in connection with, and within the boundaries of such cemetery.

> *b) Cremating:* Crematory services involving the purification and reduction of the bodies by fire. Typical uses include crematories and crematoriums.

> *c) Funeral Home:* Undertaking services such as preparing the dead for burial and arranging and managing funerals. Typical uses include funeral homes and mortuaries. (2011, Sec. 12.3)

The categorization of this use often influences how communities treat cemeteries both procedurally and substantively, including the extent to which they apply discretionary decision-making. In some places, cemeteries are allowed as accessory uses to religious facilities such as churches, synagogues, or mosques (Figure 3.3). The zoning ordinance in Fayette

County, Georgia, for instance, explicitly permits cemeteries as accessory uses to churches and other places of worship:

> Uses and/or structures incidental to a church shall be limited to: a private school, parsonage, gymnasium, pool, playground, tot lot, outdoor athletic facility, child care facility, adult day care facility, administration, human cemetery (provided that all requirements for a Cemetery herein are met) . . . provided all buildings and use areas meet the minimum setback and buffer requirements. (Sec. 7-1.B.13.e)

Cemeteries can also be regulated according to community needs. Such regulation often allows burial grounds to be located in just about any zoning category, provided the public benefit outweighs the potential impact of the use. One example of this form of regulation is found in the San Diego County zoning ordinance (emphasis added):

MAJOR IMPACT SERVICES AND UTILITIES

The Major Impact Services and Utilities use type refers to public or private services and utilities which have substantial impact. Such uses may be conditionally permitted in any zone when the public interest supersedes the usual limitations placed on land use and transcends the usual restraints of zoning for reasons of necessary location and community wide interest. Typical places or uses are schools, sanitary landfills, public and private airports, public park/playground/recreational areas (other than public passive park/recreational areas), hospitals, psychiatric facilities, *cemeteries*, nursing homes, detention and correction institutions, trade schools (with outdoor training facilities) or security, law enforcement, military, paramilitary type training facilities, or field medical training uses. (Sec. 1350)

Some communities use cemeteries to sidestep obstacles to adding permanent open space and to expand natural infrastructure without land acquisition. The City of Baltimore's zoning ordinance allows existing public and private cemeteries of any design to be added to a floating special zoning district intended to "permanently preserv[e] open space as an important public asset" (Sec. 3A-101). The City does not require special permits or extra steps beyond standard nonconforming use applications, and thus it encourages cemetery owners to make their properties part of the public sphere, a cemetery land-use best practice (ICCFA 1998b).

Cemeteries might also serve as community gathering places. In Hollywood, California, the nonprofit group Cinespia sponsors screenings of mostly mid-century American films amid the lush grounds of the Hollywood Forever Cemetery (Cathcart 2008; Duertson 2002). Newer, lower-density cemeteries could accommodate intensive recreational activities—such as bicycling, which usually requires significant space—but this is less likely in older, denser cemeteries. For example, Grand Rapids, Michigan, prohibits bicycles but allows lower-impact recreational activities like walking or running in the city's cemeteries (Grand Rapids 2003).

In most places, however, cemeteries and burial facilities are treated in the municipal zoning ordinance like any other use, though cities, counties, towns, and villages do vary in the kinds of zoning categories in which they permit cemeteries. Burial grounds are perhaps most often treated as conditional uses, allowable in a wide variety of zoning categories and approved or rejected by governing councils on a case-by-case basis. In these cases, municipalities explicitly designate cemeteries as conditional or special exception uses requiring site-specific discretionary review, and they may adopt specific conditions for approval. These designations are usually based on perceived compatibility with the surrounding area (Mandelker 1997).

Some jurisdictions strictly limit the locations of cemeteries to rural, agricultural, or residential districts, while others permit them almost everywhere.

Rural cemetery surrounded by agricultural fields, Champaign County, Ohio
Nyttend

Regardless of zoning, cemeteries are almost always required to meet minimum lot size requirements, which can vary from as little as two acres to ten acres or more, as well as setback requirements, which can range from 10 feet to 200 feet. The zoning code of Fayette County, Georgia, provides an example:

Conditional Uses Allowed.

Cemetery. (Human or Pet) (Allowed in A-R and C-H Zoning Districts) (a Human Cemetery is also allowed in conjunction with a *Church or other Place of Worship* (see Article VII.)

a. Human Cemetery

    i.   The facility shall comply with all requirements of the State of Georgia.

    ii. Minimum lot area shall be 10 acres.

    iii. A crematorium or mausoleum shall be allowed only in conjunction with a cemetery.

    iv. A crematorium shall be set back 300 feet from all property lines.

    v.   Grave sites shall meet the setbacks and buffers applicable to the underlying zoning district.

    vi. Landscape areas shall be required and planted in accordance with the Development Regulations (see County Code.)

    vii. Graves for pets shall meet b. Pet Cemetery, ii., iii., and iv. below. (Sec. 7-1.B.10)

The Town of East Fishkill, New York, similarly permits cemeteries as special-permit uses in residential zoning districts, provided minimum design standards are met.

The Zoning Board of Appeals may grant a special permit to establish cemeteries, provided that the Board finds that the application meets all the general conditions of Article IX and further meets all the applicable conditions set forth in this section.

A. Church cemeteries.

    (1) Internal columbariums. Columbariums shall be allowed within or as an integral part of a church building or accessory church building or structure without a permit.

    (2) Church cemeteries of less than four acres and columbariums other than those described in Subsection A(1) shall be set back from streets and adjacent property lines at least 50 feet. Such setback areas shall be suitably landscaped and planted.

    (3) Church cemeteries more than four acres. These cemeteries shall be subject to the same requirements as those set forth in Subsection B herein.

B. All other cemeteries. Cemeteries may be permitted, by special permit, in all residential districts, subject to the following conditions:

    (1) Setback. No interment shall take place within 150 feet of any street or 100 feet from any other property line.

    (2) Landscape buffer. Such buffer strip shall be suitably landscaped and planted, as determined by the Zoning Board of Appeals. (Sec. 196-69)

The City of Waverly, Iowa, allows cemeteries as conditional uses only in agricultural zones, which are otherwise reserved for activities related to agricultural production and extremely low-density residential development. All cemeteries must be at least 10 acres (Waverly 2012). Naperville, Illinois, an affluent Chicago suburb, permits cemeteries in three low-density zoning districts as long as they are two acres or larger (Naperville 2012). Bellevue, Washington, an edge-city suburb of Seattle, permits cemeteries in 21 of its 27 zoning districts. The only part of the city where burial grounds are absolutely prohibited is downtown, which has its own special set of development codes (Bellevue 2012). Baltimore falls somewhere in the middle; the zoning code's table of uses lists cemeteries as conditionally permitted uses in most residentially zoned districts but not in office, commercial, or industrial areas (Baltimore 2012).

Some communities subject cemeteries to additional standards in order to address environmental, aesthetic, and infrastructure access and expansion concerns. These regulations go beyond the typical basic requirements of minimum lot size and setbacks. Landscaping and screening standards, such as those adopted by Glendale, California, for its special-purpose Cemetery Zone district, provide an example of the various ways that communities may regulate cemetery aesthetics:

Landscaping and Screening in the CEM Zone. In the CEM zone, cemeteries shall be fenced or enclosed with walls or other appropriate fences a minimum of five and one-half (5 1/2) feet in height. When the property line of a cemetery is adjacent to residentially zoned property, it shall be of masonry or masonry facing. Cemetery boundaries not adjacent to a residentially zoned property may be fenced with appropriate landscaping and shrubbery to provide a sight-obscuring boundary. The principal entryways to cemeteries shall be clearly defined by architecturally treated entry gates and gate structures. Any space between a public street and a solid wall or fence shall be landscaped and permanently maintained. Such area shall not be used for interment. (Sec. 30.15.040.D)

In the southern states, many communities possess Civil War battle sites which often also have historic burial grounds, many of which may be relatively little known but yet deserving of protection from encroachment by modern development. Murfreesboro, Tennessee, identified a special need to protect its Civil War–era Stones River National Battlefield and Cemetery (Figure 3.4). The city added a Battlefield Protection District to its zoning code, and prefaces its regulations as follows:

    (A) *Intent and purpose.* The intent and purpose of the BPD, Battlefield Protection District, is to protect and preserve the ambient setting of the Stones River National Battlefield

Figure 3.4. Stones River National Cemetery, Murfreesboro, Tennessee
Hal Jespersen

and Cemetery; promote a sensitivity of development towards the Stones River National Battlefield and Cemetery; create an aesthetic atmosphere in proximity to and along the streets and highways leading to the Stones River National Battlefield and Cemetery; strengthen the economy; protect community resources; protect and enhance the City's attractions to tourists and visitors and the support and stimulus to business and industry thereby provided; and promote education and patriotic heritage of the present and future citizens of the community. (Sec. 23, Art. II)

Religious Land Use Regulation

The Religious Land Use and Institutionalized Persons Act (RLUIPA) of 2000 can complicate land-use issues related to cemeteries owned or managed by religious organizations. The general rule as set forth in the statute is:

No government shall impose or implement a land use regulation in a manner that imposes a substantial burden on the religious exercise of a person, including a religious assembly or institution, unless the government demonstrates that imposition of the burden on that person, assembly, or institution—

(A) is in furtherance of a compelling governmental interest; and

(B) is the least restrictive means of furthering that compelling governmental interest. (Sec. 2.a.1)

Religious cemeteries may be subject to RLUIPA.
ThruTheseLines / Creative Commons 2.0

In addition, the statute also requires that government treat religious uses on terms equal to other nonreligious uses and that the government not discriminate on the basis of religion.

While the statute seems straightforward enough, several of the provisions essential to its implementation and application are undefined and have been the subject of extensive litigation. There are approximately 1,000 reported RLUIPA court decisions, most of them land-use related. There are also many more unreported claims that are settled short of trial or resolved without a lawsuit being filed.

A long-running battle of some import when it comes to RLUIPA, eminent domain, and cemeteries is the case of *St. John's United Church of Christ v. City of Chicago* (502 F.3d 616). The City of Chicago wanted to expand O'Hare International Airport and in doing so acquire through its power of eminent domain 433 acres of land including St. Johannes Cemetery and Rest Haven Cemetery, a move that would require the relocation of graves. The church

brought claims under the free exercise clause, the due process clause, the equal protection clause, the Religious Freedom Restoration Act, and RLUIPA. Rest Haven was subsequently removed from the expansion plans and the case went ahead with St. Johannes Cemetery alone.

St. John's claimed that "a major tenet of its religious beliefs is that the remains of those buried at the St. Johannes Cemetery must not be disturbed until Jesus Christ raises these remains on the day of the Resurrection." The church asserted that the city's taking of property by eminent domain was a "sacrilege to [its] religious faith." The U.S. Court of Appeals for the Seventh Circuit accepted the church's argument. However, the court found that the plan to expand O'Hare was facially neutral and that there was no "subtle or masked hostility to religion." Furthermore, the court devoted three full pages of its decision to discussing why there was a compelling need to expand the airport in the direction that would include the St. Johannes Cemetery, dismissing as impractical and unworkable some proposals, such as decking over the cemetery with a runway, that were put forward by the City of Chicago (U.S. Court of Appeals, 7th Circuit 2006). The most important part of the decision, beyond the religious element in cemetery preservation, is the appeals court's holding that taking land by eminent domain is not a "land use regulation" within the meaning of RLUIPA. In short, using eminent domain to take religious property is not subject to redress under RLUIPA, unless the taking is inextricably linked to some land-use regulation (*Cottonwood Christian Ctr. v. Cypress Redevelopment Agency*, 218 F.Supp. 2d 1203, 122).

In summary, legal challenges to planning and regulating burial places and related activities can be based on federal and state constitutional and statutory law. Often the question will be whether the activity is sufficiently connected with the tenets of the religion to be within the protection of the applicable law and, if so protected, whether the burden is substantial, the activity has been treated on less than equal terms, or the religious proponents have been discriminated against. Governments may sometimes defend their decisions by claiming that there is a compelling governmental interest and that they have used the narrowest means possible to carry out the public good. There are numerous questions of law and difficult issues of fact in these cases.

Although not many land-use law cases have thus far risen out of religious activities for final arrangements, there is room for expansion of protections, especially at the state level, and opportunities for religious institutions to leverage their positions by bringing actions, particularly under the federal and state statutes. To some extent, the rules for zoning challenges have changed with these statutes because it is possible in some cases for successful religious plaintiffs to recover money damages, and in many instances they will also be able to recover their attorney's fees.

Nonconforming Cemeteries

Cemeteries that predate zoning regulations may occasionally be declared nonconforming uses and required to submit to new regulation. Unlike other nonconforming uses, elimination of the nonconforming cemetery through amortization—the orderly elimination of the nonconforming use, usually over several years—is untenable because it may require disinterment of remains. However unlikely eliminating a nonconforming cemetery might be, in some cases it may be prudent for communities to declare such older cemeteries to be nonconforming. Such a step would open the door for beginning the process of bringing those facilities into compliance through the addition of elements such as additional parking, vegetative screening, and privacy fences.

On the other hand, a local government may want to protect old burial grounds by granting them relief from certain requirements of the zoning

ordinance. Below are two illustrations of that approach, the first from Fayette County, Georgia, and the second from Howard County, Maryland:

> Creation of a Legal Nonconforming Lot for a Legal Nonconforming Cemetery or Burial Ground. The creation of a lot intended for the sole purpose of containing a legal nonconforming cemetery or burial ground is allowed. Said lot is not required to meet the applicable minimum lot size, lot width, or road frontage requirements. The boundary of the lot shall be set back a minimum of five (5) feet from the location of any grave. A legal nonconforming cemetery or burial ground shall be indicated on a preliminary plat, final plat, minor subdivision plat, and/or site plan, as applicable. A minimum 20 foot public access to a legal nonconforming cemetery or burial ground shall be maintained either through fee simple ownership or an easement. (Sec. 7.2.A-22)
>
> Development or Subdivision in a Cemetery
>
> Accommodation: When a property owner proposes to develop a property, through submission of a subdivision sketch plan, preliminary equivalent sketch plan, or a site development plan, on which is located a cemetery which is shown on the inventory map, the property owner shall:
>
> (1) Accommodate the cemetery with the development, by placing the cemetery in a nonbuildable lot with a cemetery designation, by dedicating the cemetery to a homeowner's association or a preservation, conservation or religious organization, by providing that the cemetery be used as a cemetery in perpetuity, and by providing public access to the cemetery. Any land placed in a non-buildable cemetery lot designation pursuant to this section may be counted towards open space requirements. Alternatively, a property owner may leave the deed to the cemetery in the private ownership and care of a family. (Sec. 16.1304(a))

Howard County's ordinance also requires that a developer who discovers evidence of a burial ground in the course of grading or construction work must immediately cease all work in the area, inform public officials, and, if the area is determined by the planning and zoning department to be a cemetery, comply with the above accommodation requirements.

Pet Cemeteries

Pet cemeteries are increasingly in demand in the United States, and they have long histories, both here and abroad (Figures 3.5 and 3.6). Smaller and occuring with far less frequency, pet cemeteries do not face the same kind of environmental or health concerns as human cemeteries. Embalming, coffins, and inground vaults are not required, though they may be used. Typically, zoning ordinances are the only laws governing pet cemeteries. Here is an example of a discretionary land-use approval provision for pet cemeteries from Fayette County's zoning ordinance:

Figure 3.5. *Historic pet cemetery in Hyde Park, London*
Leonard Bentley / Creative Commons 2.0

Pet Cemetery

i. Minimum lot area shall be five (5) acres.

ii. The remains of only one (1) pet shall be buried in a single grave site and shall not be stacked one (1) above another.

iii. The remains shall be a minimum of three (3) feet below the grade.

iv. Cemetery plots shall be of sufficient size to provide for a minimum one (1) foot undisturbed area between graves.

v. The owner/operator shall maintain and post a copy of the Cemetery Rules and Regulations and a current burial plot diagram at all times.

vi. A pet cemetery shall be maintained in perpetuity via deed restrictions.

vii. Grave sites shall meet the setbacks and buffers applicable to the underlying zoning district.

viii. Landscape areas shall be required and planted in accordance with the Development Regulations (see County Code.) (Sec. 7-1.10.b)

Figure 3.6. *A modern pet cemetery in Ypsilanti, Michigan*
Dwight Burdette / Creative Commons 3.0

CEMETERY SOLVENCY

One of the major challenges facing both new and existing cemeteries is financial in nature. Is the cemetery as a business entity properly organized, managed, operated, and financed such that it can operate in perpetuity?

Issues related to federal, state, and local business regulation and financial planning for cemeteries are beyond the reach of this report. However, the industry itself is as concerned as government in making sure that cemeteries do not fail. The Government and Affairs Task Force of the International Cemetery, Cremation and Funeral Association (ICCFA) has recognized that "a new cemetery creates a permanent addition to the community," and as such "each cemetery must literally be prepared to service what it sells forever" (1998a). Toward this end, ICCFA has issued the following list of guidelines to its members:

> 1. The person intending to conduct business as a cemetery authority and establish a new cemetery should make application to the regulatory authority that has jurisdiction over cemeteries. The application process should include the following:
>
> a. Legal documents pertaining to the property and creation of the legal entity to conduct the business of a cemetery;
>
> b. Proof of deposits showing that the initial requirements for capitalization and the endowment care trust fund have been satisfied; and
>
> c. Documentation to demonstrate the ability to establish a new cemetery, financial stability, and prior business experience.
>
> 2. The site selected for the cemetery should be free and clear of financial encumbrances, conform with local zoning ordinances, and be formally dedicated for cemetery purposes. Interments should be restricted exclusively to human remains. A legal description of the property, including a map or plat of the site, subdivided into gardens or sections, should be filed with the appropriate entity.

3. Prior to commencing sales, the cemetery authority should be required to develop an area suitable for interment of human remains. The cemetery authority also should have made improvements to the property, that include an on-site office to conduct business and a road permitting access to the office and to all property for which the immediate sale of interment spaces is proposed.

4. A cemetery authority engaging in the sale of predeveloped interment spaces should have specified time periods from the date of the first sale for commencing and completing construction.

5. The initial amount contributed to the endowment care trust fund may be offset by withholding subsequent deposits from the sale of interment spaces until the initial deposit amount is recovered.

6. Permission to establish a new cemetery could be withheld by the regulatory authority if any director, officer, or manager affiliated with the cemetery authority has been convicted previously of fraudulent activities.

7. When the requisite documentation is provided to the regulatory authority, the regulatory authority should not unreasonably withhold permission for the establishment of a new cemetery.

8. The permission granted for establishing a new cemetery shall expire if basic operation of the cemetery does not begin within a specified time period.

9. Permission to establish a cemetery should not be transferable or assignable. A cemetery authority may only develop or operate the new cemetery at the location which is authorized under the application to the regulatory authority. (ICCFA 1998a)

This guide is only a start. At the very least, when considering a new private cemetery, local officials should ask to see a definitive business plan, a defensible operating budget, and evidence of adequate capital reserves for the perpetual operation of the facility. Industry guidelines are weak in this area. Unlike a homeowners association, which may assess its members for unexpected costs, a cemetery's "patrons" make one-time payments covering the acquisition of the space and service charges for opening the grave and closing it up or placing the remains in a mausoleum. There is no chance to go back to the deceased for supplemental payment if there is a construction defect in the mausoleum foundation, the construction performance bond is not sufficient to correct the problem, and the contractor is bankrupt.

The burial business is highly competitive, and the price points for burial space and services are probably much lower than they should be for sustainable economic operation. The incentive for cemetery owners and operators is to extract what they can from the current cash flow rather than provide for future generations. The government bears the burden of making sure that a facility is adequately capitalized, properly operated, and has sufficient reserves available for sustaining operations after the facility reaches capacity and revenue declines.

An illustration of the type of analysis that must be done before creating or expanding a cemetery is provided by a report prepared for the Board of Overseers for the Linden Grove Cemetery in Covington, Kentucky (Linden Grove Cemetery 2008). The 22-acre historic cemetery already held 22,000 burials, and the board needed to determine whether it was physically and economically practical to develop additional burial areas and continue to operate the facility as an active cemetery. The analysis included site planning and a market study.
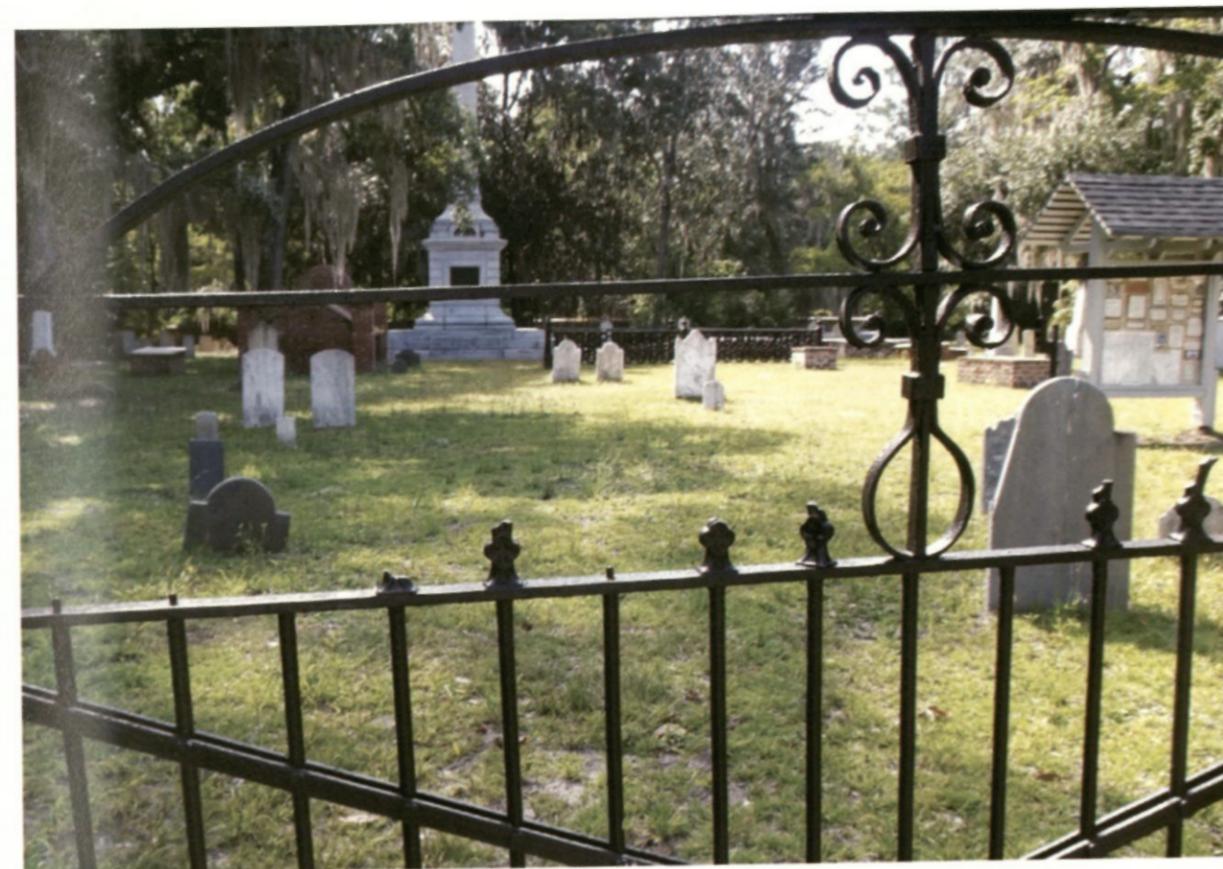
Old cemetery, Midway, Georgia
Ebyabe / Creative Commons 3.0

The consultants rejected a mausoleum as a possible option because "it would change the site dramatically and would require a significant capital investment," but considered several other alternatives: additional in-ground casket burials, lawn crypts of single or double depths, an "urn garden" for in-ground burial of cremated remains, and a garden-style columbarium with niches for the permanent placement of cremains. The consultants concluded that the cemetery could accommodate 3,000 casket burial spaces, 1,000 urn garden lots, and 1,000 garden niches and generate revenues of $4 million from the sale of the spaces, a portion of which would go to a perpetual maintenance fund (Linden Grove Cemetery 2008).

CONCLUSION

As distinctive as cemeteries and their associated uses may be, relative to the usual residential, retail, office, institutional and industrial uses, they remain fundamentally just another land use. As such, in managing these uses planners and local officials need to start by affirmatively planning for them: inventorying current facilities, forecasting future needs, allocating in a plan sufficient land area in appropriate locations, and regulating the establishment and expansion of these uses.

Careful consideration must be given to standards and criteria in regulating cemeteries and associated uses. There are few model examples, and local needs and norms are likely to vary greatly, so considerable effort may be necessary to develop effective regulations. This subject matter is one that many people are uncomfortable discussing, and local officials will need to provide some assertive leadership in opening and sustaining the

dialogue necessary to meet the current and future burial needs of their communities.

Cemeteries are inextricably linked with religious beliefs and as such implicate federal and state constitutional statutory protections. It is prudent to seek the advice of legal counsel in drafting, adopting, implementing, and applying local regulations.

One of the most intractable issues for cemeteries today, likely to worsen over time unless cemetery developers, cemetery operators, and local governments work together, is their economic sustainability. Many, maybe most, cemeteries, especially the older, smaller operations, have inadequate capital reserves for perpetual maintenance. Local regulations should require business plan reviews for any new cemeteries or cemetery expansions, and the planning process should include the review of existing cemeteries to determine ways in which they can be economically strengthened to avoid their neglect or prevent the need for governmental intervention, support, or takeover.

# Alternative Methods to Reduce the Deathprint of the Deceased

As described in Chapter 2, interment in a casket and cremation are by far the most common means of sending off the dead in the United States. This last act on earth can be both resource-intensive and a source of unnecessary environmental pollution.

The materials required for burial in a casket placed in a burial vault are cumulatively staggering. In the United States, these types of funerals annually consume 30 million board-feet of wood, 104,000 tons of steel, 1.6 million tons of concrete, over 800,000 gallons of embalming fluid, and 2,700 tons of copper and bronze (Glendale Memorial Nature Preserve 2010; Sehee 2007; Valigra 2005). These resources that are buried in the ground every year translate into:

- Enough wood to frame over 2,300 single-family homes;

- Sufficient steel to erect almost 15 Eiffel Towers;

- Nearly four times as much concrete as was used to construct the Pentagon, the world's largest office building by floor area; and

The cemetery as green space—Mount Auburn, Cambridge, Massachusetts
Daderot / Creative Commons 3.0

- A volume of embalming fluid that would overflow an Olympic-sized swimming pool, a disaster by any account if the equivalent 20,000 barrels of hazardous substance were poured into the earth every year.
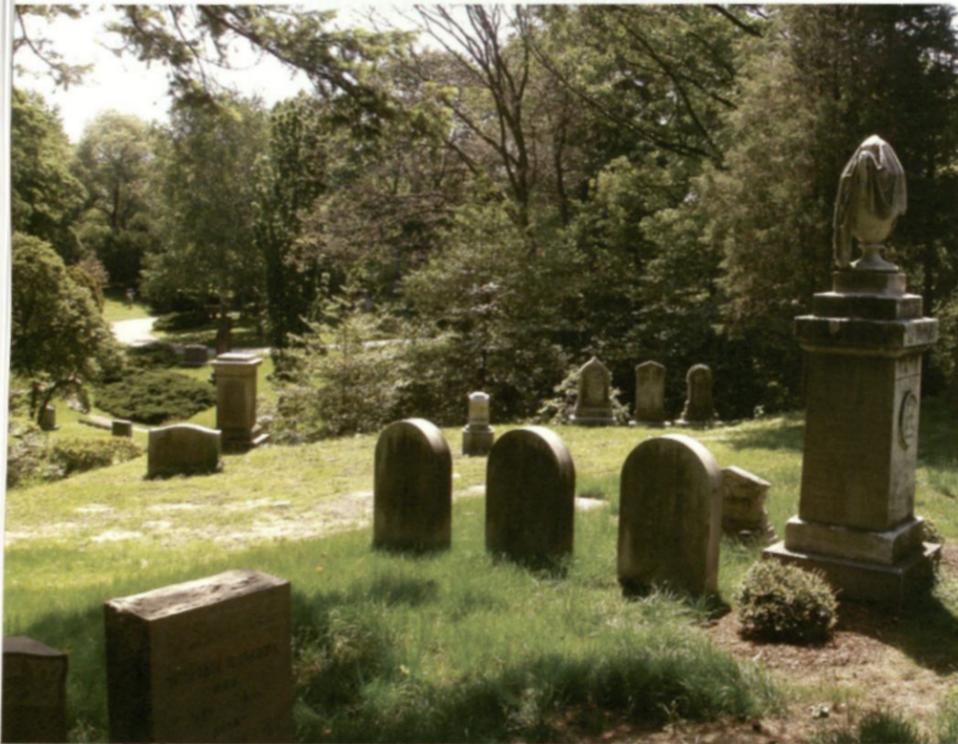
In addition to consuming materials for vaults and caskets, burials also consume those parcels of land set aside for cemeteries. While the amount of land devoted to interment varies from community to community, wise use of that land remains a valid concern, regardless of context.

Cremation has a smaller footprint than interment in terms of the land area and resources it consumes, but there are legitimate concerns over the airborne pollution emitted from the incineration process. Studies have shown that a typical cremation emits highly toxic dioxins (California EPA ARB 2010); hydrochloric acid, which contributes to acid rain (European Environment Agency 2008); sulfur dioxide, which is linked with a number of adverse respiratory health effects (U.S. EPA 2011); and the greenhouse gas carbon dioxide. There has also been concern over the incineration of tooth fillings, which can release mercury into the environment (Environmental Protection Authority of South Australia n.d.).

As American society evolves in the coming decades, standard burial practices are likely to change. Additional methods for interment have recently emerged. Some are genuinely new, resulting from technologies that were unavailable to previous generations. Others rely on new applications of ancient techniques filtered through a modern, scientific understanding of the relationship between humans and their environment. Whatever their origins, these alternatives to embalmed and casketed burial represent possible solutions to the planning problems traditional burials create.

ADDRESSING CEMETERY LAND CONSUMPTION THROUGH DENSITY

A recently proposed methodology for projecting local land-use needs demonstrated that single caskets buried in standard cemetery plots can consume considerable acreage, depending on the size of the local population and preferences for final interment (Coutts, Basmajian, and Chapin 2011). A crude calculation of the number of plots per acre can be made using an average plot size of 4 by 12 feet. Accounting neither for the space between plots nor the area devoted to roads, trees, and other landscape design features, an acre of cemetery land can accommodate a total of 907 plots (43,560 square feet in 1 acre divided by 48 square feet per plot). Plot size varies slightly from cemetery to cemetery with few municipalities mandating size minimums, but an industry rule of thumb is that a traditional cemetery can contain between 800 and 1,200 gravesites per acre, or an average of 1,000 plots per acre (Capels and Senville 2006).

The commitment of land to the deceased is difficult to reverse and can be particularly costly in urban environments, where open space is at a premium. Increasing density by reducing plot dimensions is a potential solution, but current trends in Americans' expanding waistlines are making this option increasingly unlikely. In the later part of the 20th century, the average weight of American men and women increased by 24 pounds, and the proportion of obese adults (and children) has also been on a dramatic rise (Centers for Disease Control and Prevention 2004, 2012). Woodlawn Cemetery in the Bronx, New York, recently increased its standard plot size width by a foot to accommodate the wider vaults and caskets required for larger bodies (St. John 2003). Solutions to reducing acreage are more likely to come in the form of increasing density by going deeper and higher rather than closer together.

Going Up

In places where space for cemetery expansion or new cemetery construction is limited, mausoleums can act as alternatives or additions to existing cemeteries (Mangaliman 1997). The mausoleum is an ancient concept that originated with the Egyptian king Mausolus (377–353 BC) who was entombed in a towering above-ground structure. Once built and devoted to memorializing the magnanimity of a deceased individual or family, multicrypt or community mausoleums might now be part of the solution for increasing cemetery densities. Individual and family mausoleums are still available to those who can afford them, but increasingly common are larger community complexes that can contain as many as 30,000 crypts. These structures can dramatically increase density and expand the capacity of an existing cemetery that might otherwise face build out (Figure 4.1).

On a per-plot basis, a mausoleum "burial" costs roughly the same as a traditional in-ground burial with a gravesite headstone (Davies 1996).

Figure 4.1. Creating vertical casket density, St. Louis Cemetery No. 1, New Orleans
cliff1066 / Creative Commons 2.0
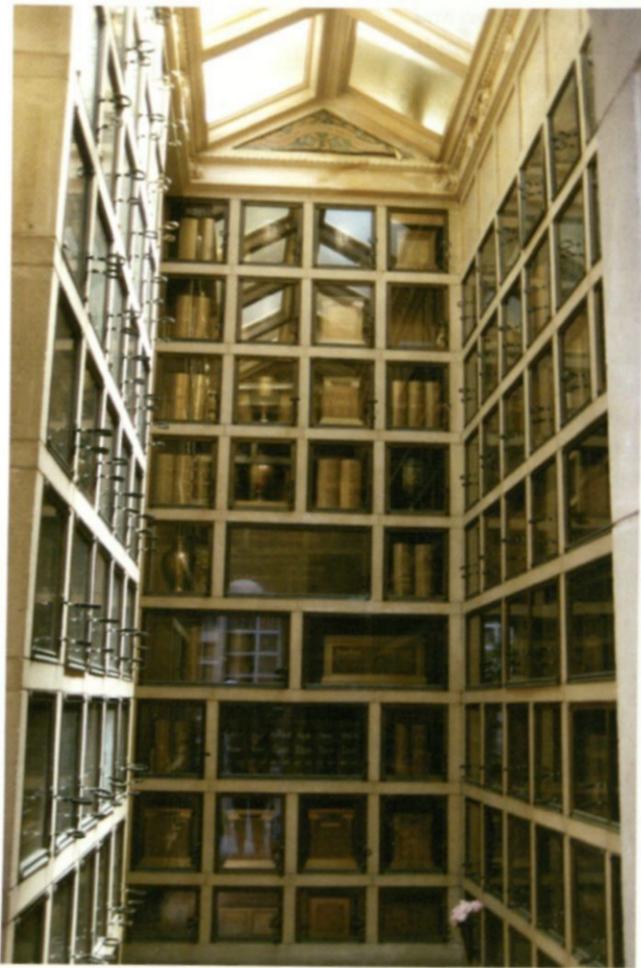
Figure 4.2 (left). Creating vertical cremain density indoors, Mountain View Cemetery, Oakland, California
*lapin / Creative Commons 2.0

Figure 4.3 (below). Creating vertical cremain density outdoors
frage23 / Creative Commons 2.0

Moreover, it provides a similar experience to that of burial, at least in terms of the treatment of the body. The mausoleum acts as a visible memorial, but one with a dramatically reduced physical footprint.

A typical mausoleum crypt is 32 inches wide, 26 inches high, and 90 inches deep, or 43 cubic feet in size. For columbaria, the minimum niche size to accommodate most urn designs in a double-inurnment formation is 12 inches wide, high, and deep, or 1 cubic foot. Niches in columbaria therefore can allow 43 times the density of standard mausoleum crypts—and twice that if two urns are placed in a single niche. With national rates of cremation on the rise, columbaria have appeared in cemeteries across the U.S., particularly in the western states where cremation rates are the highest and in large urban areas where space is at a premium. Serving as both repositories for cremated remains as well as visible memorials, columbaria can provide inurnment for thousands of individuals (Figures 4.2 and 4.3).

Going Down

While density can be achieved by going up with granite structures in memorial gardens, it can also be achieved by digging deeper. Burying the dead two or three deep could double or triple cemetery densities. There

are a number of ways to accommodate this, many of which have precedent. A lawn crypt can be envisioned as an underground mausoleum where caskets are stacked in concrete crypts with similar dimensions to aboveground crypts (Figure 4.4). In-ground columbaria, based on the same design principle, are also available.

There are, however, even less resource-intensive methods of increasing density underground. Grave sharing, accomplished via a "lift and deepen" or "lift and lower" procedure, involves unearthing the casket, deepening the grave, and then reinterring the casketed remains in the same grave at the greater depth. This creates space for multiple corpses to be buried on top of one another with only a few feet of earth in between. This practice is becoming increasingly common in Australia, where cemeteries have begun to establish 50-year license agreements after which human remains are lifted and reinterred (Sterba 2006). Germany does much the same. In contrast, local governments in London and other cities in the United Kingdom, though faced with the reality of exhausted burial space (see the London case study in Chapter 5), have encountered resistance to the idea of loved ones spend-
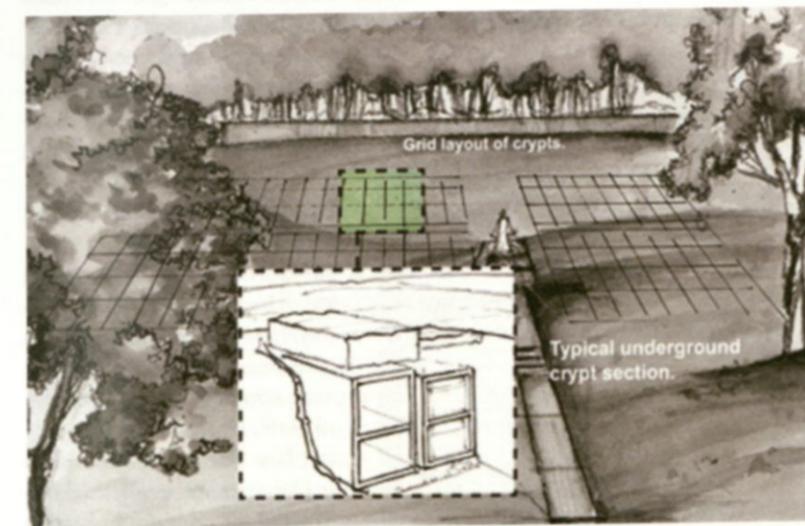
Figure 4.4. Lawn crypt
Musgrove Mortuaries and Cemeteries

ing their eternal rests under or on top of others' remains (Davies and Shaw 1995; Lawless 2009). Similarly, the American view of the grave as eternal and private would likely need to change before grave sharing is considered an emotionally acceptable option for burial densification.

Even if burial densities in cemeteries are increased in any of these ways, however, land consumption, resource utilization, and pollution are still concerns. Densification only affords a temporary fix to the ever-increasing numbers of the deceased and the pressures they place on the environment. Other solutions, so-called "green" alternatives, are being employed across the country and abroad with promising results. While some of these alternative practices originate from advances in technology, most reflect a return to unembalmed burial.

SUSTAINABLE ALTERNATIVES TO TRADITIONAL EMBALMED BURIAL

The lawn cemetery that has dominated post-war burial may indeed be on the decline due to changing demographics and environmental concerns (Harris 2007). Many community efforts aimed at sustainability are now beginning to include after-death practices that some believe reflect a more thoughtful and careful understanding of the relationship of humans to the

NATURAL BURIAL

The Centre for Natural Burial provides information on natural burial and burial locations in the United Kingdom, Canada, and the U.S. (Natural Burial Co-operative n.d.). Its inventory of U.S. locations currently offering natural burial includes:

- Cedar Brook Burial Ground, Limington, Maine
- Mount Carmel Cemetery, Wyandotte, Michigan
- Eternal Rest Memories Park, Dunedin, Florida
- Our Lady of the Rosary Cemetery and Prayer Gardens, Georgetown, Texas
- Ethician Family Burial Ground, San Jacinto County, Texas
- Pine Forest Memorial Gardens, Wake Forest, North Carolina
- Forest Lawn Memorial Park, Candler, North Carolina
- Prairie Creek Conservation Cemetery, Gainesville, Florida
- Forever Fernwood, Mill Valley, California
- Prairie Wilderness Cemetery, Denver, Colorado
- Foxfield Preserve, Wilmot, Ohio
- Ramsey Creek Preserve, Westminster, South Carolina
- Glendale Memorial Nature Preserve, DeFuniak Springs, Florida
- Ridgeview Memorial Gardens, Grandville, Michigan
- Green Hills Cemetery, Asheville, North Carolina
- Roselawn Memorial Park Greenview Section, Springfield, Illinois
- Greensprings, Newfield, New York
- Steelmantown Cemetery, Tuckahoe, New Jersey
- Honey Creek Woodlands, Conyers, Georgia
- The Commonweal Conservancy, Santa Fe, New Mexico
- Joshua Tree Memorial Park and Mortuary, Joshua Tree, California
- Washington Park North Cemetery - Kessler Woods, Indianapolis, Indiana
- Lakeview Memorial Cemetery & Mortuary, Bountiful, Utah
- White Eagle Memorial Preserve, Goldendale, Washington

earth (Mooallem 2009; Rugg 2000). While some green alternatives to burial in a traditional cemetery spare land consumption, others do not. However, those that do not tend to at least forgo the use of toxic chemicals and excessive amounts of natural resources. These green alternatives have gained attention in the mainstream media only in the past decade (e.g., Brown 2005; Earth Talk 2008; Saltz 2006).

One of the most significant movements in environmentally sensitive disposition is natural burial, reflecting an ancient practice followed throughout history by Jews, Muslims, and others. It is the precursor to the contemporary practice of using copious quantities of chemicals to preserve and protect the dead from the elements. This return to the "pine box," which itself now can be certified as sustainably harvested by the Forest Stewardship Council, eschews the use of toxic flesh preservatives and the fiberglass, steel, copper, bronze, concrete, and exotic wood included in modern caskets and vaults, which can often weigh more than small automobiles (Kaufman 1999). Memorial Ecosystems, founded in 1996, claims to be the first organization in the United States to offer green burials. Its founders also run the nonprofit Green Burial Council (formerly the Center for Ethical Burial), which provides consultation services to those seeking to establish natural burial sites. Two years after its founding, Memorial Ecosystems opened the Ramsey Creek Preserve in Westminster, South Carolina, a natural burial site (Memorial Ecosystems n.d.).

The Green Burial Council promotes the development and use of burial programs that support the acquisition, restoration, and stewardship of natural areas throughout North America (Green Burial Council n.d.). In this light, not only is green burial a means of forgoing the use of substantial resources and environmental pollutants in the burial process, it is also a means of conserving land for the living. Green burial can be part of a community strategy to permanently preserve valuable natural areas (Friend 2005; Harris 2007).

Using this final act to conserve land has also been applied to cremation. The Texas Parks and Wildlife Department, in partnership with the Green Burial Council, charges a fee for cremated remains to be scattered in state parks. These fees are then used to acquire land for state park expansions (Streit 2009). In Middleberg, Virginia, cremated remains are interred in biodegradable urns and buried in the root systems of mature trees (Marr 2007). This ultimate gesture to organic fertilization provides sustenance for trees and supports their continued ability to provide benefits to the living.

The Green Burial Council also offers eco-certification standards for burial grounds, funeral homes, cremation facilities, and products used in the preparation and disposition of remains. The criteria to achieve a one- to three-leaf certification address everything from customer relations and marketing practices to the establishment of endowment funds to ensure long-term maintenance of natural burial grounds (Green Burial Council 2011).

The success of the natural burial movement has been somewhat geographically uneven. For example, a recent attempt to rezone a vacant parcel to become a natural burial cemetery in Macon, Georgia, ended in defeat after widespread community protest (Shiskin 2009). Yet in Ashland, Oregon, the city council voted in 2010 to allow natural burials in city cemeteries (Aldous 2010). It will take community perceptions of natural burial to change for this practice to become acceptable—and there is also the matter of confronting the

multibillion-dollar death-care industry vested in maintaining the status quo. The costs associated with traditional embalmed burial are likely part of the motivation behind the rapid rise in cremation rates. It may be this same economic reality—possibly combined with a religious aversion to cremation—that leads those who cannot afford the typical ornate burial in a lawn-park cemetery to consider a natural burial instead.

Natural burials are less expensive than traditional burial for two reasons: natural burials reduce ceremony and materials costs, and natural burial sites do not require the upkeep of a manicured cemetery. According to the Federal Trade Commission (2000), traditional funerals cost about $6,000, although "extras" like flowers, obituary notices, acknowledgment cards, or limousines can bring the total to over $10,000. The cost of burial itself is additional. This is a significantly higher cost than the $1,000–$4,000 total cost of a natural burial (Centre for Natural Burial 2010). Traditional burial requires significant inputs and introduces toxins into the environment; so too does the need for perpetual upkeep of the lawn-park cemetery landscape. The fertilizers and fossil fuels needed to maintain a manicured space are in stark contrast to the natural burial sites often left nearly wild, with simply a native tree planted on a gravesite as a memorial to the deceased.

Another alternative to natural burial is a type of environmentally sensitive cremation that eliminates emissions. Resomation is an alternative to incineration that also results in a body being reduced to ashes, but it has a carbon footprint that is four times smaller than incineration and it uses 85 percent less energy (Sinclair n.d.). Also called bio-cremation, this process uses a high-pressure, high-temperature alkaline hydrolysis process to dissolve human remains. Potassium hydroxide (commonly known as lye) is the alkali salt used in the process. The byproducts are a pure white bone ash and a sterile aqueous solution of

Figure 4.5. Reef domes used to submerge cremated remains and create aquatic habitat
Louisiana Sea Grant College Program / Creative Commons 2.0

organic molecules that is returned to the municipal wastewater system or anaerobic treatment facility for processing (Sinclair n.d; Resomation Ltd. n.d.). Although it has not yet been approved for commercial use, the liquid byproduct could also possibly be used as fertilizer for food crops. Applying the byproduct as fertilizer would relieve the need for approval from state and local water-quality boards to discharge the byproduct into a municipal wastewater system.

Beyond more traditional methods of final interment are a number of creative ways that have recently emerged for immortalizing the dead. One example is the use of cremated remains in artificial reef structures (Streit 2009). This involves mixing cremains with cement to create a perforated dome structure or terraced urn that is then dropped out at sea to create aquatic habitat (Figure 4.5). The GPS coordinates of the location of the burial at sea can be used to find—and even scuba dive amidst—the newly created reef. A number of companies now offer this service, including Eternal Reefs and the cleverly named Great Burial Reef, both of which operate across the east

coast of the United States (Morrissey 2008). Living Reef Memorial deploys memorial reefs off the coast of San Diego near the Los Coronado Islands (Living Reef Memorial n.d.).

Increasingly common is the related practice of burial at sea (Gilson 2011). The U.S. Environmental Protection Agency (EPA) regulates burial at sea in accordance with the Marine Protection, Research and Sanctuary Act of 1972. These regulations require that full-body disposition in the Atlantic and Pacific oceans be done in water at least 600 feet deep and three or more nautical miles from land. In the Gulf of Mexico, the water must be at least 1,800 feet deep. Cremated remains must also be released three miles from shore, but there is no depth requirement. Burial in inland waters must be done in accordance with the Clean Water Act and with a permit from the appropriate state agency (U.S. EPA 2012).

Both public agencies and private corporations conduct burial ceremonies at sea. For the cremains or body of the deceased to be eligible for burial at sea by the U.S. Navy, the deceased must have been one of the following: (1) an active-duty member of the uniformed services; (2) a retiree or veteran who was honorably discharged; (3) a U.S. civilian marine personnel of the Military Sealift Command; or (4) a dependent family member of active duty personnel, retirees, and veterans of the uniformed services. In contrast, the U.S. Coast Guard (USCG) provides final disposition at sea for any U.S. citizen not previously convicted of a felony, but only for cremains. Since the armed services burial ceremonies are performed only during active deployment, family members are not permitted to be present (U.S. Navy 2009).

If the deceased do not meet the qualifications for burial at sea by the Navy or USCG, or if family members prefer to attend the burial ceremony, there are a number of private companies that provide comparable services. One such company is New England Burials at Sea. Depending on preference and budget, it offers services that range from unattended scattering of cremains to full-body burials in biodegradable canvas coffins (New England Burials at Sea 2013). Similar services are found in other coastal areas of the country.

In the United States, burial at sea requires no special treatment of the body; there are no restrictions on the use of embalming fluids. Thus, fully embalmed bodies may be buried at sea without penalty. In the United Kingdom, on the other hand, bodies to be buried at sea must be unembalmed and shrouded in a biodegradable material. Whether as part of an artificial reef structure or in a biodegradable coffin, burial at sea holds great promise as a sustainable disposition method that can alleviate land-use pressures. However, if ocean burial is to become a sustainable alternative to in-ground interment in the U.S., new restrictions on how remains are treated prior to burial will be necessary.

Another avant-garde alternative to burial, grossly inefficient in its use of energy but certainly capable of solving any land-scarcity issues, is the launching of the dead into space. Celestis, Inc., offers a service where a "symbolic portion" of cremains are stowed on regularly scheduled satellite launches. Individuals can choose from a number of costly options, including a launch followed by a quick reentry, a place in low Earth orbit, lunar orbit, and, for the boldest, a permanent launch into deep space (Celestis n.d.). At present more of a novelty than a practical solution to environmental and land-use issues related to the disposal of the dead, this method might one day evolve into something more feasible for the masses.

The natural burial option is likely the compromise approach for the immediate future as it maintains elements familiar to current practice. As noted above in the examples from Texas and Virginia, this option also provides the living with the benefits of permanent land conservation that can serve as multi-use spaces.

Multi-Use Space

A complementary way to address land-use issues associated with the disposal of the dead is to not only consider space-reducing alternatives to traditional burial but also maximize the potential of cemetery lands by allowing them to support multiple uses. Historic Mount Auburn Cemetery near Boston has exemplified the balance of memorial and recreational attraction since its creation in 1831 (Linden-Ward 1989). The rural cemetery movement that provided rest for the dead and an oasis for the living quickly spread to cities throughout the country. From Green-Wood in Brooklyn to Mountain View in California, these historic cemeteries—now largely subsumed within the cities they were once separate from—act as important components of their cities' green infrastructure systems (National Park Service n.d.).

A combination of superstition, landscape design, and public policy supports certain kinds of activities in cemeteries but excludes others. As noted in Chapter 3, the public cemetery rules of the city of Grand Rapids, Michigan, prohibit bicycles in cemeteries but otherwise allow low-impact recreational activities. In most cases, though, families visiting their deceased can also take advantage of a variety of recreational opportunities that burial grounds provide. The potential for supporting multiple uses of burial ground space could likely be exploited further in cemeteries of historical significance, due to the increased traffic created by tourists and the curious. By allowing cemeteries to help solve the need to increase open space in crowded cities by adding parkland, the land is given back to the living (Harnik 2010).

The cemetery as a multi-use space—Mount Hope Cemetery, Toronto
Ben Lawson / Creative Commons 2.0

If superstition cannot be overcome and aesthetic solutions are not enough to quell the reluctance of the living to mingle with the dead, clustering gravesites might be one way to work around these issues. Much like clustered neighborhood development, a small portion of the burial ground can be devoted to interment and the spreading of cremains while the remaining part of a cemetery property can be set aside for conservation and recreation. Natural burial uses a similar strategy, whereby the deceased provide a service to the living by permanently protecting the environment and creating accessible green space.

As noted in Chapter 3, Baltimore has maximized the utility of existing lawn cemeteries by allowing them to be rezoned as permanent open spaces (Basmajian and Coutts 2010). Given the difficulties of setting aside land for permanent preservation or parks, reimagining extant cemeteries as alternative open spaces offers an opportunity to expand natural infrastructure without acquisition. By not requiring special permits or extra steps beyond standard methods for applying for nonconforming use permits, the City of Baltimore encourages cemetery owners to allow their properties to become important parts of the public sphere, a cemetery land-use best practice (ICCFA 1998b).

CONCLUSION

Current methods of the disposition of human remains are at best wasteful and at worst unsustainable. Several alternatives are now available that are less expensive and resource intensive. Considering that cremation is rapidly increasing as an accepted practice by many Americans, another alternative that may also become socially acceptable in the near term is the less resource-intensive form of cremation, alkaline hydrolysis. With time, natural burial may become much more widely accepted because it incorporates familiar elements and provides significant benefits for the living. Natural burial grounds that support land conservation and multiple uses have the potential to significantly reduce environmental waste and pollution, protect natural systems, and provide forums for both passive and active recreation.

CHAPTER 5

Case Studies

Case studies offer a useful way to examine the range of burial issues planners might face. As documentation of real experiences, case studies of burial grounds provide insight into the origins of many contemporary disposition problems and are particularly helpful in revealing how planners might contribute to the solution of the looming problem of limited capacity. We present four examples here. Purposely selected to showcase different social, cultural, and economic contexts, these cases are not meant to be representative, but they will hopefully be revelatory.

Needham, Massachusetts, provides an example of how a privately owned suburban cemetery with limited space and very little room for expansion has struggled to find ways to better utilize its existing burial grounds. One of the most spatially constrained but also in-demand cemeteries in the country, Green-Wood in Brooklyn offers a case of thoughtful management marked by innovative approaches to expanding capacity in order to maintain long-term viability. Confronting geographic limits that make even New York look spacious, the city of Hong Kong also has one of the most rapidly aging populations of any place in the world. Planners there now face a complex set of challenges in determining how to allocate the little remaining interment space in ways that meet the cultural needs of the population but are also nominally equitable. Finally, cemeteries in Greater London, learning from that city's long history of limited burial space, offer innovative, ecologically sensitive ideas that may eventually be adopted by planners in the United States. Taken together, these cases reveal many of the potential problems that accompany final disposition, especially in large metropolitan areas, but they also offer ideas and tactics that can be applied in a wide variety of settings.

▶ NEEDHAM CEMETERY, NEEDHAM, MASSACHUSETTS

The Needham, Massachusetts, cemetery is a typical example of an old, non-profit, privately owned cemetery that continues to have a modest number of burials on a steady basis (Figure 5.1). The town of Needham, a suburb of Boston that is virtually built out, is 12.7 square miles in area and according to the 2010 U.S. Census had a population of 28,886, up only slightly from 25,792 a half-century ago. The residents are 90.8 percent white, with the remaining population 1.0 percent black, 6.1 percent Asian, and 2.1 percent Hispanic or Latino.

The cemetery has limited land area with no ability to expand. Like many other older cemeteries, it has inadequate capital reserves. Given its relatively small size and its low level of activity, it has no professional management and relies on a volunteer board of trustees to run the business operations and independent contractors to dig graves and maintain the property. The financial condition of the cemetery association is somewhat tenuous—17 years ago it was forced to sell off land for two house lots and made an attempt, which was rejected, to have the town of Needham take over the ownership and operation.

Burials are restricted to two caskets or two cremated remains per lot. There appears to be no interest in intensifying the use. The cemetery association lacks a clear long-term master plan for build out and intensification to meet expected needs over the coming decades, and it also does not have a long-term economic plan to sustain the cemetery in perpetuity. There is also an unwillingness to depart from its long-standing practices regarding the number of interments per burial lot, which perpetuates what might be characterized as "cemetery sprawl."

Figure 5.1. Needham Cemetery
Needham Cemetery Association

At the same time, the Trustees of the Needham Cemetery Association are making concerted efforts to address these issues. These efforts include a study of potential expansion; a sharp increase in prices, fees, and charges; the elimination of the caretaker's position; the delegation of work on the property to outside contractors; and renting of the caretaker's house to generate additional revenue. Consistent with national trends, a steady increase in cremation at Needham should also help relieve some of the pressure on space. These efforts have provided the potential to make the cemetery a more sustainable operation.

Cemetery Charges and Financial Pressures

Table 5.1 provides the schedule of cemetery charges, unchanged from 1991 until 2012. Inflation since 1991, 21 years at roughly 4 percent per annum, equals approximately 70 percent.

The most recent schedule of charges (Table 5.2) shows increases beyond inflation, suggesting that many prices were historically too low, or that demand has increased under conditions of a constrained supply, or both.

The current profit and loss statement of Needham Cemetery reveals the financial pressures on relatively small cemeteries such as this. The cost of subcontracted maintenance alone offsets its modest income stream, making the financial viability of Needham Cemetery uncertain. When the cemetery is sold out and built out, the 80 percent of its revenue generated from plot sales and interments will end. This begs the question: What will happen to maintenance when that significant portion of the revenue stream has dried up?

Planners need to confront the reality that the ownership and maintenance of the many cemeteries like Needham Cemetery may need to be taken over or subsidized by local

Graves	All graves at the Needham Cemetery	$ 375.00
	Cremation lots (will accommodate two cremations)	$ 250.00
Openings	Openings with grave box	$ 675.00
	Openings without grave box	$ 500.00
	Saturday openings with box	$ 875.00
	Saturday openings without box	$ 700.00
	Regular cremation openings	$ 125.00
	Saturday cremation openings	$ 250.00
Disinternment		$ 700.00
Foundations	Per square foot	$ 50.00
	Veterans markers (To be paid with opening order)	$60.00
Markers	Minimum charge	$ 50.00
Overtime	Per hour (after 3:30 p.m.) (minimum charge of 1 hour)	$35.00

Table 5.1. Needham Cemetery charges, 1991–2012
Source: Needham Cemetery Association

Graves	Nehoiden Street (minimum of 2 graves)	$1,600.00
	Parish Road (minimum of 2 graves)	$1,400.00
	All other grave lots	$1,250.00
	Cremation lots (accommodates two cremations)	$600.00
	Deed Replacement/Lot Exchange administration fee	$25.00
Openings	Regular opening (in gates by 2:00 PM)	$1,250.00
	Saturday morning (in gates by 12 noon)	$1,620.00
	Cremation opening (in gates by 2:00 PM)	$500.00
	Saturday morning (in gates by 12 noon)	$800.00
Disinternment		$3,000.00
Overtime	Weekdays after 2:00 pm until grave is closed	$100.00 per ½ hr
	Saturday Earth or Cremation until noon	$300.00
	Every hour after noon on Saturday until grave is closed	$100.00 per ½ hr
Foundations	Per square foot (minimum charge)	$150.00
	Veteran's markers (to be paid with order or when marker is delivered to cemetery)	$150.00
Markers	Charge	$100.00
Tent Rental	Weekdays	$200.00
	Weekends	$250.00

Table 5.2. Needham Cemetery charges, 2012
Source: Needham Cemetery Association

A HISTORY OF NEEDHAM CEMETERY

1711   143 acres located in North Dedham granted to the first parish of Needham for the purpose of use as a burial ground

1782   Burial ground enlarged

1815   Authorized building of first tomb

1839   Authorized charge of "not less than $.50 nor more than $1.50" for burial of non-members

1842   Allowed burials of "friends from out of town"

1846   Added an area of 10 rods (1/16 of an acre) to cemetery

1862   Began issuing "deeds" for lots

1876   First parish sells to private citizens group, known as Needham Cemetery Association

1903   Needham Cemetery Association organized, officers and trustees elected. Lots sold by size of area needed (graves dug according to the size of the person being interred)

1930s   Grave sizes standardized and lots sold by number of graves contained in the lot. Large areas containing multiple lots laid out and planned in advance

1940s   Needham Cemetery Association gives the town of Needham a 22,500-square-foot area to be used as veterans' section

1995   Trustees determine cemetery in physically and financially deplorable condition and attempt to have town take it over. Town declines. Trustees reorganize. To solidify finances, 22,000 square feet of property sold and proceeds placed in a trust for future use

2001   Trustees hire B.S.C. Group to map cemetery and propose expansion plans at cost of $30,000; plan never used

2002   Trustees vote to hire private contractor to run cemetery. Superintendent and staff terminated resulting in significant reduction in expenses. Superintendent house rented to private family providing additional income

2006   Two new sections cleared for burial lots providing greater selection of lot choices

2010   New section created for exclusive interment of infants and children

municipalities to perpetuate their proper maintenance when they are no longer financially viable. Chapter 3 of this report provides some potential mechanisms to avoid governmental intervention, and the conversion of these lands to multi-use spaces as discussed in Chapter 4 provides a potential solution to reinvigorate their valuable public use.

Lessons Learned

The Needham Cemetery Association is struggling financially after decades without a long-term physical or economic plan in place. However, over the last decade the trustees have begun the difficult process of facing up to sustainability. This experience offers several takeaway lessons for similar suburban cemeteries.

First, it is essential to have a long-term, comprehensive physical master plan for the build out of a cemetery where there is no opportunity for physical expansion. Along with this physical master plan, cemeteries should develop financial plans establishing sales prices, fees, and charges that will prove adequate for perpetual maintenance. This is vital in addressing the economic realities of creating an adequate endowment for the perpetual maintenance of the cemetery after build out when there are no more revenues from selling burial plots and no new service charges for opening and closing graves. Finally, in built-out communities where there is no opportunity for the expansion of a cemetery, consideration must be given to increasing the density of burials by allowing more interments per burial lot, by encouraging cremation, and by "going vertical" with columbaria and other structural solutions above and below ground, including those which allow for full-body burials.

GREEN-WOOD CEMETERY, BROOKLYN, NEW YORK

Figure 5.2. *Bird's-eye view of Green-Wood Cemetery*
Library of Congress, Prints and Photographs Division

Founded in Brooklyn in 1838 by a group led by engineer David Bates Douglas and urban planner Henry Pierrepont, Green-Wood was New York's first rural cemetery and the third founded in the United States (Figure 5.2). It is one of the "grand triumvirate" of influential cemeteries (Richman 1998; Schuyler 1986, 45). Inspired by the success of the two other members of the triumvirate, Boston's Mount Auburn and Philadelphia's Laurel Hill, Green-Wood was situated on a hilltop in Gowanus Heights. Exhibiting perhaps an even grander design than Mount Auburn or Laurel Hill, and commanding an impressive view of the East River and lower Manhattan, Green-Wood was incorporated by the New York State Legislature "for the purpose of establishing a public burial ground in the City of Brooklyn" (Richman 1998, 9). David Bates Douglas laid out the original 178 acres of the cemetery in a manner that improved the site's natural condition.

View of lake, Green-Wood Cemetery
TCY / Creative Commons 3.0

Early on, the cemetery emerged as a popular resting place for New York's elites. The cemetery administrators marketed its large plots to city organizations, which then sold individual spaces to their members. This increased Green-Wood's popularity and renown, but also made it accessible to individuals who could not afford a spot otherwise. Likewise, residents of the city turned to the cemetery as a recreational outlet, and by the early 1850s the grounds were attracting upward of 100,000 leisure visitors a year. By the 1860s, the accumulated attention of so many visitors had made Green-Wood famous around the country for its landscape, tranquility, and its significant collection of 19th-century American sculpture (Richman, 1998, 13–16).

Imitating early rural cemeteries, Green-Wood was designed in a picturesque style with spacious family lots. With often elaborate monuments, the cemetery projected an image of tranquility amid the city. Burials at Greenwood were (and remain) three deep, and the original lots were 14 feet by 27 feet, enough space for 36 individuals (Wilson 2009).

As noted above, one of the innovations Green-Wood introduced was allowing organizations, churches, or fraternal groups to purchase multiple plots that could then be divided up and sold to individual members of the group and a reduced cost (Schuyler 1986, 46). Green-Wood also helped originate a system of detailed land-use controls that governed the design of monuments permitted on individual lots, perhaps a precursor to modern zoning (Richman 1998, 15).

From the 1840s to the 1870s, Green-Wood (along with Mt. Auburn and Laurel Hill) inspired the national rural cemetery movement. By the middle of the 19th century, rural cemeteries had appeared in almost every major, and most minor, American cities. Adhering to design schemes that echoed Green-Wood, rural cemeteries often became important local institutions. As a large passive recreational area, Green-Wood's immediate popularity in New York provided a boost to arguments that stressed the benefits of public parks for large, congested cities, and the cemetery proved to be a major influence on the design of urban parks and even suburbs in the mid-19th century. Green-Wood predated New York's two most influential parks, Central Park and Prospect Park, by several years and has long been identified as an important precedent for the subsequent designs of both (Schuyler 1986; Simon 1978). Characteristics of rural cemeteries were later adopted in early picturesque suburbs, such as Alexander Jackson Davis's Llewellyn Park in the New Jersey suburbs and Frederick Law Olmsted's Riverside on the edge of Chicago.

By the second half of the 19th century, the cemetery had grown to its full extent of 478 acres, making it the largest rural cemetery in the United States. As Brooklyn grew into the fourth largest city in the United States, and later the most populated borough of New York City, Green-Wood was steadily hemmed in by residential development. While the cemetery had been on the edge of the Brooklyn countryside in the 1830s, by the end of the 19th century its boundaries had become firmly established by the dense urban neighborhoods that now surrounded it on all sides.

Despite its inability to expand, the cemetery's population continued to grow during the 20th century, albeit at a decreasing rate. From a high of over 7,000 burials a year in the mid-to-late 19th century, the number of yearly new interments had declined precipitously by 1950 to around 2,000 burials per year. In response to the growing popularity of cremation and reduced space for in-ground burials, Green-Wood's administrators constructed a crematory and columbarium in 1954. Providing thousands of additional niches for cremains, the columbarium became a popular option due to its lower cost and smaller footprint. By the end of the 20th century, the rate of burials had declined to an average of just about 1,300 per year, as available space for new graves continued to wane, new lawn-park cemeteries were established in the postwar suburbs, and a slow but growing percentage of the city's population decided on cremation rather than burial for final interment (Wilson 2009; Prothero 2001).

Green-Wood Cemetery
Norcross Media

From its early 19th-century origins, Green-Wood has grown to cover nearly 480 acres with upward of 560,000 gravesites. For the last 175 years, the cemetery has served as the final resting place for many of New York and the nation's elites. Green-Wood today remains one of the city's largest passive greenspaces and a highly sought-after final resting place.

Practices and Policies

By the late 20th century, like many other rural cemeteries, Green-Wood faced a situation of rapidly declining space for new interments even as demand for space remained high. Most interments during the last two decades have occured in graves purchased by families years ago, in some cases in plots that have been held for decades. With the cemetery reaching its capacity, the few lots still available for sale have become ever more precious, ranging in price from $9,000 to nearly $20,000 depending on location. The cemetery estimates it has enough space for new graves for another decade at the most (Wilson 2009).

With the possibility of an increased footprint off the table, the cemetery's administrators have found other ways to increase capacity. One technique has involved carefully managing land use so that new burial plots can be fitted into marginal spaces around the edges of the cemetery. A good set of historic maps has enabled the cemetery surveyor to locate vacant land and carve out new plots, which has added to the total number of spaces available for sale. As part of carving out new burial plots, the surveyor has also gradually closed streets and pathways and moved walkways and other minor infrastructure. These steps have created dozens of new plots over the last two decades (Wilson 2009).

A second technique for squeezing further capacity from the cemetery in order to maintain its income has been the addition of mausoleum spaces beginning in the late 1970s. Spaces in the first mausoleum quickly sold out, leading to a series of mausoleums being constructed over the next three decades, the latest addition being a 5,200-space building in 2005. The latest mausoleum was also joined by a new columbarium, a structure that includes 8,000 niches for cremated remains (Loving 2005).

With these two steps, Green-Wood's administrators may have added enough capacity to extend activity in the cemetery for another 25 years, even as the number of new in-ground spaces disappears. Despite the decline in the number of traditional lots, the sale of new interment space, largely in the form of mausoleum slots and columbarium niches, still accounts for nearly 40 percent of the cemetery's total income, with investments and service charges comprising the rest (Dunlap 2002). As the new spaces fill up, income from sales will necessarily decline. Faced with the burden of maintaining the graves and family mausoleums in perpetuity, some of which are 150 years old, Green-Wood administrators have begun seeking sponsors to take on the financial responsibility for "notable monuments that are no longer being cared for by the families that built them" (Dunlap 2002).

Complicating the long-term cost of maintaining Green-Wood's pristine landscape is the danger presented by natural disasters and climate change. Since the cemetery sits only a few miles from the Atlantic Ocean, it is particularly vulnerable to major storms. The swath Hurricane Sandy cut through the Northeast damaged cemeteries around the region and inflicted particular destruction on New York City's cemeteries, especially Green-Wood. Unearthed trees smashed monuments while sustained 90 mile-an-hour winds toppled some stone statues and sheared off parts of others (Figure 5.3, p. 60). While the long recovery process has begun, because the cemetery is relatively cash poor, and because it does not own the individual monuments and is thus unable make insurance claims against the value of the property destroyed,

Figure 5.3. Hurricane Sandy damage in Green-Wood Cemetery
Frederick Piccarello

its opportunities for restoring areas that were severely damaged is limited (Dunlap 2012). What kinds of plans New York City's planners draw up to confront these kinds of issues in the future remains to be seen.

Lessons Learned

While the status bestowed on the cemetery as a result of its location in New York cannot be replicated, the management of Green-Wood's physical plant offers guidance for planners dealing with historic cemeteries in other communities.

An engaged governing board and investment in maintenance can pay significant dividends in the form of increased value of burial plots, visitation, and support from the larger community. Investing in a series of well-designed mausoleums and a new columbarium over the last few decades has allowed the cemetery to increase density significantly within its boundaries. By introducing new interment spaces of varying size and cost, the mausoleums and columbarium have helped the cemetery increase accessibility and appeal to a wider range of individuals from different cultural backgrounds. Removing, or simply relocating—infrastructure and adornments—roads, pathways, monuments—has created additional burial spaces. While the process has been expensive, meaningful increases in sellable space more than offset the cost.

Creating new spaces to sell without the expense of expanding the cemetery's footprint has also helped maintain a steady cash flow to support the cemetery's operations. These additions have all been accomplished without undermining the historic landscape that gives the cemetery much of its elegance.

▶ HONG KONG

The urbanized area of the Special Administrative Region of Hong Kong is one of the most densely populated areas on the planet. Hong Kong residents enjoy some of the world's longest life expectancies, but a demographic bubble similar to that of the aging baby boomers in the U.S. is on the near horizon. By 2025, the 60–64 age cohort will comprise 2.1 million people, the largest age group in Hong Kong. How are extreme density and an aging population shaping the deathscape of Hong Kong?

Notable Practices and Policies

Relieving some of the pressure of space needed for western-style interment, cremation has been the norm in Hong Kong for decades due to perennial cemetery land shortages, but this space savings has only shifted pressure from interment to inurnment (McIntyre 2011). There is an enormous premium

A cemetery in Happy Valley, Hong Kong
ForsterFoto / Creative Commons 2.0

placed on a coffin burial even though grave sites are regularly exhumed. In the exhumed grave, the bones of the previous occupant are placed in a much smaller casket in the same grave to make space for another coffin. There is also a growing shortage of urn niches, such that between 12,000 and 100,000 cremated remains are awaiting final resting places (*South China Morning Post* 2011b). While waiting for columbaria niches, cremains have been held in storage facilities or family homes.

Complicating matters, dying without a resting place is taboo in China (*South China Morning Post* 2011a). Feeding off the fear of this taboo and simple demand economics, a number of private, unregulated, and unlicensed rogue columbaria have been charging upward of $25,000 USD or more per urn niche. These niches would normally cost anywhere from several hundred to several thousand dollars (Biggs and Leung 2009). Lawmakers are now left with the task of regulating these operations retroactively and, in near-crisis mode, creating more capacity in public columbaria (Tam 2012).

The battles over shutting down illegal operations, licensing new ones, and increasing capacity have been ongoing for years. A major problem is severe

NIMBYism (the "not in my backyard" mentality) concerning cemeteries. In 2010, an urban plot up for auction in Hong Kong received no bids and was eventually withdrawn from the market—an unheard-of occurrence despite a very low opening bid. Developers were reported to be wary of the site due to its proximity to six cemeteries and an inability to build units that would not have cemetery views (Yiu 2010).

Although in other cities cemeteries may serve as a form of urban open space, in Hong Kong NIMBYism is driven by fears of increased traffic (even though 90 percent of journeys are taken on public transportation), bad feng shui, and the nuisance created by the burning of paper and incense offerings to the dead. The minutes from public meetings and panels of the Food Safety and Hygiene Department (the agency in charge of regulating burial practices) reflect a strong belief in maintaining a clear separation between the world of the dead (yin) and that of the living (yang).

Scattering of remains would relieve the need for niches, but Chinese mourners seem resistant to this, preferring a more permanent resting place to "visit and honor their dead" (McIntyre 2011). One proposed solution is to create permanent public gardens of remembrance where cremains could be scattered. The introduction of touchscreens that store and display data and images has been proposed as an innovative method to meet the cultural demand for memorializing the deceased in these land and sea scattering gardens (McIntyre 2011).

Holy Cross Catholic Cemetery (Cape Collinson), Chai Wan, Hong Kong
Rob Young / Creative Commons 2.0

Hong Kong has looked to Japan and its shared interment challenges. One solution in Yokohama is a mechanized vault where an automated system searches thousands of underground niches and brings the cremains to a private viewing area (Biggs and Leung 2009). This viewing area may even extend to one's own home with options to call up and view urns online. These vaults allow extremely high subterranean densities that still allow the periodic visiting and honoring of remains expected in Buddhist culture.

An option for cities located on coasts and waterways is currently in the design phases for Hong Kong. As has been seen in cities from Tokyo to Dubai, coastal cities that have run out of space and have the resources to carry out massive urban development can create land through dredging and reclamation. No plans for land reclamation are yet in the works, but a floating cemetery that could house nearly a half a million urns has been proposed by the BREAD Studio design consultancy. It would offer a culturally sensitive memorial to the dead and relieve pressures on precious land (LaBarre 2010). The floating feature, unlike a dredged island, would also provide a longer-term solution to future sea-level rise.

Surprisingly, despite its overall density, a large proportion of the Hong Kong district is lightly developed with small villages, and about 40 percent of the total land area, mostly highlands, is protected as parkland. The Closed Area of Hong Kong, a strip of land of thousands of hectares that separates Hong Kong from the rest of China, was the subject of a land-use feasibility study in 2010 (Hong Kong Planning Department 2010). Part of the plan resulting from the study included developing 3.5 percent of the area (91 hectares, or almost 225 acres) for cemetery use, a considerable portion aimed to alleviate the interment and inurnment pressures from the city. A noted constraint on other development plans in the area is the existence of burial grounds used by indigenous residents who are currently given priority for burial space.

Pressures on land have coincided with an increased sensitivity toward the environment in Hong Kong. Those choosing cremation have been encouraged to do so in ways that reduce fuel consumption and emissions. The living are reminded by the Food Safety and Hygiene Department that it is just as respectful to use an easily combustible and less ornate coffin that uses less fuel to burn, leaves fewer ornamental metal items behind, and produces far fewer emissions than thick, heavily lacquered exotic wood coffins.

Translation to Practice in the United States

Hong Kong presents a case of extreme density in concert with an aging population to create a perfect storm of cemetery pressure. Could this crisis have been predicted and avoided? Especially in built-out U.S. cities where baby boomers congregate, such as some locales in Florida, planners need to assess their interment capacity and plan for plots, niches, and scattering gardens accordingly to avoid an inability to provide the dead a place to rest in peace. Data sources for projecting capacity will be greatly influenced by whether cemeteries are public, private, or some hybrid of the two. The data-gathering exercise may be valuable in and of itself in revealing the actors involved in providing capacity. The analysis of the data is essential to project how well-prepared government and the private sectors are to fulfill an essential public need (Coutts, Basmajian, and Chapin 2011).

The situation in Hong Kong also demonstrates that rituals around the dead that drive the feasibility of disposition options are pertinent to planning for a community's capacity to inter its dead. The most direct translation of the Hong Kong experience is in U.S. cities where a significant proportion of the population subscribes to eastern traditions of the proper handling of the dead. Although there are outliers in New Jersey and Pennsylvania, most of the U.S. cities with a majority Asian American population are in California and Hawaii. While the pastoral serenity of cemetery design could make it a desirable neighborhood feature to some, to others it could conflict with tightly held beliefs of the separation of the dead and the living. New cemetery development and the conversion of spaces for the dead into spaces for the living will undoubtedly be susceptible to a community's willingness to mingle with the dead.

Finally, Hong Kong's story suggests that although cremation is less land-intensive than a traditional coffin burial, its environmental impacts need to be mitigated if it is to be encouraged. Hong Kong actively promotes cremation to save space, but officials have now begun to encourage more environmentally sensitive variants on this practice. When a demographic bubble bursts, there may be years when large cities must accommodate—and incinerate—tens if not hundreds of thousands of corpses. Reducing harmful emissions by simplifying caskets and promoting chemical cremation (resomation) makes the legacy of the dead less harmful to the living.

▶ LONDON

London's 5,100 persons per square kilometer is almost double that of Los Angeles, the most densely populated U.S. city (City Mayors Statistics 2007). The resulting land-use pressures also extend to the land used to inter the dead. With its extensive history, London is a case in urban evolution that yields many interesting—and sometimes dark—lessons about accommodating the deceased. London has faced the pains of heaping the dead among the urban living, exacerbating endemic public health crises, but today it is leading the way in innovative interment practices and reincorporating the cemetery as an integral part of public urban green infrastructure.
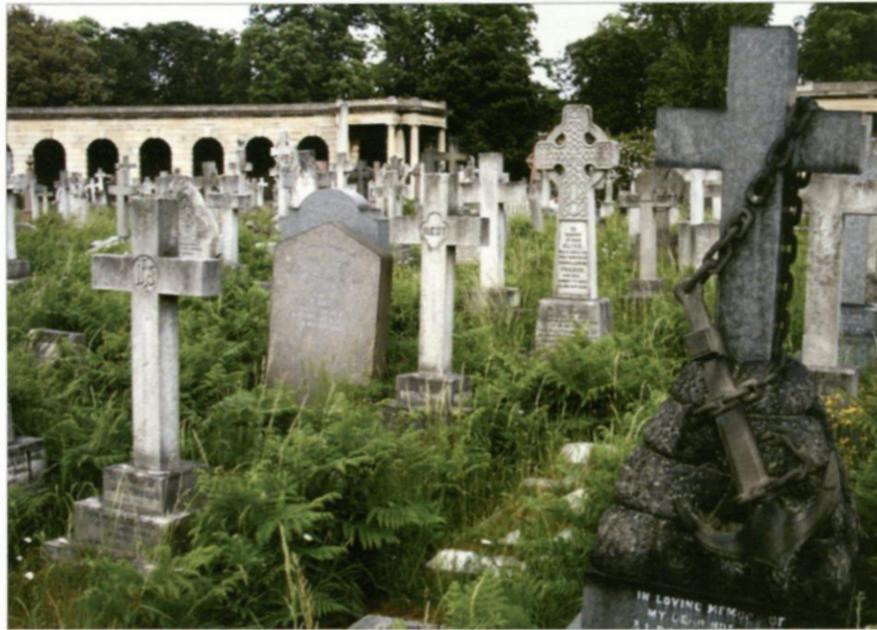
Figure 5.4. Brompton Cemetery, one of London's "Magnificent Seven"
www.CGPGrey.com / Creative Commons 2.0

Notable Practices and Policies

It was not until the mid-19th century Victorian era that burial grounds outside of the churchyard were established in London. Centuries of burials in spatially modest churchyards eventually took the form of shallow communal pits that grew into heaps of corpses 15 feet high. Bodies were at times also interred beneath the floorboards of chapels and church schools (GenDocs 2003). In no small part influenced by a series of cholera epidemics that killed tens of thousands of Londoners and exacerbated the need for burial space, Parliament passed an act in 1832 that encouraged the establishment of burial grounds outside of London city center. This act led to the creation over the next decade of what have been dubbed the "Magnificent Seven" cemeteries in what was then suburban London (Figure 5.4; Turpin and Knight 2011). The doubling of London's population between 1800 and 1850 to 2.5 million (making it the largest city on earth at that time) and the prohibition in 1851 of any new burials within the city fueled the establishment of dozens of additional suburban cemeteries, some municipal and some private.

In addition to the many public suburban cemeteries, a number of private ventures sought to profit from the ample supply of corpses. One noteworthy private venture was the joint London Necropolis Railway and Brookwood Cemetery. Opened in 1854, and to this day the largest cemetery in the United Kingdom, Brookwood has so far managed to fulfill its original charter to satisfy the interment needs of London for 500 years. The Necropolis Railway extended from Waterloo to Brookwood and was used not only by mourners escorting the deceased to their final resting places but also to clear out the overflow of bodies from existing burial grounds within the city.

With another doubling of the population by 1900, and with the strains of World War I shortly thereafter, maintaining these suburban cemeteries became unexpectedly costly, and many of these sites began to be neglected (Richards 2005). Some of these cemeteries are still active, however, and many that had become overgrown and forgotten are being refurbished through the efforts of cultural and historical societies. The Commission for Architecture and the Built Environment (CABE) produced a briefing on the state of cemeteries in the United Kingdom that noted the current state of neglect and opportunities for using these often prime and accessible lands for public health and environmental benefits (2007). One of these cemeteries, the City of London Cemetery and Crematorium (founded in 1856), now offers interment options with reduced ecological footprints. This assures the cemetery's continued interment capacity and lowers its impact on the living. The cemetery maintains a wooded area for natural burials where removable wooden posts are used as grave markers and cardboard coffins allow rapid and complete decomposition (City of London n.d.).

Another technique that preserves valuable urban space is grave sharing, where previous occupants are remembered and the mourners of the new occupants become the caretakers of the gravesite. If existing Victorian-era gravesites are left unclaimed, they are restored and offered to new families.

Figure 5.5. Open space and wildlife habitat provided by London's Brookwood cemetery
Faeden1

New names are added to the original memorials, which remain on the site and pass into the care of the new owners (London Borough of Newham 2009). The London Cemetery is also embracing its role as a contributor to urban green infrastructure by allowing wildlife to flourish and billing itself as a public green space that people are encouraged to visit and enjoy.

In many boroughs of London, cemeteries comprise much of the public open space. Thousands of churchyards across the country, and even those in London that were once quite literally overflowing with the dead, have allowed their grounds to revert to natural habitat (Figure 5.5). The Living Churchyards project envisions the potential of "the dead providing sanctuary for species whose living space had been cut back" (ARC n.d.). The living—humans, plants, and animals alike—have begun to reclaim their open space.

Translation to Practice in the United States

Nineteenth-century London faced a crisis in cemetery capacity, which forced an immediate and massive development of cemetery space. Today, there is still capacity available in a number of the cemeteries established 150 years ago to cope with this crisis. Cremation is now chosen by almost three-quarters of the deceased in the United Kingdom, which is alleviating some of the pressure caused by preferences for single-grave interment. Therefore, even

though the population of the London metro area is four times what it was in 1850, the dead from an expanding population have not caused a recurring land-use crisis. American planners might ask themselves: Does my municipality have enough capacity to accommodate the deceased for the foreseeable future? What about a slight (or dramatic) increase in mortality caused by a natural or man-made hazard?

The United Kingdom is much farther ahead of the United States in adopting environmentally sensitive options for the disposition of human remains, and can therefore be studied for the effectiveness of these methods in reducing environmental degradation. In addition, Britain's reintroduction of the cemetery as an integral component of conservation lands and accessible green infrastructure will be informative for American planners. Although cultural mores will likely dictate the extent to which cemeteries are used as multi-use spaces, defunct and newly proposed deathscapes may prove to be the best and highest use of urban land.

If cemeteries become viable public spaces once again, it will be vital to make public transportation available for the living to reach these open spaces in cities and on the urban fringe. Like the boat shuttles that will take the dead and their mourners to Hong Kong's proposed floating cemetery, the Necropolis Railway of London provided essential transportation from London to Brookwood Cemetery. The demand created by making cemeteries multi-use spaces will require that future public transportation options are available to those without other means of access.

References

Alagiakrishnan, Kannayiram, and Anita Chopra. 2001. "Health and Health Care of Asian Indian American Elders." *Curriculum in Ethnogeriatrics*, 2nd ed. Collaborative of Ethnogeriatric Education, Stanford University School of Medicine. Available at www.stanford.edu/group/ethnoger/asianindian.html.

Aldous, Vickie. 2010. "City Oks 'Green' Burial." *Ashland (Ore.) Daily Tidings*, May 24. Available at www.dailytidings.com/apps/pbcs.dll/article?AID=/20100524/NEWS02/5240307.

Alliance of Religions and Conservation (ARC). n.d. "Living Churchyards Project." Available at www.arcworld.org/projects.asp?projectID=271.

American Society of Planning Officials (ASPO). 1950. *Cemeteries in the City Plan*. Information Report no. 16. Chicago: ASPO.

American University. 2012. "State Burial Laws Project." Washington College of Law. Available at www.wcl.american.edu/burial.

Archdiocese of Milwaukee Catholic Cemeteries. 2004. "Burial Options: Cremation and the Catholic Church." Available at www.cemeteries.org/pdf/Burial%20Options_Cremation.pdf.

Aries, Philippe. 1981. *The Hour of Our Death*. Helen Weaver, trans. New York: Knopf.

Arizona State Historic Preservation Office. n.d. "Inventory of Arizona Historic Cemeteries (IAHC)." Available at http://azstateparks.com/shpo/inventory.html.

Baltimore (City of), Maryland. 2012. *Zoning Code*. Available at http://cityservices.baltimorecity.gov/charterandcodes/Code/Art%2000%20-%20Zoning.pdf.

Barber, Russell. 1993. "The Agua Mansa Cemetery: An Indicator of Ethnic Identification in a Mexican-American Community." In *Ethnicity and the American Cemetery*, ed. Richard Meyer. Bowling Green, Ohio: Bowling Green State University Popular Press.

Barrett, Gary, and Terry Barrett. 2001. "Cemeteries as Repositories of Natural and Cultural Diversity." *Conservation Biology* 15(6): 1820–24.

Basmajian, Carlton, and Chris Coutts. 2010. "Planning for the Disposal of the Dead." *Journal of the American Planning Association* 76(3): 305–17.

Bellevue (Washington), City of. 2012. *City Code*. Title 20, Chapter 20.10: Land Use Code—Land Use Districts. Available at www.codepublishing.com/wa/bellevue/.

Bender, Thomas. 1974. "The Rural Cemetery Movement: Urban Travail and the Appeal of Nature." *New England Quarterly* 47(2): 196–211.

Berke, Michael. 2012. "Village Discusses Ordinance to Control Abandoned Big Box Stores." *Racine (Wisc.) Journal-Times*, September 20. Available at http://journaltimes.com/news/local/village-discusses-ordinance-to-control-abandoned-big-box-stores/article_f9635642-0314-11e2-ab7d-0019bb2963f4.html.

Biggs, Stuart, and Sophie Leung. 2009. "Hong Kong Looks to Japan's Nichiryoku Co. for Mechanical Tombs." Bloomberg, December 3. Available at www.bloomberg.com/apps/news?pid=newsarchive&sid=a4b1GIKF9uw8.

Black Hope Cemetery. 2011. "Black Hope Cemetery aka Black Hope Horror…" Available at http://blackhopecem.webs.com.

Bloch, Maurice, and Jonathan Parry, eds. 1982. *Death and the Regeneration of Life*. Cambridge: Cambridge University Press.

Bowman, LeRoy. 1959. *The American Funeral: A Study in Guilt*. Washington, D.C.: Public Affairs Press.

Brattleboro History. n.d. "Cemetery on High Street." Available at http://brattleborohistory.com/cemeteries/the-lost-church---willard-cemetery-on-high-street.html.

British Broadcasting Corporation (BBC). 2013. "Richard III Dig: DNA Confirms Bones are King's." *BBC News Leicester*, February 4. Available at www.bbc.co.uk/news/uk-england-leicestershire-21063882.

Brown, Patricia Leigh. 2005. "Eco-Friendly Burial Sites Give a Chance to Be Green Forever." *New York Times*, August 13. Available at www.nytimes.com/2005/08/13/national/13cemetery.html.

California Environmental Protection Agency Air Resources Board (EPA ARB). 2010. "Dioxins Program." Available at www.arb.ca.gov/toxics/dioxins/dioxins.htm.

Capels, Valerie, and Wayne Senville. 2006. "Planning for Cemeteries." *Planning Commissioners Journal* 54, 3–10.

Cathcart, Rebecca. 2008. "Where Hollywood's Stars Are Interred, But Live Forever on Screen." *New York Times*, June 8. Available at www.nytimes.com/2008/06/07/movies/07ceme.html?_r=2&scp=1&sq=hollywood+stars+are+interred&st=nyt.

Celestis, Inc. n.d. "Memorial Spaceflight Services." Available at www.celestis.com/services.asp.

Centers for Disease Control and Prevention. 2004. "Mean Body Weight, Height, and Body Mass Index, United States 1960–2002." *Advance Data From Vital and Health Statistics*, no. 347. Available at www.cdc.gov/nchs/data/ad/ad347.pdf.

———. 2012. "Overweight and Obesity." Available at www.cdc.gov/obesity/data/adult.html.

Centre for Natural Burial. 2010. "How Much Does a Green Burial Cost?" Available at www.naturalburial.coop/2010/12/27/how-much-does-a-green-burial-cost.

Chapman, Dan. 2010. "Economy Offers No Succor for Death Care Industry." *Atlanta Journal-Constitution*, November 8.

City Mayors Statistics. 2007. "Largest Cities in the World Ranked by Population Density." Available at www.citymayors.com/statistics/largest-cities-density-125.html.

City of London. n.d. "Cemetery and Crematorium." Available at www.cityoflondon.gov.uk/things-to-do/green-spaces/cemetery-and-crematorium/Pages/default.aspx.

Commission for Architecture and the Built Environment (CABE). 2007. "Cemeteries, Churchyards, and Burial Grounds." London: CABE. Available at http://webarchive.nationalarchives.gov.uk/20110118095356/http://www.cabe.org.uk/publications/cemeteries-churchyards-and-burial-grounds,

Copeland, Larry. 2000. "Groups Want Cemeteries to Rest in Peace: Booming Development Can Put Small Graveyards at Risk, Especially in South." *USA Today*, January 17.

Coutts, Chris, Carlton Basmajian, and Timothy Chapin. 2011. "Projecting Landscapes of Death." *Landscape and Urban Planning* 102(4): 254–61.

Cremation Association of North America. 2005. "Cremation Continues to Expand as Option Americans Prefer."

Curl, James Stevens. 1999. *Oxford Dictionary of Architecture*. Oxford: Oxford University Press.

Davies, Douglas. 1996. "The Sacred Crematorium." *Mortality* 1(1): 83–94.

Davies, Douglas, and Alastair Shaw. 1995. *Reusing Old Graves: A Report on Popular British Attitudes*. Crayford, UK: Shaw and Sons. Summary available at www.york.ac.uk/chp/crg/reusing.htm.

de Courcy, Michael. 2011a. "Dead and Buried: What Became of the Cemetery at Woodlands?" Available at www.michaeldecourcy.com/dead_and_buried/html/intro.htm.

———. 2011b. "A Long Last Look at Woodlands." Available at www.michaeldecourcy.com/asylum/intro/intro.htm.

Dent, B., S. Forbes, and B. Stuart. 2004. "Review of Human Decomposition Processes in Soil." *Environmental Geology* 45(4): 576–85.

Deschene, Dave. 2011. "Cemeteries: From Paper to Computer." *MN GIS/LIS News* 63 (winter). Available at www.mngislis.org/displaycommon.cfm?an=1&subarticlenbr=646.

Duertson, Matthew. 2002. "The Cemetery Show: What Lies Beneath." *LA Weekly*, August 1. Available at www.laweekly.com/2002-08-01/columns/the-cemetery-show-what-lies-beneath.

Dunlap, David. 2002. "For Historic Cemeteries, New Chapters." *New York Times*, June 2. Available at www.nytimes.com/2002/06/02/realestate/for-historic-cemeteries-new-chapters.html.

———. 2012. "Many Cemeteries Damaged, but Green-Wood Bore the Brunt of the Storm." *New York Times*, November 25. Available at http://cityroom.blogs.nytimes.com/2012/11/25/many-cemeteries-damaged-but-green-wood-bore-the-brunt-of-the-storm/.

Earth Talk. 2008. "Eco-Afterlife: Green Burial Options." *Scientific American*, September. Available at www.scientificamerican.com/article.cfm?id=eco-afterlife-green-buria.

East Fishkill (New York), Town of. 2012. *Code of Ordinances*. Section 194-69: Cemeteries. Available at http://ecode360.com/EA0495.

Environmental Protection Authority of South Australia. n.d. "Environmental Issues Associated with Cremation." Available at www.epa.sa.gov.au/xstd_files/Air/Other/cremation.pdf.

Esposito, John. 2011. *What Everyone Needs to Know about Islam*. New York: Oxford University Press.

European Environment Agency. 2008. "Sources of Air Pollution." Available at www.eea.europa.eu/publications/2599XXX/page010.html.

Fayette (Georgia), County of. 2012. *Zoning Ordinance*. Article VII: Conditional Uses, Nonconformances, Transportation Corridor Overlay Zone, and Commercial Development Standards. Available at www.fayettecountyga.gov/planning_and_zoning/pdf/FVERSART.007.pdf.

Federal Trade Commission. 1984. Federal Funeral Industry Practices Trade Regulation Rule, 16 CFR §453.

———. 2000. "Funerals: A Consumer Guide." Available at www.ftc.gov/bcp/edu/pubs/consumer/products/pro19.shtm.

Francaviglia, Richard. 1971. "The Cemetery as an Evolving Cultural Landscape." *Annals of the Association of American Geographers* 61(3): 501–9.

Frey, William. 2007. *Mapping the Growth of Older America: Seniors and Boomers in the Early 21st Century*. Living Cities Census series. Washington, D.C.: Brookings Institution. Available at www.brookings.edu/~/media/research/files/papers/2007/6/12demographics%20frey/0612demographics_frey.pdf.

Friend, T. 2005. "The Shroud of Marin: Tyler Cassidy and the New Way of Death." *New Yorker*, August 29.

GenDocs. 2003. "Victorian London Cemeteries." Available at http://homepage.ntlworld.com/hitch/gendocs/cem.html.

Gilson, Dave. 2011. "What Happens When You're Buried at Sea." *Mother Jones*, May. Available at www.motherjones.com/environment/2011/05/bin-laden-burial-at-sea.

Glade Springs Village. 2001. *Protective Covenants*. Declaration, Exhibit 1. Available at www.gladespringsvillagepoa.com/DocumentsCenter/Protective_Covenants_revised_6-18-01.pdf.

Glendale (California), City of. 2012. *Municipal Code*. Title 30, Chapter 30.15: Special Purpose Districts. Available at www.ci.glendale.ca.us/gmc/Zoning_Code/Chapter30-15.pdf.

Glendale Memorial Nature Preserve. 2010. "Ecologically Sound Burial Alternatives." Available at www.glendalenaturepreserve.org/index.htm.

Goldberg, Dan. 2012. "The Afterlife Gets a New Charge: East Hanover Cemetery Installs Solar Panels." *Newark Star-Ledger*, May 2. Available at www.nj.com/news/index .ssf/2012/05/the_afterlife_gets_a_new_charg.html.

Grand Rapids (Michigan), City of. 2003. *Cemetery Ordinance and Rules*. Available at http:// grcity.us/public-services/Parks-Recreation-Forestry/Documents/4975_Rules%20 and%20Regulations%202003.pdf.

Green Burial Council. n.d. "What We Do." Available at www.greenburialcouncil.org /what-we-do/.

———. 2011. "Green Burial Council Standards / Eco-Rating System for Burial Grounds." Available at www.greenburialcouncil.org/standards/burial-grounds/.

Habenstein, Robert, and William Lamers. 1963. *Funeral Customs the World Over*. Milwaukee: Bulfin Press.

Halporn, Roberta. 1993. "American Jewish Cemeteries: A Mirror of History." In *Ethnicity and the American Cemetery*, ed. Richard Meyer. Bowling Green, Ohio: Bowling Green State University Popular Press.

Harlem African Burial Ground. n.d. Available at http://harlemafricanburialground .wordpress.com.

Harnik, Peter. 2010. *Urban Green: Innovative Parks for Resurgent Cities*. Washington, D.C.: Island Press.

Harrington, David, and Kathy Krynski. 2002. "The Effect of State Funeral Regulations on Cremation Rates: Testing for Demand Inducement in Funeral Markets." *Journal of Law and Economics* 45(1): 199–225.

Harris, Mark. 2007. *Grave Matters: A Journey Through the Modern Funeral Industry to a Natural Way of Burial*. New York: Scribner.

Harvey, Thomas. 2006. "Sacred Spaces, Common Places: The Cemetery in the Contemporary American City." *Geographical Review* 96(2): 295–312.

Hess, Bill. 2012. "Solar Array Means Savings for Cemetery." *Sierra Vista (Ariz.) Herald*, March 23. Available at www.svherald.com/content/news/2012/03/23/255382.

Hong Kong Planning Department. 2010. *Land Use Planning for the Closed Area-Feasibility Study*. July. Available at www.pland.gov.hk/pland_en/misc/FCA/files_072010 /Executive%20Summary%20of%20Final%20Report(Eng).pdf.

Howard (Maryland), County of. 2012. *County Code*. Title 16, Subtitle 13: Cemetery Preservation. Available at http://library.municode.com/index.aspx?clientId=14680.

Hylander, L., and M. Goodsite. 2006. "Environmental Costs of Mercury Pollution." *Science of the Total Environment* 368(1): 352–70.

Iowa Cemetery Act. 2009. *Iowa Code*, Chapter 523I. Available at http://coolice.legis.iowa .gov/Cool-ICE/default.asp?category=billinfo&service=IowaCode&ga=83/.

Indigo / Hammond & Playle Architects. 2005. *Davis Cemetery District Master Plan*. July. Available at www.daviscemetery.org/docs.

International Cemetery, Cremation and Funeral Association (ICCFA). 1998a. "Criteria For Establishing A New Cemetery." Available at www.iccfa.com/government-legal /model-guidelines/criteria-establishing-new-cemetery.

———. 1998b. "Zoning and Related Construction Standards for Cemeteries." Available at www. iccfa.com/government-legal/model-guidelines/zoning-and-related-construction-standards-cemeteries.

Jackson, Kenneth, and Camillo Jose Vergara. 1996. *Silent Cities: The Evolution of the American Cemetery*. Cambridge, Mass.: MIT Press.

Kalamazoo (Michigan), City of. 2011. *City Code*. Appendix A, Zoning Ordinance. Available at http://ecode360.com/KA2666.

Kaufman, Martin. 1999. "Dust to Dust? A Greedy Death Industry Prevents Our Return to Nature." Available at www.naturalburials.co.nz/index.php?page=otherMedia5.

Keister, Douglas. 1997. *Going Out in Style: The Architecture of Eternity*. New York: Checkmark.

Kiest, Karen. 1993. "Czech Cemeteries in Nebraska from 1868: Cultural Imprints on the Prairie." In *Ethnicity and the American Cemetery*, ed. Richard Meyer. Bowling Green, Ohio: Bowling Green State University Popular Press.

Kung, Hsiang-Ching, Donna L. Hoyert, Jiaquan Xu, and Sherry L. Murphy. 2008. "Deaths: Final Data for 2005." *National Vital Statistics Reports* 56(10). Available at www.cdc.gov /nchs/data/nvsr/nvsr56/nvsr56_10.pdf.

LaBarre, Suzanne. 2010. "Dead in the Water: A Floating Cemetery for Hong Kong." *Fast Company Co.Design*, May. Available at www.fastcodesign.com/1654972/dead-in-the-water-a-floating-cemetery-for-hong-kong.

Laderman, Gary. 1999. *The Sacred Remains: American Attitudes Toward Death, 1799–1883*. New Haven, Conn.: Yale University Press.

Lawless, Jill. 2009. "UK Cemetery: Share a Grave with a Stranger?" *Seattle Times*, October 28. Available at http://seattletimes.com/html/nationworld/2010161094_apeubritain gravecrisis.html.

Leavenworth, Jesse. 2012. "Former Kmart Building to Be Demolished." *Hartford Courant*, June 7. Available at http://articles.courant.com/2012-06-07/community/hc-manchester-kmart-demo-0608-20120607_1_big-box-kmart-property-owners.

Linden Grove Cemetery. 2008. "Optional Business Model for an Active, Historic Cemetery." Available at https://docs.google.com/viewer?a=v&pid=sites&srcid=ZGVmYXVsdG RvbWFpbnxsZ2NlbWV0ZXJ5fGd4OjMwNGE0MDViNDExOWMzOTA.

Linden-Ward, Blanche. 1989. *Silent City on a Hill: Landscapes of Memory and Boston's Mount Auburn Cemetery*. Columbus: Ohio State University Press.

Living Reef Memorials. n.d. "Reef Deployment Locations." Available at www.livingreef memorial.com/story/my-living-reef-locations/.

Llewellyn, John. 1998. *A Cemetery Should Be Forever: The Challenge to Managers and Directors*. Glendale, Ill.: Tropico Press.

London Borough of Newham. 2009. "City of London Cemetery and Crematorium." Available at www.newham.gov.uk/EntertainmentandLeisure/Libraries/LibraryReference Services/ArchivesAndLocalHistory/CityofLondoncemeteryandcrematorium.htm.

Loving, Susan. 2005. "Green-wood Blends Old and New." *ICFM Magazine*, July. Available at www.iccfa.com/reading/2000-2009/green-wood-blends-old-new.

Manchester (New Hampshire), City of. 2006. *Greening the City: Parks and Recreation Master Plan Update*. Available at www.manchesternh.gov/website/LinkClick.aspx?fileticket =P9fVuA0PL6k%3D&tabid=1606.

Mandelker, Daniel. 1997. *Land Use Law*. Charlottesville, Va.: Lexis Law Publishing.

Mangaliman, J. 1997. "Designing Space to Bury People Poses Unusual Problems: Architects C. Peter Chow and Nancy Barba Commissioned to Design High-Occupancy Graveyard at the Existing Fairview-Cemetery in West-Hartford, Connecticut." *Architectural Record* 185(8): 32.

Marr, Kendra. 2007. "Green Memorial Concept Growing in Virginia." *Washington Post*, October 8. Available at www.washingtonpost.com/wp-dyn/content/article/2007/10/07 /AR2007100701203.html.

McIntyre, Stefanie. 2011. "Funeral Expo Shows New Ways to Deal with the Dead." Reuters, May 20. Available at www.reuters.com/article/2011/05/20/us-hongkong-funeral-idUKTRE74J1KV20110520.

McNamara, Kevin. 2002. "Cultural Anti-Modernism and 'The Modern Memorial-Park': Hubert Eaton and the Creation of Forest Lawn." *Canadian Review of American Studies* 32(3): 301–20.

Memorial Ecosystems. n.d. "About Ramsey Creek Preserve." Available at www.memorial ecosystems.com/Locations/WestminsterSC/tabid/58/Default.aspx.

Minority News. 2012. "Guilty Plea in Black Cemetery Desecration Case." Available at www.blackradionetwork.com/guilty_plea_in_black_cemetery_desecration_case.

Mitford, Jessica. 1963. *The American Way of Death.* New York: Dutton.

Mooallem, Jon. 2009. "The End is Near! (Yay!)" *New York Times Magazine,* April 16. Available at www.nytimes.com/2009/04/19/magazine/19town-t.html.

Morrissey, Siobhan. 2008. "Last Stop: The Great Burial Reef." *Time,* January. Available at www.time.com/time/health/article/0,8599,1708004,00.html.

Mumford, Lewis. 1961. *The City in History.* New York: Penguin.

Murfreesboro (Tennessee), City of. 2013. *2013 Zoning Ordinance.* Available at www.murfreesborotn.gov/uploadedFiles/government/Planning/zoning%20ordinance(1).pdf.

Naperville (Illinois), City of. 2012. *City Code.* Title 6: Zoning Regulations. Available at http://library.municode.com/index.aspx?clientId=14853.

Nathan-Kazis, Josh. 2012. "Cremation Becoming Increasingly Popular among Jews, Funeral Professionals Say." *Haaretz,* July 1. Available at www.haaretz.com/jewish-world/jewish-world-news/cremation-becoming-increasingly-popular-among-jews-funeral-professionals-say-1.447873.

National Funeral Directors Association (NFDA). 2012. "Statistics." Available at http://nfda.org/about-funeral-service-/trends-and-statistics.html.

National Park Service. 1990. *Native American Graves Protection and Repatriation Act.* Available at www.nps.gov/nagpra/mandates/25usc3001etseq.htm.

———. n.d. "A Place for the Living--Leisure, Learning, and Mourning." Reading 3, *Teaching with Historic Places: Mount Auburn Cemetery: A New American Landscape.* Available at www.nps.gov/nr/twhp/wwwlps/lessons/84mountauburn/84facts3.htm.

Natural Burial Co-operative. n.d. "Natural Burial in the USA—Operating." Available at http://naturalburial.coop/USA/category/operating/.

New England Burials at Sea. 2013. "Burials at Sea Home Page." Available at www.newenglandburialsatsea.com/.

New York City Department of City Planning. 2012. "New York City Land Use." Available at www.nyc.gov/html/dcp/html/landusefacts/landusefactshome.shtml.

NewCom Technologies. 2008. "Manage Your Cemetery with GIS." Available at www.newcomtech.com/industries/government/gis_cemetery_management.htm.

Pappas, Stephanie. 2012. "Lost Medieval Church Found Beneath Parking Lot." Yahoo News, September 5. Available at http://news.yahoo.com/lost-medieval-church-discovered-beneath-parking-lot-150230522.html.

Pattison, William D. 1955. "The Cemeteries of Chicago: A Phase of Land Utilization." *Annals of the Association of American Geographers* 45(3): 245–57.

Paumgarten, Nick. 2009. "Useless Beauty." *The New Yorker,* August 29. Available at www.newyorker.com/reporting/2009/08/31/090831fa_fact_paumgarten.

Presque Isle (Maine), Township of. n.d. *Presque Isle Township Cemetery Ordinance.* Available at www.presqueisletwp.org/content/local/cemetery_.asp.

Prothero, Stephen. 2001. *Purified by Fire: A History of Cremation in America.* Los Angeles: University of California Press.

Rainville, Lynn. 2011. "African-American Cemeteries in Albermarle & Amherst Counties." Available at www2.vcdh.virginia.edu/cem/About_Support.shtml.

Religious Land Use and Institutionalized Persons Act of 2000. 106th Congress Public Law 274. Available at www.gpo.gov/fdsys/pkg/PLAW-106publ274/pdf/PLAW-106publ274.pdf.

Resomation, Ltd. n.d. "What is Resomation?" Available at www.resomation.com/index_files/Page347.htm.

Resto-Montero, Gabriela. 2010. "Harlem Leaders Worry African Burial Ground Will Be Completely Lost to History." *DNA Info on New York,* February 1. Available at www.dnainfo.com/new-york/20100201/manhattan/harlem-leaders-worry-african-burial-ground-will-be-completely-lost-history.

———. 2011. "MTA Will Search for Remains at East Harlem Burial Ground." *DNA Info on New York,* January 31. Available at www.dnainfo.com/new-york/20110131/harlem/mta-will-search-for-remains-at-east-harlem-burial-ground.

Richards, Catherine. 2005. "London's Victorian Garden Cemeteries." *Time-Travel Britain.* Available at www.timetravel-britain.com/articles/london/cemeteries.shtml.

Richman, Jeffrey. 1998. *Brooklyn's Green-wood Cemetery: New York's Buried Treasure.* New York: Green-Wood Cemetery.

Rugg, Julie. 2000. "Defining the Place of Burial: What Makes a Cemetery a Cemetery?" *Mortality* 5(3): 259–75.

———. 2006. "Lawn Cemeteries: The Emergence of a New Landscape of Death." *Urban History* 33(2): 213–33.

Sachs, Aaron. 2010. "American Arcadia: Mount Auburn Cemetery and the Nineteenth-Century Landscape Tradition." *Environmental History* 15 (April): 206–35.

Sack, Kevin. 2011. "In Tough Times, a Boom in Cremations as a Way to Save Money." *New York Times,* December 8. Available at http://www.nytimes.com/2011/12/09/us/in-economic-downturn-survivors-turning-to-cremations-over-burials.html?pagewanted=all.

Saltz, Ina. 2006. "Designing Your Own Death." *Step Inside Design,* January.

San Diego (California), County of. 2013. *The Zoning Ordinance.* Available at www.sdcounty.ca.gov/pds/zoning/z1000.pdf.

Sanders, George. 2008. "Late Capital: Negotiating a New American Way of Death." Ph.D. dissertation, Vanderbilt University, Nashville, Tenn.

Santarsiero, A., D. Cutilli, G. Cappiello, and L. Minelli. 2000. "Environmental and Legislative Aspects Concerning Existing and New Cemetery Planning." *Microchemical Journal* 67(1): 141–45.

Schuyler, David. 1986. *The New Urban Landscape.* Baltimore: Johns Hopkins University Press.

Searsmont (Maine), Town of. 2012. *Comprehensive Plan.* Goals, Policies, and Strategies. Draft. September. Available at www.searsmont.com/media/webdocuments/comp%20plan/Goals%20and%20Policies%20090912.pdf.

Sehee, Joe. 2007. "Green Burial: It's Only Natural." *PERC Reports,* Winter. Available at www.greenburialcouncil.org/assets/News/PERC.pdf.

Shiskin, Philip. 2009. "Green Revolution Hits Dead End in Georgia Cemetery Proposal." *Wall Street Journal,* January 2. Available at http://online.wsj.com/article/SB123085771149647839.html.

Simon, Donald. 1978. "Green-Wood Cemetery and the American Park Movement." In *Essays on the History of New York,* ed. L. Yellowitz. Port Washington, N.Y.: Kennikat Press.

Sinclair, Craig. n.d. "Cremation of Human Remains: A Comparison of Alkaline Hydrolysis Versus Combustion." Glasgow, Scotland: Resomation, Ltd. Available at www.biocremation.info/Portals/0/A%20Comparison%20of%20Alkaline%20Hydrolysis%20vs%20Combustion07262010.pdf.

Sloane, David. 1991. *The Last Great Necessity: Cemeteries in American History.* Baltimore: Johns Hopkins University Press.

South China Morning Post. 2011a. "Problem Far from Dead and Buried." October 14. Available at www.scmp.com/article/981864/problem-far-dead-and-buried.

South China Morning Post. 2011b. "A Problem That Won't Be Buried." December 19. Available at www.scmp.com/article/988161/problem-wont-be-buried.

Southwest Ranches (Florida), Town of. 2011. "Council Agenda." October 13. Available at www.southwestranches.org/Meetings/files/ofcmeetings/111013%20-%20LPA%20 Agenda%20Full.pdf.

———. 2012. "Proposed Amendments to the Future Land Use Element of the Comprehensive Plan." Memorandum. June 14. Available at www.ordinancewatch.com /files/72011/LocalGovernment73114.pdf.

St. John, Warren. 2003. "On the Final Journey, One Size Doesn't Fit All." *New York Times,* September 28. Available at www.nytimes.com/2003/09/28/us/on-the-final-journey-one-size-doesn-t-fit-all.html.

Streit, Valerie. 2009. "Green Burials: A Dying Wish to Be 'Home for Fish.'" *CNN,* February 17. Available at www.cnn.com/2009/TECH/02/17/dying.green.

Sterba, Jeff. 2006. "Lessons Learned on a Journey Down Under." *ICFM Magazine,* June. Available at www.iccfa.com/reading/2000-2009/lessons-learned-journey-down-under.

Tam, Johnny. 2012. "Anger over New Restrictions at Crowded Cemeteries." *South China Morning Post,* May 26. Available at www.scmp.com/article/1002011/anger-over-new-restrictions-crowded-cemetery.

Texas Department of State Health Services. 2012. "Trends in Methods of Disposition in Texas 1989–2003." Available at www.dshs.state.tx.us/chs/vstat/disposition/disposition .shtm.

Turpin, John, and Derrick Knight. 2011. *The Magnificent Seven: London's First Landscaped Cemeteries.* Gloucestershire, UK: Amberley.

U.S. Court of Appeals, 7th Circuit. 2006. *St. John's United Church of Christ v. City of Chicago.* 502 F.3d 616. Available at http://caselaw.findlaw.com/us-7th-circuit/1250066.html.

U.S. Department of Veterans Affairs. 2009. "History and Development of the National Cemetery Administration." Available at www.cem.va.gov/cem/docs/factsheets /history.pdf.

U.S. Environmental Protection Agency. 2011. "What Are the Six Common Air Pollutants?" Available at www.epa.gov/air/urbanair.

———. 2012. "Burial of Human Remains at Sea." Available at www.epa.gov/region4 /water/oceans/burial.html.

U.S. Navy. 2009. "United States Navy Mortuary Affairs Burial at Sea Program." Available at www.navy.mil/navydata/questions/burial.html.

Valigra, Lori. 2005. "'Green' Burials Offer Unique, Less Costly Goodbyes." *National Geographic,* September. Available at http://news.nationalgeographic.com /news/2005/09/0909_050909_greenburial.html.

Walter, Tony. 2005. "Three Ways to Arrange a Funeral: Mortuary Variation in the Modern West." *Mortality* 10(3): 173–92.

Warpole, Ken. 2003. *Last Landscapes: The Architecture of the Cemetery in the West.* London: Reaktion Books.

Waverly (Iowa), City of. 2012. *City Code.* Chapter 100: Zoning, Sec. 100.5.02(3)(n); Sec. 11.21.09(1)(e). Available at www.waverlyia.com/mayor/ordinances.

Waugh, Evelyn. 1948. *The Loved One.* Boston: Little, Brown.

Wheeler, Kit, and John Nauright. 2006. "A Global Perspective on the Environmental Impact of Golf." *Sport in Society* 9(3): 427–33.

Whyte, William. 1968. *The Last Landscape.* New York: Doubleday.

Wilson, Michael. 2009. "Where the Bodies Aren't Buried." *New York Times,* July 19. Available at www.nytimes.com/2009/07/19/nyregion/19graves.html.

Wirthlin Worldwide. 2005. *Study of American Attitudes toward Ritualization and Memorialization.* Prepared for Funeral and Memorialization Information Council, International Cemetery and Funeral Association. January.

Yalom, Marilyn, and Reid Yalom. 2008. *The American Resting Place.* New York: Houghton Mifflin.

Yiu, Derek. 2010. "Cemeteries Bury Land Auction." *Hong Kong Standard,* September 30. Available at www.thestandard.com.hk/news_detail.asp?pp_cat=30&art _id=103421&sid=29759104&con_type=1&d_str=20100930&isSearch=1&sear _year=2010.

Zelinsky, Wilbur. 1971. "The Hypothesis of the Mobility Transition." *Geographical Review* 61(2): 219–49.

———. 1994. "Gathering Places for America's Dead: How Many, Where, and Why?" *Professional Geographer* 46(1): 29–38.

APA

American Planning Association

Making Great Communities Happen

The American Planning Association provides leadership in the development of vital communities by advocating excellence in community planning, promoting education and citizen empowerment, and providing the tools and support necessary to effect positive change.

531. Planning for the Unexpected: Land-Use Development and Risk. Laurie Johnson, Laura Dwelley Samant, and Suzanne Frew. February 2005. 59pp.

532. Parking Cash Out. Donald C. Shoup. March 2005. 119pp.

533/534. Landslide Hazards and Planning. James C. Schwab, Paula L. Gori, and Sanjay Jeer, Project Editors. September 2005. 209pp.

535. The Four Supreme Court Land-Use Decisions of 2005: Separating Fact from Fiction. August 2005. 193pp.

536. Placemaking on a Budget: Improving Small Towns, Neighborhoods, and Downtowns Without Spending a Lot of Money. Al Zelinka and Susan Jackson Harden. December 2005. 133pp.

537. Meeting the Big Box Challenge: Planning, Design, and Regulatory Strategies. Jennifer Evans-Cowley. March 2006. 69pp.

538. Project Rating/Recognition Programs for Supporting Smart Growth Forms of Development. Douglas R. Porter and Matthew R. Cuddy. May 2006. 51pp.

539/540. Integrating Planning and Public Health: Tools and Strategies To Create Healthy Places. Marya Morris, General Editor. August 2006. 144pp.

541. An Economic Development Toolbox: Strategies and Methods. Terry Moore, Stuart Meck, and James Ebenhoh. October 2006. 80pp.

542. Planning Issues for On-site and Decentralized Wastewater Treatment. Wayne M. Feiden and Eric S. Winkler. November 2006. 61pp.

543/544. Planning Active Communities. Marya Morris, General Editor. December 2006. 116pp.

545. Planned Unit Developments. Daniel R. Mandelker. March 2007. 140pp.

546/547. The Land Use/Transportation Connection. Terry Moore and Paul Thorsnes, with Bruce Appleyard. June 2007. 440pp.

548. Zoning as a Barrier to Multifamily Housing Development. Garrett Knaap, Stuart Meck, Terry Moore, and Robert Parker. July 2007. 80pp.

549/550. Fair and Healthy Land Use: Environmental Justice and Planning. Craig Anthony Arnold. October 2007. 168pp.

551. From Recreation to Re-creation: New Directions in Parks and Open Space System Planning. Megan Lewis, General Editor. January 2008. 132pp.

552. Great Places in America: Great Streets and Neighborhoods, 2007 Designees. April 2008. 84pp.

553. Planners and the Census: Census 2010, ACS, Factfinder, and Understanding Growth. Christopher Williamson. July 2008. 132pp.

554. A Planners Guide to Community and Regional Food Planning: Transforming Food Environments, Facilitating Healthy Eating. Samina Raja, Branden Born, and Jessica Kozlowski Russell. August 2008. 112pp.

555. Planning the Urban Forest: Ecology, Economy, and Community Development. James C. Schwab, General Editor. January 2009. 160pp.

556. Smart Codes: Model Land-Development Regulations. Marya Morris, General Editor. April 2009. 260pp.

557. Transportation Infrastructure: The Challenges of Rebuilding America. Marlon G. Boarnet, Editor. July 2009. 128pp.

558. Planning for a New Energy and Climate Future. Scott Shuford, Suzanne Rynne, and Jan Mueller. February 2010. 160pp.

559. Complete Streets: Best Policy and Implementation Practices. Barbara McCann and Suzanne Rynne, Editors. March 2010. 144pp.

560. Hazard Mitigation: Integrating Best Practices into Planning. James C. Schwab, Editor. May 2010. 152 pp.

561. Fiscal Impact Analysis: Methodologies for Planners. L. Carson Bise II. September 2010. 68pp.

562. Planners and Planes: Airports and Land-Use Compatibility. Susan M. Schalk, with Stephanie A. D. Ward. November 2010. 72pp.

563. Urban Agriculture: Growing Healthy, Sustainable Places. Kimberley Hodgson, Marcia Caton Campbell, and Martin Bailkey. January 2011. 148pp.

564. E-Government (revised edition). Jennifer Evans-Cowley and Joseph Kitchen. April 2011. 108pp.

565. Assessing Sustainability: A Guide for Local Governments. Wayne M. Feiden, with Elisabeth Hamin. July 2011. 108pp.

566. Planning for Wind Energy. Suzanne Rynne, Larry Flowers, Eric Lantz, and Erica Heller, Editors. November 2011. 140pp.

567. Sustaining Places: The Role of the Comprehensive Plan. David R. Godschalk and William R. Anderson. January 2012. 104pp.

568. Cities in Transition: A Guide for Practicing Planners. Joseph Schilling and Alan Mallach. April 2012. 168pp.

569. Planning and Broadband: Infrastructure, Policy, and Sustainability. Kathleen McMahon, Ronald L. Thomas, and Charles Kaylor. July 2012. 76pp.

570. The Rules That Shape Urban Form. Donald L. Elliott, Matthew Goebel, and Chad Meadows. October 2012. 124pp.

571. Green Infrastructure: A Landscape Approach. David C. Rouse and Ignacio F. Bunster-Ossa. January 2013. 160pp.

572. Planning for the Deceased. Christopher Coutts, Carlton Basmajian, Dwight Merriam, and Patricia Salkin. April 2013. 80pp.