



Military and Veterans Affairs

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Preparing for Duty

State Policy Options to Sustain Military Installations



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Acronyms

BRAC	Base Realignment and Closure
DoD	U.S. Department of Defense
JLUS	Joint Land Use Study
NCSL	National Conference of State Legislatures
OEA	Office of Economic Adjustment
REPI	Readiness and Environmental Protection Integration

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State Policy Options to Sustain Military Installations

By Jennifer Schultz

With Support from the U.S. Department of Defense

Executive Summary

Roughly 1.3 million people currently serve in the U.S. armed forces, 22 million more are veterans and 420 military installations exist in the 50 states, the District of Columbia, Guam and Puerto Rico. U.S. military operations touch every state in some way, and state legislatures are playing an increasingly substantial role in military issues.

Military installations—which may also be referred to as bases, camps, posts, stations, yards or centers—are facilities that sustain the presence of U.S. forces at home and abroad. Installations located within the United States and its territories are used to train and deploy troops, maintain weapons systems and care for the wounded. Installations also support military service members and their families by providing housing, health care, child care and on-base education.

The Department of Defense (DoD) contributes billions of dollars each year to state economies through the operation of military installations. The impact of this spending is felt across the state, in salaries and benefits paid to military personnel and retirees, defense contracts and tax revenues.

Recent events such as the drawdown of troops in Iraq and Afghanistan, federal budget cuts and potential rounds of Base Realignment and Closure (BRAC) have contributed to uncertainty over the future role and sustainability of military installations. State legislatures are critical in managing relations between the military and surrounding communities, especially in regard to issues related to military base or mission change, growing local development and incompatible land uses that may threaten the military's ability to operate effectively.

This report—produced by NCSL with support from the DoD Office of the Assistant Secretary of Defense (Energy, Installations and Environment)—highlights the impact of the military on state economies and provides state policy options to support military-community cooperation and address land use challenges that may arise as the buffer between military and civilian areas narrows. The strategies presented in the report are intended to help states secure the future of their military installations and ensure that communities continue to benefit from the jobs and business opportunities the military provides. Topics covered include:

- Military advisory bodies.
- Commanders councils.
- Funding and financing programs to enhance the value of military installations.
- Enhanced communication with the military on proposed land use changes.
- Compatible land use requirements.
- Protecting land around a military installation for agriculture or other purposes.
- Energy development compatibility with the military mission.
- Reducing light pollution.
- Limiting noise impacts from military activities.
- Real estate disclosure.
- Shared services agreements.

Military Installations in the States

All states have a military installation located within their boundaries. The states with the most installations are California, Florida, Georgia, Maryland, Texas and Virginia.³ In addition, of the 1.1 million active duty personnel stationed within the United States in 2016, almost half were located in six states (California, Florida, Georgia, North Carolina, Texas and Virginia).⁴

The DoD contributes billions of dollars each year to state economies through the operation of military installations. According to an analysis by DoD’s Office of Economic Adjustment (OEA), the department spent \$408 billion on payroll and contracts in Fiscal Year 2015, approximately 2.3 percent of U.S. gross domestic product (GDP).⁵ As seen in Figure 1, spending was highest in Virginia, followed by California, Texas, Maryland and Florida. The 10 states with the highest spending accounted for almost three-fifths of total DoD spending.

Figure 1.
Top States by Total Defense Spending

Rank	State	Defense Spending (in billions)
1	Virginia	\$53
2	California	\$49.3
3	Texas	\$37.9
4	Maryland	\$20.5
5	Florida	\$17.6
6	Pennsylvania	\$12.7
7	Washington	\$12.6
8	Georgia	\$12.6
9	Massachusetts	\$12.2
10	Alabama	\$12.2

Virginia has the largest defense spending as a share of state GDP at 11.2 percent (See Figure 2). The \$53 billion of defense spending in Virginia included \$36 billion in contract spending and \$17 billion in defense payrolls. Several large contractors, including Huntington Ingalls and General Dynamics, are headquartered in Virginia, which is also home to large military installations including Naval Air Station Norfolk, Joint Base Langley-Eustis and Fort Lee. Hawaii had the second largest military spending as a percent of its GDP at 9.8 percent.

Defense spending helps sustain local communities by creating employment opportunities across a wide range of sectors, both directly and indirectly. Active duty and civilian employees spend their military wages on goods and services produced locally, while pensions and other benefits provide retirees and dependents a reliable source of income. States and communities also benefit from defense contracts with private companies for equipment, supplies, construction and various services such as health care and information technology. When reflecting on a recent Texas legislative session, Representative Dan Flynn (R)—co-chair of the NCSL Task Force on Military and Veterans Affairs—commented that, “[sustaining] military installations . . . was vitally important because of their large economic impact as a source of jobs, security and their interdependence with the communities that surround them.”⁶

Figure 2.
Highest Defense Spending as a Percentage of State GDP

Rank	State	Share of State GDP
1	Virginia	11.2%
2	Hawaii	9.8%
3	Alaska	6.1%
4	Alabama	5.9%
5	Maryland	5.7%
6	District of Columbia	5.7%
7	Mississippi	4.9%
8	Maine	4.7%
9	Kentucky	4.7%
10	Connecticut	3.8%

In addition to DoD numbers, at least 24 states have commissioned their own study to quantify the direct and indirect effects of military presence on a state’s economy (See Appendix A).⁷ Impacts generally include salaries and benefits paid to military and civilian personnel and retirees, defense contracts, local business activity supported by military operations, tax revenues and other military spending. In 2015, for example, military installations in North Carolina supported 578,000 jobs, \$34 billion in personal income and \$66 billion in gross state product.⁸ This amounts to roughly 10 percent of the state’s overall economy.

In 2014, Colorado lawmakers appropriated \$300,000 in state funds to examine the comprehensive value of military activities across the state’s seven major installations.⁹ The state Department of Military and Veterans Affairs released its study in May 2015, reporting a total economic impact of \$27 billion.¹⁰ The study found that 5.2 percent of all Colorado jobs and 7.5 percent of total labor earnings relate to DoD direct, indirect and induced employment.¹¹ Overall, DoD is the third largest industry in the state behind

tourism and a cluster of professional, technical and business services. The study also identified Colorado’s strengths and vulnerabilities as they relate to DoD strategic objectives, citing encroachment as an issue that warrants continued attention.

Kentucky has also taken steps to measure military activity, releasing its fifth study in June 2016. The military spent approximately \$12 billion in Kentucky during 2014-15, a reduction of \$3.5 billion since 2012.¹² With 38,700 active duty and civilian employees, military employment exceeds the next largest state employer by more than 21,000 jobs.¹³ In addition to employment, the study also examined the population of veterans (328,408), military retirees (28,638) and National Guard members.



Even states with relatively small military footprints have reported significant economic gains. In Michigan, for example, defense spending in Fiscal Year 2014 supported 105,000 jobs, added more than \$9 billion in gross state product and created nearly \$10 billion in personal income.¹⁴ A 2016 study sponsored by the Michigan Defense Center presents a statewide strategy to preserve Army and Air National Guard facilities following a future BRAC round as well as to attract new missions.¹⁵

Naval Air Station
North Island,
San Diego, Calif.

The Military's Evolving Context

The economic benefits created by military installations are susceptible to change at both the federal and state levels. While states previously worked to accommodate military installations in a period of expansion and growth, recent events such as the drawdown of troops in Iraq and Afghanistan, federal budget cuts, and potential future rounds of BRAC have left government officials uncertain of the future role and sustainability of military installations. These trends have been a driving force behind many states' decisions to commission the kinds of studies described above that define the military activity and infrastructure that exists in the state. Economic impact studies allow states to better advocate on behalf of their installations and plan for future growth or restructuring.

Federal Defense Cuts and Effects on States

In August 2011, Congress passed the Budget Control Act, which contained a package of automatic spending cuts known as "sequestration." One intent of the law was to reduce the federal deficit by \$1.2 trillion over nine years, which—if another deficit reduction agreement could not be made—would be accomplished by indiscriminate cuts to defense and non-defense discretionary spending. When Congress failed to reach an agreement in the fall of 2012, sequestration was triggered. The cuts began in March 2013 and will end in 2021. Over this period, defense spending will be reduced by a total of \$454 billion.¹⁶

While dealing with ambiguity over sequestration and whether Congress would pass a continuing resolution (CR—a continuation of current funding levels) for Fiscal Year 2014, DoD officials made a number of deep cuts to programs and implemented civilian employee furloughs and hiring freezes. The vagueness of future funding for defense programs has hampered the military’s long-term planning for contracts spending and acquisitions. It also affects installations’ ability to train soldiers and maintain readiness (a term used by the military to describe the preparedness of troops for combat).¹⁷

The impact of defense spending cuts has been, and will continue to be uneven across states as it depends on the number of defense personnel and amount of defense contract revenue in each state and region.¹⁸ The 2016 OEA report *Defense Spending by State* highlights factors, such as the reliance of regions on military bases or private contractors, which can be used to evaluate each state’s potential exposure to projected declines in defense spending.¹⁹ State studies have also examined this question. A 2016 Kentucky study found a distinct decline in military personnel and compensation since 2011. Specifically, the state experienced a reduction of 9,100 military personnel and 1,200 civilian DoD employees, along with a \$300 million decline in DoD contracts (2011 to 2014).²⁰ While compensation of both military and civilian employees fell over the period, retiree pay and veterans benefits both rose significantly.

Base Realignment and Closure

The federal BRAC process also puts military bases located in the states at risk. BRAC is the principal method used by DoD to reduce excess infrastructure and realign—to add to or remove a significant number

of personnel from—bases to meet changes in the size or structure of its forces.²¹ State economies can suffer if bases close but, on the other hand, state economies are likely to gain where military personnel are transferred. When a base is closed or realigned to relocate missions, operations and training to other bases, the reduction in military activity can lead to a considerable loss of jobs and tax revenue, which may cause states and communities to identify and implement strategies to stimulate new economic activity. When a base closes, communities also must decide how to repurpose or redevelop the area.²² Conversely, a realignment that increases military operations and adds personnel to a base—referred to by DoD as “mission growth”—can generate additional economic activity, but can also strain public infrastructure when it becomes necessary to accommodate relocating military personnel and their families.²³

The current BRAC process dates to 1988, when a congressional measure supported by the Reagan administration called for an independent bipartisan commission that would create BRAC

recommendations aimed at improving military capability.²⁴ Under the measure, a list of base closures and realignments would be approved or rejected by both the president and Congress. The Defense Base Closure and Realignment Act of 1990 amended the law to require DoD to provide an initial base closure list from which the independent panel would begin its selection process.

Although procedures have changed, the 1990 law, as subsequently amended, has governed the BRAC process since its enactment. BRAC rounds were completed in 1988, 1991, 1993, 1995 and 2005 under its provisions; the 2005 BRAC round ended in 2011.²⁵ BRAC 2005 made an unprecedented amount of changes, totaling 22 major closures and 33 major realignments. The changes were estimated to save \$35.6 billion, although a 2012 Government Accountability Office report estimates that cost savings will not be fully realized until 2018.²⁶

In April 2016, DoD submitted a report to Congress documenting significant excess capacity across the services and calling for another round of BRAC.²⁷ Overall, DoD estimates that 22 percent of the military’s capacity is excess to its needs.²⁸ Excess capacity for both the Army and Air Force represents one-third of their total infrastructure. This marked the fifth time in recent years that DoD has requested a round of base closures. All were declined.



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State Role in Managing Military Operations

While states must be constantly aware of changes at the federal level, they also have a unique role in military administration.

Over 470,000 National Guard troops live and serve in 3,000 communities across the country. The National Guard has a dual mission—each soldier or airman is a member of both the state National Guard and the U.S. Army or U.S. Air Force. When National Guard units are not mobilized under federal law, they report to the governor of their respective state, territory or the commanding general of the District of Columbia National Guard.²⁹ Each National Guard organization is supervised by the adjutant general of the state or territory.

The National Guard is a unique reserve force with both state and federal responsibilities. At the state level, the National Guard provides protection of life and property and preserves peace, order and public safety.³⁰ Governors, as state commanders-in-chief, can activate and deploy the National Guard in response to state and local emergencies such as floods, earthquakes, wildfires and other natural disasters, or in response to man-made emergencies, including riots or terrorist attacks.³¹ The National Guard's federal mission is to maintain well-trained units available for prompt mobilization during war and provide assistance during national emergencies. Under federal law, National Guard personnel can be activated to either "full-time National Guard duty" (U.S. Code, Title 32) or "active duty" (U.S. Code, Title 10).³²

The governor delegates authority for carrying out state active-duty missions to the adjutant general. As the head of the state military department, the adjutant general also acts as the governor's designated homeland security advisor in many cases.³³ Adjutants general usually serve a term concurrent with the term of the appointing governor and typically are the senior military official in the state or territory, although specific terms and qualifications are set by the legislature and vary by state.³⁴

Encroachment and Compatible Land Use

DoD relies on access to land, airspace, sea space and frequency spectrum (of light, sound and telecommunications) to provide its forces a realistic training environment that will prepare them to face combat and complex missions around the globe.³⁵ For this reason, many military installations were strategically located in relatively isolated areas, surrounded by agricultural or other undeveloped land, which allowed accommodation of evolving mission requirements with few constraints.³⁶

Following World War II, however, both people and businesses began moving closer to installations to take advantage of job opportunities and to provide the goods and services needed to support the installations' operations.³⁷ As communities developed, they increasingly grew closer to once-isolated installations, challenging the military's access to valuable resources and leading to conflicts over competing land uses.

The term "encroachment" is used to describe the cumulative effect of incompatible development near military installations and the expansion of military operations into civilian areas. Encroachment can take many forms. From DoD's perspective, activities in surrounding communities can, for example, restrict use of military training areas, present obstacles to low-flying aircraft, interfere with night training through light pollution and degrade communication frequencies.³⁸ On the other hand, military operations can create intense noise in nearby communities, threaten public safety, endanger protected species and stress public infrastructure and services.³⁹ These potentially competing interests can jeopardize the military's ability to carry out its mission and could lead to closure of an installation, which is likely to be unfavorable for both parties.

The term "encroachment" describes the effect of incompatible development near military installations and the expansion of military operations into civilian areas.



Effects on Military Missions

The guiding principle behind military readiness is the idea that forces need to train as they fight. It is not surprising, then, that training ranges are one of the most valued assets in preparing military forces for their missions.⁴⁰ Training ranges encompass all the terrain, land cover and climate conditions that military personnel may encounter during deployment: deserts, mountains, coastal areas, urban areas, swamps, forests, plains and water.⁴¹ These realistic ranges enable development of tactics and allow for weapons system testing, leading to increased combat survivability and success.⁴²

Domestic military installations are vital to the preservation of national security. However, civilian encroachment on military bases and associated training ranges, and on the access corridors that connect them, is making it difficult for the military to test, train and operate effectively.⁴³ DoD recognizes encroachment as a serious and growing problem for the sustainability of its domestic military installations.⁴⁴ The agency has identified several encroachment issues that affect or have the potential to affect military training and readiness. These include:

- Incompatible airspace and land restrictions/zoning.
- Complaints regarding airborne noise.
- Urban growth and incompatible development.
- Spectrum encroachment from cellphone towers, wind turbines, and additional development.
- Endangered species and critical habitat.⁴⁵
- Air and water quality.
- Cultural resources.
- Unexploded ordnance and munitions.
- Marine resources.
- Energy compatibility and availability.
- Security.
- Climate change and natural factors.⁴⁶



SENIOR AIRMAN EMILY MOORE, U.S. AIR FORCE

Whenever possible, the military works around these issues by modifying the training timing, tempo, location and equipment.⁴⁷ For example, the military may limit night-time artillery practice to reduce noise or change flight paths to lessen the risk of accidents over residential areas. However, these “workarounds” are becoming increasingly difficult and costly, which has contributed to elimination of training activities in many locations.

Consequences for Surrounding Communities

In addition to civilian development moving closer to military installations, installations may grow in terms of the size of forces, the intensity and frequency of training exercises, or the acreage of the property.⁴⁸ These changes can create significant challenges for communities that previously had coexisted with their military neighbors for years.

As much as local residents value the economic benefits of having a military installation in their community, they also may be concerned about the negative effects of military operations, including noise, accidents, contamination, and stress on public infrastructure and services. Noise and safety concerns have long been recognized as an encroachment of the military on nearby communities.⁴⁹ For example, low flying military aircraft create the potential for both noise and accidents during take-off, landing and training exercises.⁵⁰ Likewise, ground-training exercises, such as artillery fire and bomb tests, generate impact noise that can adversely affect nearby residents. The potential for contamination of the air and public water supply is another concern of residents who live in close proximity to a military installation. While there are strict regulations in place to prevent contamination, water pollution can occur when contaminants from explosives or other toxic chemicals on military land end up in streams or seep into underground aquifers.⁵¹ Smoke and dust generated by aircraft and other equipment also can degrade air quality well beyond the borders of military land. Finally, when a military installation grows, local communities may be faced with increased stress on public infrastructure and services, including transportation, health systems, wastewater treatment, housing and schools.⁵²

Importance of Action

The effects of encroachment on both military installations and surrounding communities will almost certainly become more serious if left unattended. Ultimately, military installations may be forced to close if unchecked growth compromises training exercises beyond sustainable levels. While many federal agencies and programs provide assistance to states and installations that are working to maintain readiness, the responsibility for managing community growth and development rests with state and local governments that exercise land use authority.

Federal Roles

In recent years, DoD has become increasingly concerned about the effects of encroachment on its ability to maintain readiness, and has implemented a variety of programs to help states, installations and surrounding communities address and manage these effects.

DOD READINESS AND ENVIRONMENTAL PROTECTION INTEGRATION PROGRAM

The Readiness and Environmental Protection Integration (REPI) is a unique program created by the 2003 National Defense Authorization Act that authorizes DoD to enter into cost-sharing partnerships with states, local governments and nongovernmental organizations such as private conservation groups. REPI allows these stakeholders to share costs of acquiring conservation easements and other land interests to create buffer areas around military installations while simultaneously preserving wildlife habitats and working lands near areas where the military tests and trains.⁵³ Through Fiscal Year 2015, the REPI program has protected 437,985 acres at 88 locations across 30 states.⁵⁴

DOD OFFICE OF ECONOMIC ADJUSTMENT

Working with communities since 1961, the Department of Defense Office of Economic Adjustment (OEA) has helped communities in all 50 states and several U.S. territories develop comprehensive strategies to adjust to defense industry cutbacks, base closures, force structure realignments, base expansion and incompatibilities between military operations and local development.⁵⁵

An example of this working partnership is OEA's Compatible Use and Joint Land Use Studies (JLUS) Program. This is the only program of direct federal assistance to help states and communities work with the military services to study and recommend land use policies designed to balance community and military needs. With technical and financial assistance from OEA, adjacent communities and often the state, in partnership with the installation, identify a wide range of both existing and potential encroachment challenges that may impair the continued operational utility of the military installation. The affected communities then develop a strategic plan outlining specific actions, responsible parties, a proposed timeline, and possible funding sources to address the encroachment challenges.

State Roles

Even though military installations are federally owned and operated, state legislatures can help support strong and lasting relationships between the military and communities. An increasing number of state legislatures have recognized the importance of protecting test, training and operational mission viability by preventing encroachment and incompatible land uses around installations. In addition, states have recognized that these actions have a positive impact on neighboring communities, local economies and wildlife habitat. Consequently, legislation enacted during the past several years has aimed to protect not only the missions of military installations, but also the well-being of surrounding communities.

NCSL TASK FORCE ON MILITARY AND VETERANS AFFAIRS

A task force of state legislators and legislative staff was created in 2007 to examine these and other issues that affect both military-community relations and the health and well-being of veterans. The NCSL Task Force on Military and Veterans Affairs, which currently includes 54 members representing 29 states, meets several times each year to study the military and veterans' issues that are of great importance to states. Among the topics covered: mission sustainability and readiness, veteran employment initiatives

CASE STUDY

Readiness and Environmental Protection Integration (REPI) and State Involvement

What are the best ways for state legislatures to support compatible development around military installations? The answer, of course, is different for each state. In these case studies, learn how the governors and state legislatures of New York, North Carolina and Hawaii are helping communities and installations stay ahead of encroachment.

■ NEW YORK

Northern New York is not the first place that comes to mind when thinking of traditional military enclaves in the United States, but Fort Drum in Jefferson County, is the only installation in the Northeast from which the military can project its power by supporting the mobilization and deployment of high priority, active units. Fort Drum supports the most active duty, reserve and civilian personnel of any other location in the state, with over 20,000 people living on and around the installation in 2015.

Given Fort Drum's role as a strategically significant installation and a key economic driver for the region, New York has taken a number of steps to protect the installation's mission from incompatible development. In March 2015, state lawmakers allocated \$500,000 to Fort Drum and its partners to help acquire the development rights from a willing landowner on a key piece of land close to the installation's runways. The property's owner, who is active-duty military, plans to retire in 2016 and hopes to preserve the land's current recreational uses for his family.

This funding was added to the \$1 million Governor Andrew Cuomo secured for the installation in the 2014-2015 state budget, and \$500,000 from the 2013 state budget. In 2014 alone, the state valued Fort Drum's economic contribution to New York at \$1.4 billion.

■ NORTH CAROLINA

The military's presence in North Carolina is one of the largest of any state in the country. Behind agriculture, military-related activities represent the second largest economic driver in the state, directly or indirectly generating 578,000 jobs in 2015. The high number of military installations creates numerous opportunities for North Carolinians, but also requires proactive, innovative efforts to ensure military missions are protected from encroachment and other pressures resulting from incompatible development.

North Carolina has developed a multi-pronged approach to address encroachment around its installations. As a member of the Southeast Regional Partnership for Planning and Sustainability (SERPPAS), the state works with its neighbors to share best practices and develop regional solutions to prevent encroachment and encourage compatible resource-use decisions. Alabama, Florida, Georgia, Mississippi and South Carolina are also members of SERPPAS.

North Carolina also led an effort in July 2016 to designate a 33-county area in the eastern part of the state as a Sentinel Landscape. This federal designation recognizes areas where working and natural lands converge to protect national defense and seeks to coordinate existing efforts in locations where priorities overlap to better leverage collective resources and expertise to accomplish shared goals. The Sentinel Landscape designation will help partners working within the region to receive additional consideration in federal funding processes.

■ HAWAII

Hawaii is home to the U.S. Pacific Command, as well as the world's largest multi-dimensional testing and training range. Over 67,000 military personnel live in Honolulu County alone, and the Hawaii Chamber of Commerce reported that military activities directly or indirectly generated over 102,000 jobs and \$14.7 billion in economic impact in 2013.

On Oahu's picturesque North Shore, the state of Hawaii helped the Army and several partners—including private resorts, land trusts and local government—come to an agreement that permanently protects productive farmland previously slated for residential development. This development would have seriously compromised the Army's ability to fully utilize the Kahuku Training Area and several key flight paths. Using funds earmarked from the state real estate conveyance tax, Hawaii contributed \$1.5 million towards the protection of this key parcel, which will remain in agricultural use in perpetuity.

At Joint Base Pearl Harbor-Hickam, the state has furthered its commitment to encroachment mitigation through an agreement to manage protected agricultural lands for continued production. This agreement allowed the state to protect pineapple fields formerly owned by the Dole Food Company from development that would have impeded the Navy's state-of-the-art satellite communications system. Now these fields will remain as working lands managed by the state's Agribusiness Development Corporation.

CASE STUDY

JLUS and Compatible Use Projects

The DoD Office of Economic Adjustment is currently working on more than 75 JLUS and Compatible Use projects across the country to remedy encroachment and promote compatible civilian development. Some examples of current projects are:

■ REGIONAL COORDINATION

The Naval Air Station Patuxent River (Maryland) and White Sands Missile Range/Holloman Air Force Base/Fort Bliss (New Mexico and Texas) JLUS projects, completed in January 2015, include expansive geographic areas involving multiple states and communities. The Patuxent River regional JLUS involved nine counties and two municipalities, covering Maryland's Eastern Shore and Virginia's Northern Neck, to address Navy concerns about urban and wind energy development, particularly within the Atlantic Test Range Inner Range.

White Sands Missile Range, Holloman Air Force Base and Fort Bliss encompass more than 3.3 million acres and nearly 10,000 square miles of restricted airspace in southern New Mexico and western Texas. Inter-dependent missions and assets abound across the installations, requiring coordination of airspace, range usage and frequency spectrum for multiple users. To promote compatible civilian development across this broad region, the New Mexico Office of Military Base Planning and Support formed a regional planning organization to undertake the Southern New Mexico-El Paso Joint Land Use Study with participation from the following stakeholders: five New Mexico counties and two cities; City of El Paso and El Paso County, Texas; New Mexico State Land Office; U.S. Bureau of Land Management; and the three military installations. A Memorandum of Agreement established the partnership among the governments, with the three military installations as concurring parties, to both complete the study and carry out the recommendations.

■ WASHINGTON COMPATIBLE USE

In August 2016, Washington's department of commerce initiated a review of recommendations from recently completed Joint Land Use Studies to develop statewide strategies to facilitate and complement local government efforts to promote compatible development in support of continued military operations. This planning effort is intended to produce (1) a legislative report with a baseline assessment of Washington's role and responsibility to promote compatible land use practices, and (2) a proposed Washington State Military and Community Compatibility Strategy that establishes a framework for state initiatives to support and enhance ongoing efforts of local government to promote compatible community land use development.

■ ARIZONA COMPATIBLE ENERGY DEVELOPMENT

In July 2016, the City of Surprise, adjacent to Luke Air Force Base, and Arizona State University initiated an effort to work with the state, cities, counties, tribes and military installations to create an Arizona Military Energy Land Use Plan (AME-UP). This plan and an accompanying multi-dimensional web tool will provide best practices for siting of renewable energy projects within Arizona. The initiative will provide an online interactive web-mapping tool that city and community planners, military personnel, renewable energy developers and other stakeholders can use to identify potential permitting requirements, cultural and natural resource sensitivities, and conflicts between renewable energy development and military facilities.

and licensure, veteran and dependent education programs, veteran mental health, military family and veteran housing, tax exemptions, and access to benefits.

The task force allows state legislators and legislative staff to share best practices and innovations concerning the state role in assisting military service members and veterans and in working with nearby military installations on a variety of issues. Members of the task force, as well as outside partners, frequently note its importance as a vehicle to enable state legislators to knowledgeably take up these issues in their home states by introducing legislation.⁵⁶ According to Representative Tim Moore (R), "[Kentucky] is honored to be the home of both Fort Knox and Fort Campbell, as well as servicemen and women from every branch of the Armed Forces. NCSL and its task force have been instrumental in offering initiatives to keep this tremendous partnership vibrant and mutually beneficial."⁵⁷

The task force has developed policy resolutions that have been passed by NCSL’s various committees—which NCSL uses in its Washington, D.C.-based office to represent the cohesive voice of the states in the federal system—on a range of issues of relevance to DoD and its concern of encroachment. These include resolutions to support a funding increase for REPI; clarify and support the use of DoD matching funds; support a permanent tax deduction for conservation easements; preserve federal funding for the National Guard and support the federal Farmland Protection Program. In addition to full-day policy discussions, the task force conducts site visits at bases around the country to raise awareness among state legislators on mission sustainment issues. Recent visits have included Marine Corps Base Quantico, Joint Base Lewis-McChord, Buckley Air Force Base, Joint Base Elmendorf-Richardson and Walter Reed National Military Medical Center.

State Policy Options

The remaining sections of this report cover a wide range of policy options that state legislatures might consider to support military-community cooperation and address encroachment and compatible land use issues. Many of these options have been examined in great depth by the NCSL Task Force on Military and Veterans Affairs, along with a significant number of states across the country.

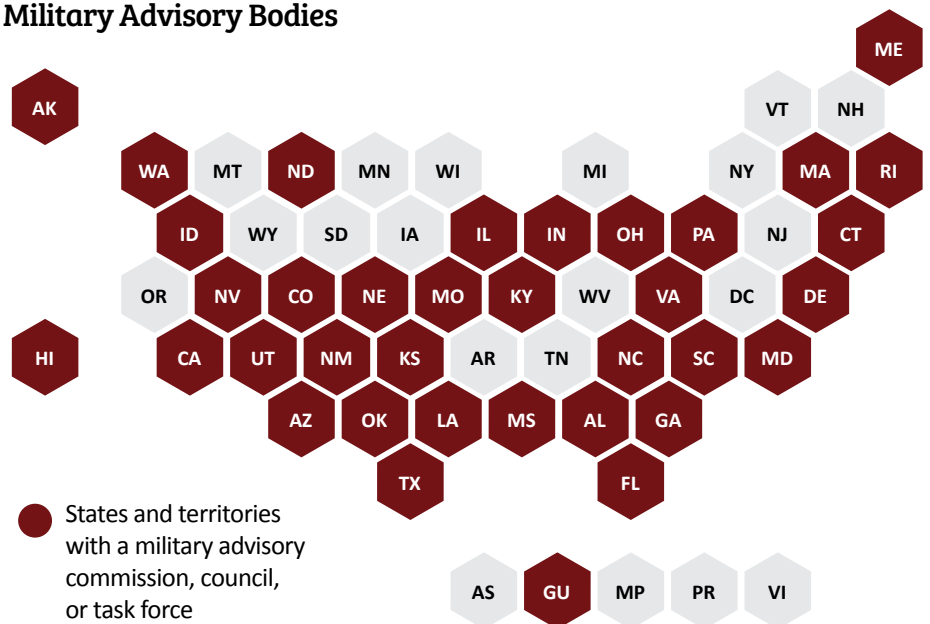
Military Advisory Bodies

One of the most comprehensive policy options for ensuring the long-term viability of a state’s defense community is to create a military advisory body to examine the unique needs of military communities and provide information to the governor and state legislature on ways to assist and strengthen them.⁵⁸ At least 35 states and Guam currently have military advisory bodies, often in the form of a commission, council or task force (See Appendix B). The vast majority of these groups were created in the last 10 years, either through legislation or by executive order. Some are permanently housed within an agency of the administration, while others are temporary, created prior to a federal BRAC round. Minimizing the effects of encroachment around military bases is a priority for many of these advisory bodies because the extent of encroachment is a key factor in BRAC decisions.⁵⁹

Military advisory bodies can perform a number of functions. Most often, advisory bodies serve as a liaison between the legislature, military installations and surrounding communities and are tasked with identifying the consequences of encroachment and making recommendations for future legislative action. Advisory bodies also can review current policies, assist defense communities with programs that strengthen their relationship with nearby installations, conduct studies to support military activities and disburse public funds for projects related to the preservation of military installations.

The number of members on a military advisory body varies widely, from six to 38 members. Most include both voting and non-voting (or ex-officio) members. Military advisory groups are comprised of a broad range of stakeholders, including state legislators, the lieutenant governor, the adjutant general, heads of relevant state agencies, city and county officials, local business leaders, and active duty or retired military officials. Members not specifically named in the legislation or executive order are appointed and often serve a set term.

Military Advisory Bodies



CASE STUDY

Florida Defense Support Task Force

The Florida Legislature created the Defense Support Task Force in 2011 with a defined mission to:

- Make recommendations to preserve and protect military installations.
- Support the state's position in research and development related to or arising out of military missions and contracting.
- Improve the state's military-friendly environment for service members, military dependents, military retirees and businesses that bring military and base-related jobs to the state.⁶⁰

The 13 task force members are appointed by the governor, Senate president and speaker of the House of Representatives.⁶¹ The governor has designated the lieutenant governor as the 13th member and his representative on the task force. All appointed members represent defense-related industries or communities that host military installations.⁶² The task force received appropriations totaling \$2 million for Fiscal Year 2015-16 to preserve and promote the state's military installations and missions.⁶³

According to the most recent strategic plan, the task force intends to complete projects over the next few years that are tailored to the needs of each installation, many of which involve taking measures to prevent future encroachment.⁶⁴ For example, the task force intends to advocate for the purchase of land immediately adjacent to MacDill Air Force Base, establish a system to enhance air space management at the Naval Air Station in Pensacola and complete implementation of a JLUS to ensure that merging commercial and military activities around Panama City can each meet their objectives.⁶⁵ In the long term, the task force plans to identify areas where state action could encourage sustainability of military installations, expand state support for military families and veterans, and strengthen defense-related working relationships with a number of state agencies.⁶⁶ At the federal level, the task force has contracted with a consulting firm specializing in the BRAC process to advocate on behalf of Florida's military installations.⁶⁷ Each initiative outlined in the strategic plan bolsters the governor's vision that Florida will continue to be the most military-friendly state in the nation.⁶⁸

Commanders Councils

Commanders councils—comprised of the commanders of military installations in a state or region—have proven useful in strengthening military, state and community relationships.⁶⁹ They provide a central source of information for state government and local communities and serve as a forum to exchange ideas on policies that affect the military and mission readiness. Commanders councils exist in five states—Arizona, Florida, North Carolina, Texas and Washington.⁷⁰

The North Carolina Commanders Council was established in 2008 to serve as DoD's primary contact with the state.⁷¹ The council works with the state to address the challenges facing military installations and military service members and their families. The council has recognized that the various effects of encroachment pose a significant challenge for the military and the state as a whole. Specifically, the council is concerned about incompatible development, restrictions on the use of airspace and coastal areas, and radio frequency disturbances. In 2012, Governor Beverly Eaves Perdue signed an executive order directing the secretary of each cabinet agency to designate a military affairs awareness coordinator to monitor commanders council activities and inform them of any agency initiatives that might affect military operations.⁷²

The Texas Commanders Council operates in much the same way. Formally established by the Legislature in June 2013, the council plays a vital role in facilitating intergovernmental dialogue between all branches of service and the state of Texas.⁷³ The law requires members of the Texas Military Preparedness Commission to meet with the commanders council at least once each year to discuss the challenges facing military installations and to develop innovative solutions to improve the military climate in the state.

Funding and Financing Programs to Preserve or Enhance the Value of Military Installations

States looking to secure the future of their military installations can also provide funding or financing to defense communities for projects that preserve or enhance the value of installations. These programs typically support projects for infrastructure improvements, job creation and retention, compatible land use planning and protection, and improvements to public services. Grants or loans also may be used to conduct studies or develop plans in support of a proposed project, as well as to match federal funding. In most cases, funding comes from general appropriations or bond sales. Thirteen states—Alaska, Arizona, California, Florida, Georgia, Indiana, Kansas, Maryland, New York, Oklahoma, Rhode Island, Texas and Utah—have some type of grant or loan program in place (See Appendix C).⁷⁴ States have also invested in infrastructure improvements at local bases and made one-time appropriations to prepare for BRAC.

GRANT PROGRAMS

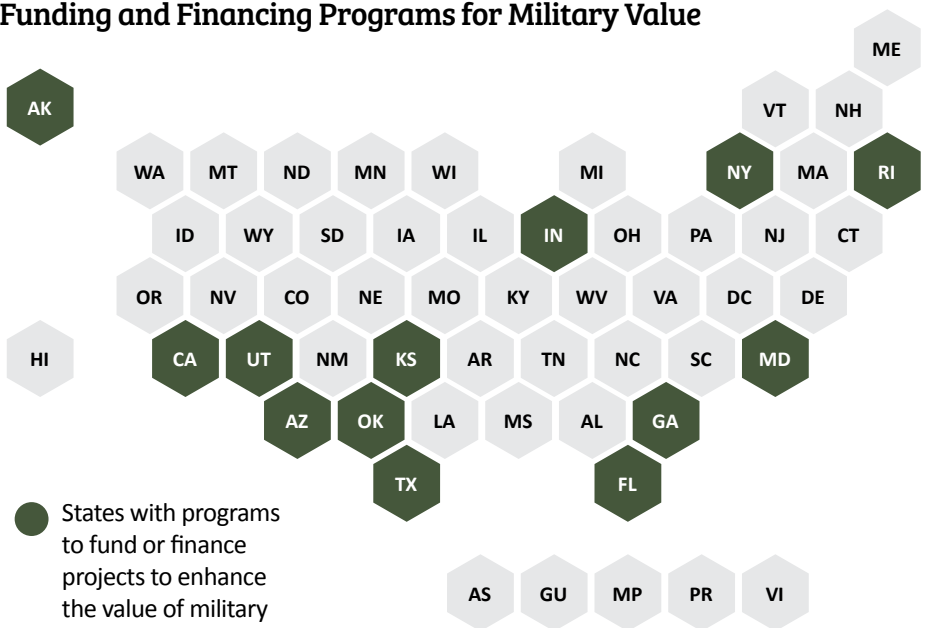
Florida and Texas have established the most wide-ranging programs, offering financial assistance to defense communities for projects that not only stimulate the local economy, but also generate significant benefits for nearby bases. The Florida Legislature established both the Defense Reinvestment Grant Program and the Defense Infrastructure Grant Program in 1999.⁷⁵ Both programs are administered by Enterprise Florida Inc., the principal economic development organization for the state.

The Reinvestment Grant Program supports community-based activities that protect existing military installations, diversify the economy of a defense-dependent community and develop plans for reusing closed or realigned installations.⁷⁶ Along the same lines, Florida’s Defense Infrastructure Grant Program supports projects deemed to have a beneficial effect on the value of installations within the state. Infrastructure projects funded under the program include those related to encroachment, transportation, utilities, communications, housing, environment and security. No limit is set for the amount of any grant awarded, although a matching contribution from the county or local community may be required. For Fiscal Year 2014-15, the state awarded a combined \$2,450,000 in grants to 13 counties.⁷⁷ Okaloosa County, home to Eglin Air Force Base, received \$300,000 to help sustain the defense industry’s \$7.5 billion economic impact in that region. In addition, the state awarded more than \$700,000 through another grant program of the Florida Defense Support Task Force. According to Governor Rick Scott’s press release, the funding will support four projects to strengthen military bases ahead of any potential BRAC actions, thereby “protecting more than \$73.4 billion in economic impact, and more than 758,000 jobs that the defense industry supports in the state.”⁷⁸

In Texas, the Military Value Revolving Loan Fund provides a low-cost source of financing to eligible defense communities for projects designed to enhance the value of a nearby installation, minimize the negative effects of a BRAC decision and accommodate new or expanded military missions resulting from a BRAC decision.⁷⁹ State funding is obtained through sale of general obligation bonds. As of Fiscal Year 2012, more than \$49 million in loans had been allocated to defense-dependent communities for a variety of projects; the minimum loan amount is \$1 million.⁸⁰

The Rhode Island General Assembly enacted legislation in 2014 creating the national security infrastructure fund and two distinct grant programs—the Military Facility Protection and Defense Economy

Funding and Financing Programs for Military Value





MASTER SGT. DONALD ALLEN, U.S. AIR FORCE

Florida awarded over \$2.4 million in grants to 13 counties in 2014 for projects that stimulate the economy and generate benefits for nearby military bases.

Community Reinvestment programs.⁸¹ Lawmakers enacted the legislation one month after the Rhode Island Defense Economy Planning Commission released its report on the economic impact of the state's defense industry, estimated at \$3.7 billion annually.⁸² The defense sector employs 33,000 workers and is the highest wage-paying sector in the state.

The Military Facility Protection Program supports efforts related to mission sustainment, encroachment and base retention. Specifically, grants are awarded to (1) improve infrastructure; (2) secure property to protect against encroachment; (3) support best practices in energy efficiency savings initiatives at military bases; (4) support public-private partnerships for utility, housing and transportation services; and (5) increase the mission-related capabilities of bases located within the state.⁸³ The second program is intended to assist defense-dependent communities in developing economic diversification strategies that repurpose surplus defense properties.

ZONE PROGRAMS

Four states—Alaska, Georgia, Maryland and Texas—have taken a somewhat different approach, creating “military zones” to extend state and federal incentives to enterprises that support the state's military presence.⁸⁴ For example, the Alaska Legislature enacted legislation in 2012 creating “military facility zones” that offer low-cost loans and tax credits to municipalities and private businesses for initiatives that make it cheaper or easier for military installations to operate.⁸⁵ Representative Steve Thompson (R), who sponsored the legislation, believes that “military facility zones will help Alaska's bases become more efficient and better able to effectively perform their missions, strengthening the case against realignment or

closure of its bases.”⁸⁶ In addition, says Thompson, the zones “clearly demonstrate the state’s continuing and substantive support for the armed services, and help defend against the negative impacts on Alaska’s regional economies and military facilities.”⁸⁷ Financing for projects within military facility zones is provided by the Alaska Industrial Development and Housing Authority, the Alaska Housing Finance Corporation and other available sources. In 2014, the Legislature authorized municipalities to provide a 10-year tax exemption for property in a military facility zone that creates or supports industry, education or training opportunities.⁸⁸

Maryland has had a similar program since 2008. The BRAC Revitalization and Incentive Zone Program provides local governments with financial assistance for public infrastructure projects in well-defined areas that expect significant growth as a result of BRAC decisions.⁸⁹ BRAC zones receive significant property tax benefits and priority consideration for financing assistance from various state agencies. Seven BRAC zones have been designated thus far, the largest encompassing the city of Aberdeen.⁹⁰

Georgia’s zone program is focused on creating jobs in economically distressed areas of the state. The Job Tax Credit Program provides benefits to specified census tracts which are considered less developed or have a high rate of poverty.⁹¹ A military zone designation was added in 2004, allowing census tracts located adjacent to military bases to receive the highest benefit level.⁹² Businesses can earn a tax credit up to \$3,500 for each full-time employee hired.⁹³

OTHER INVESTMENTS

In addition to these programs, a number of states have invested in military infrastructure improvements both on and off-base. This type of support has increased in recent years, due in part to stringent caps on the Pentagon’s budget. For example, legislators in Massachusetts approved a \$177 million bond bill in 2014 for infrastructure improvements at six military installations over a number of years.⁹⁴ The projects are designed to expand public and private sector growth for localities surrounding each installation and enhance the value of the facilities in support of national and domestic security goals. For example, the state committed \$2.9 million for energy and communications upgrades at Hanscom Air Force Base and \$9 million for runway improvements at Barnes Air National Guard Base.⁹⁵ Another \$900,000 paid for upgrades to the Doriot Climatic Chambers at the Natick Soldier Systems Center, a facility capable of producing extreme environmental conditions for the Army’s equipment research and technology development.⁹⁶

In 2014, the Indiana General Assembly enacted legislation allowing local governments to expend money in direct support of an active military base.⁹⁷ Funds are to be used for the promotion, growth and activities of the base, as well as any entity that provides services to the base.

Other states have made one-time appropriations to prepare for a future BRAC round. The South Carolina Military Base Task Force, for example, distributed \$50,000 in March 2013 to each of the state’s four military communities to support ongoing base preservation efforts.⁹⁸ The Missouri General Assembly also enacted legislation in 2013, allocating \$300,000 to analyze the effects of the state’s military installations on the nation’s military readiness and economy.⁹⁹

Land Use Planning

Through land use planning, the military can be assured that its operations will not be jeopardized, while communities can continue to benefit from the jobs and other opportunities the military provides. Although development decisions are made primarily at the local level, the state legislature sets a framework in most states for how local entities carry out land use planning processes.

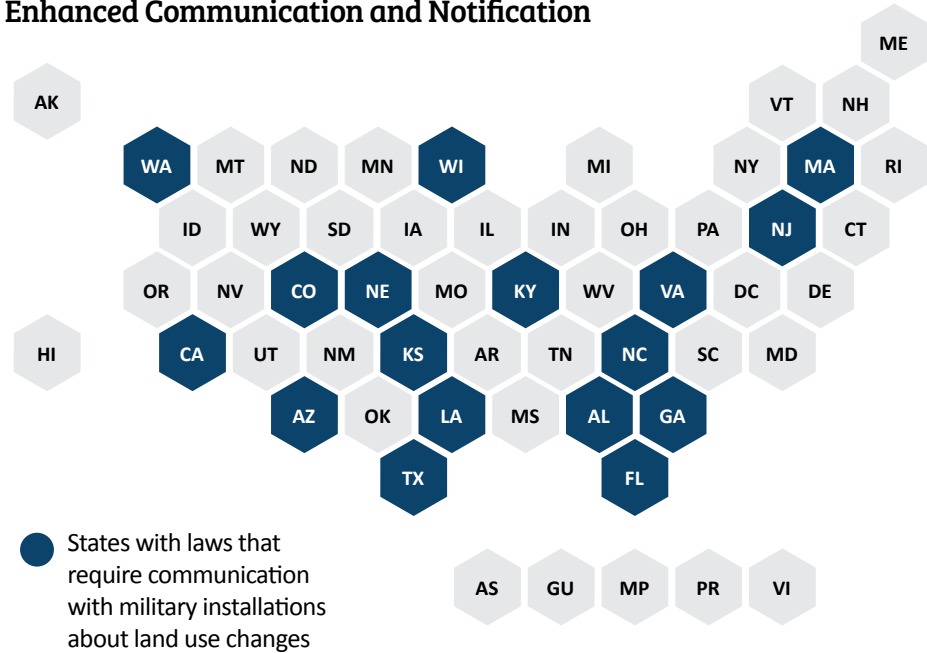
ENHANCED COMMUNICATION AND NOTIFICATION

One method states can use to promote compatible land use near military installations is to include all involved parties in the planning process. Many states have given the military the opportunity to participate in local land use planning, which helps local officials understand the effects of incompatible development on quality of life in communities and on military operations. Seventeen states require at a minimum that local governments notify nearby military installations of proposed land use changes (See Appendix D).¹⁰⁰ This formalized process can strengthen lines of communication and help avoid any unintentional conflicts. Methods for including the military in local land use planning include creating or expanding pro-

Alaska’s military facility zones offer low-cost loans and tax credits to municipalities and private businesses for initiatives that make it cheaper or easier for military installations to operate.

Massachusetts legislators approved a \$177 million bond bill in 2014 for infrastructure improvements at six military installations.

Enhanced Communication and Notification



cedural requirements to provide military installations with notice of proposed land use changes; creating a mechanism for the military to make comments on proposed land use changes; and allowing for military representation on state or local zoning boards.

In Arizona, the Legislature enacted a measure requiring local governments within the vicinity of a military airport to consult with, advise and provide the military an opportunity to comment on land use surrounding the installation.¹⁰¹ In 2012, the Florida Legislature clarified its community planning statute to specify that a commanding officer’s comments must be based on appropriate data and analysis, and that the local government must consider those comments and accompanying data as they relate to the strategic mission of the base, public safety, and the economic vitality associated with the base’s operations. Further, the bill created the Florida Defense Reinvestment Grant Program, in part to work with defense-dependent communities on strategies to help communities support the missions of military installations.¹⁰²

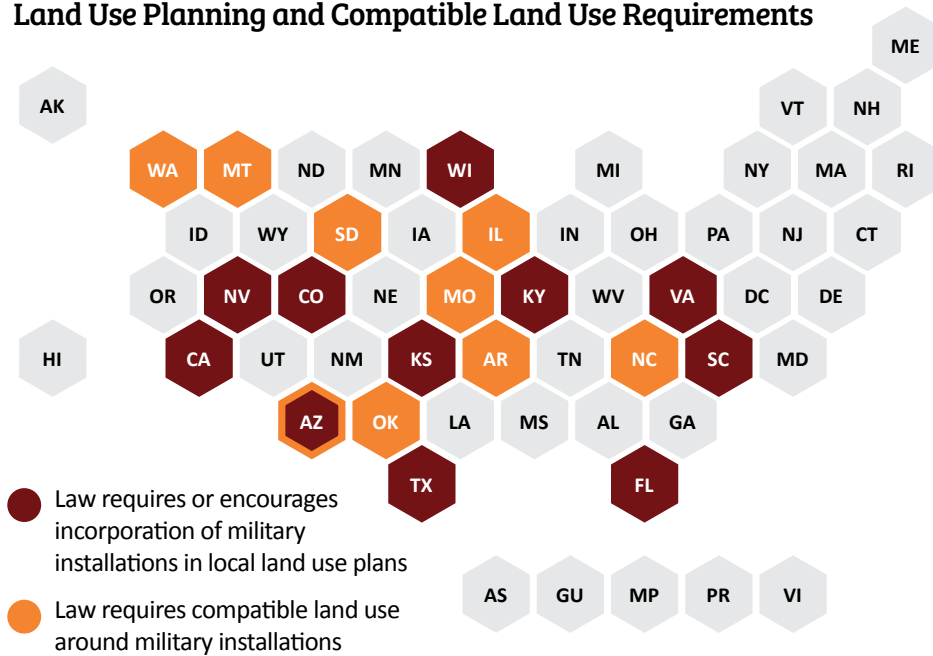
The North Carolina General Assembly enacted legislation in 2013 that requires local governments to provide written notice of proposed changes to a zoning ordinance to the commander of the military base not less than 10 days nor more than 25 days before a public hearing if the change would affect the permitted uses of land located within five miles of a military base. If the military provides comments or analysis regarding the ordinance’s compatibility with military operations at the base, the board of commissioners must consider the comments and analysis before making a final determination on the ordinance.¹⁰³ Representative Rick Glazier (D), sponsor of the legislation, says that House Bill 254 will “help safeguard land adjacent to military bases by maintaining military mission capacity of the bases in those nearby areas and enhancing communication of planned land use development in those areas between local governments and bases.”¹⁰⁴

INCORPORATING MILITARY INSTALLATIONS INTO LOCAL LAND USE PLANS

States delegate to local governments the responsibility to develop and implement land use planning documents and zoning regulations. “Comprehensive plans,” also known as general plans or master plans, are the foundation for local land use planning and, as such, serve as a blueprint for the growth and development of a community over time.¹⁰⁵ In most cases, a comprehensive plan consists of diagrams or maps illustrating the location of existing land uses, as well as written text outlining development goals for a range of uses such as housing, transportation, utilities and recreation.¹⁰⁶ While planning occurs at the local level, states play a role in directing the planning process. Most states require local governments to complete a comprehensive plan, although some are more prescriptive than others in regard to its content.

Local planning and zoning ordinances can be used to resolve land use issues near military bases, and state

Land Use Planning and Compatible Land Use Requirements



legislatures can require that lands near boundaries of these areas be set aside only for compatible uses. Eleven states—Arizona, California, Colorado, Florida, Kansas, Kentucky, Nevada, South Carolina, Texas, Virginia and Wisconsin—require or encourage municipalities to anticipate future growth patterns near military installations and include policies or guidelines to account for this growth in their comprehensive plans (See Appendix D).¹⁰⁷ This type of proactive land use planning can help channel new growth into appropriate areas and enhance communication with nearby military installations.

Legislatures in California and Kentucky recognized the need for more consistent land use planning around military installations in the early 2000s. Laws in both states require local governments to consider the effects of future growth on military activities in their local planning documents and place an emphasis on obtaining information from military authorities to accurately determine the needs of each installation.¹⁰⁸ Consultation between municipalities and military command authorities can address questions of installation expansion, environmental impact, safety and issues relating to airspace use.¹⁰⁹ Florida and Nevada require similar information in comprehensive plans, mandating that local governments include criteria for achieving compatible land use in areas near a military installation, taking into account its stated mission.¹¹⁰ Other states are less descriptive in their requirements for comprehensive plans, yet still encourage some consideration of installation needs.¹¹¹

Texas has taken a somewhat different approach, authorizing defense communities—through a constitutional amendment—to request financial assistance from a revolving loan fund to prepare a strategic impact plan that sets forth the communities’ long-term goals and development proposals.¹¹² One objective of the plan is to control the negative effects of future growth on military installations and their training exercises. Each strategic impact plan must include, among other requirements, detailed information about current and future land uses that may affect installation activities, an analysis of the base’s forecasted needs for open space areas and, if needed, language creating airspace buffer zones between the base and the community.¹¹³

State agencies can also take military needs into account as they develop long-term plans. For example, Colorado enacted legislation in 2016 requiring regulators to identify and consider the transportation infrastructure needs of military installations in the statewide transportation plan.¹¹⁴

REQUIRING COMPATIBLE LAND USE

State legislatures also can require local governments to restrict or prohibit incompatible development around installations and military airports. At least eight states—Arkansas, Arizona, Illinois, Missouri, North Carolina, Oklahoma, South Dakota and Washington—have such laws (See Appendix D).¹¹⁵

Most compatible land use laws address the importance of preventing certain land uses near military airfields or airports. For example, Arkansas passed a law in 1995 requiring certain municipalities to enact an ordinance restricting or prohibiting future uses on property within five miles of the city limits that might be hazardous to aircraft operation.¹¹⁶ Specifically, the law aims to restrict or prohibit air, light and electrical emissions—as well as uses that expose people to excessive noise, uses that would attract birds or waterfowl, and those uses that would provide for structures to be built within 10 feet of an aircraft approach, departure or transitional surfaces at an airport. Minimal residential development is allowed, but is limited to single-family use on tracts of one or more acres. All ordinances must be consistent with the most current recommendations made by the U.S. Air Force in its Air Installation Compatible Use Zone Study. Oklahoma passed an almost identical law in 2001, except that its provisions are not mandatory for local governments.¹¹⁷ Similarly, Missouri and South Dakota authorize a municipality to adopt zoning regulations around military airports to prevent creation of a military airport hazard, defined as any structure that obstructs the air space required for taking off, landing or flight of military aircraft or that interferes with systems used for tracking or acquiring data.¹¹⁸ Regulations may specify the land uses permitted and regulate the type, density and height of structures in the area.¹¹⁹



BARNA AARON, U.S. FISH AND WILDLIFE SERVICE

The endangered Taylor's checkerspot butterfly survives on only 3 percent of the historic 150,000-acre prairie habitat around Joint Base Lewis-McChord in Washington state.

One of the earliest and largest tracts of land designated as an area of concern is the Adirondack Park in New York, which encompasses more than 6 million acres of public and private land.

Other states encourage compatible land use development around all military facilities. Washington lawmakers enacted legislation in 2004 stating that “a comprehensive plan, amendment to a plan, a development regulation or amendment to a development regulation, should not allow development in the vicinity of a military installation that is incompatible with the installation’s ability to carry out its mission requirements.”¹²⁰ The North Carolina General Assembly enacted similar legislation in June 2013. Under the Military Lands Protection Act, no municipality is permitted to authorize construction of a tall building or structure in any area surrounding a major military installation unless otherwise certified by the Building Code Council.¹²¹ The law instructs the council to deny applications for certification where construction of the building would encroach upon the mission, training or operations of an installation and result in a detriment to continued military presence in the state.¹²² The law also allows for civil penalties and prohibits providing certain utility services to any building constructed in violation of the law.¹²³ Representative John Bell (R), sponsor of the legislation, believes that House Bill 433 “provides a uniform state process to protect bases from closure.”¹²⁴

Still other options exist for encouraging compatible land use. Under the County Air Corridor Protection Act, Illinois grants any county with a U.S. Air Force installation of a certain size the authority to control the use of land around the airport to protect the safety of the community. The county’s authority is limited to the area designated in the Air Installation Compatible Use Zone Study. If the municipality approves a land use that is incompatible with the Air Force study, the law gives the county the option to use eminent domain to acquire the affected land.¹²⁵

PROTECTING LAND NEAR MILITARY BASES THROUGH FORMAL DESIGNATION

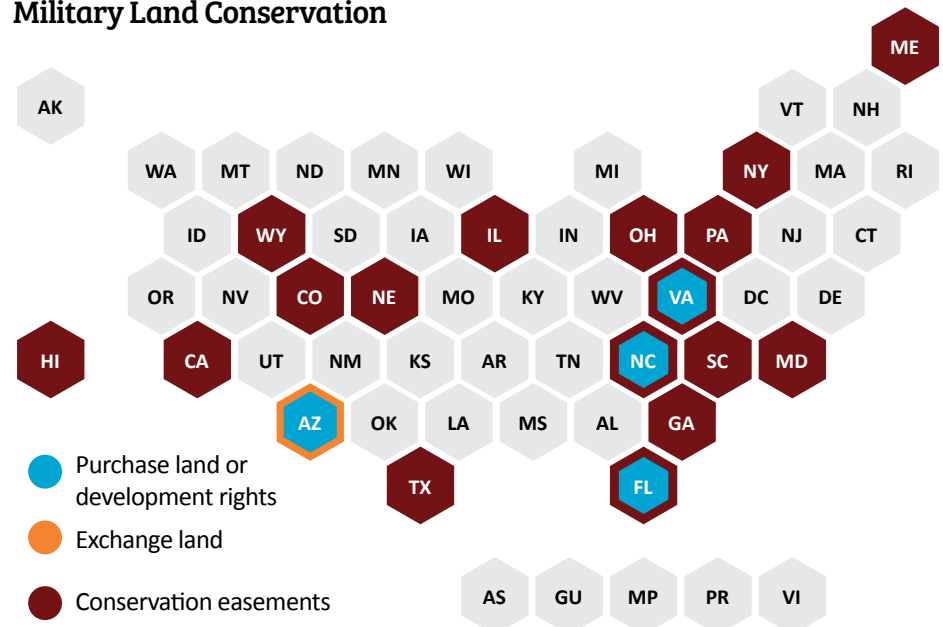
Several states have existing statutory authority to assign an elevated status in planning documents to certain types of land. Development within these “areas of critical state concern” is monitored by state agencies and local governments to ensure that each proposed use is compatible with the land’s unique traits.¹²⁶ Most lands protected as areas of critical state concern are environmentally sensitive regions such as wetlands, aquatic preserves and wilderness areas.¹²⁷ One of the earliest and largest tracts of land designated as an area of concern is the Adirondack Park in New York, which encompasses more than 6 million acres of public and private land.¹²⁸ Other states with statutes designating environmentally sensitive regions as areas of concern include California, Florida, Georgia, Maryland, Massachusetts, Minnesota, Nevada, North Carolina, Vermont and Wyoming.¹²⁹ Some of these states—such as California, Florida and

Minnesota—also protect areas with historic, archaeological or aesthetic significance.¹³⁰

To prevent uncontrolled development, military bases and operating areas can be recognized as critical areas and state legislatures can require that lands near boundaries of these areas be set aside only for compatible uses. While the statutory framework for such a designation is already in place in many states, only two—Kansas and Montana—include military installations in types of land protected as a critical area.¹³¹ Under the 2010 Kansas law, areas located either wholly or partially within defined military zones are designated as “state areas of interest” vital to national security and the economic well-being of the state.¹³² The law requires representatives of military installations and municipalities to meet at least annually to determine whether any portion of the state area of interest can be classified as a “critical area,” defined as any area where future use is determined jointly between the military installation and the municipality. Critical areas should be managed to reduce potential conflicts due to competing uses.¹³³ Representative Tom Sloan (R), sponsor of the legislation, notes that, “Most civilians do not willfully compromise the training capabilities of military bases, but frequently are not knowledgeable about what civilian actions will compromise training missions. Similarly, the military does not intend to cause problems for their civilian neighbors. House Bill 2445 clearly helps both sides by establishing areas that are important to the military and notifying prospective buyers of property that military activities may produce noise, dust and other nuisances.”¹³⁴

Montana’s law allows municipalities to designate “military affected areas,” which encompass land used for military purposes and land near an installation that is directly affected by military activities.¹³⁵ “Senate Bill 417 was enacted to empower local governments to work with military officials to adopt land use policies regarding military activities to ensure public safety, viability of our valuable military missions and allow future growth as we protect our nation from existing, new and potential threats,” says Senator Edward Buttrey (R), sponsor of the legislation.¹³⁶ The Montana law also establishes a permit system for all land use changes within military affected areas and prevents granting permits for incompatible uses.¹³⁷ Several counties have designated military affected areas in the past five years. According to Senator Buttrey, Cascade County, as well as most of the counties in central Montana, have enacted policies to minimize encroachment at various Minuteman-III missile silos.¹³⁸

Military Land Conservation



Land Conservation

Protecting land around a military installation can buffer military training and testing operations from residential development and other incompatible uses. Open space also maintains habitat for threatened and endangered species. States can create buffer areas by purchasing land or development rights to land, exchanging land, and creating a conservation easement (See Appendix D).

PURCHASING LAND OR DEVELOPMENT RIGHTS

One way states can support creation of buffer areas is to establish a statewide program that provides funding for purchase of land or development rights in the vicinity of military installations that are struggling with encroachment. At least four states—Arizona, Florida, North Carolina and Virginia—currently have such funding programs.¹³⁹ States commonly have funded or financed these programs through appropriations, dedicated lottery revenues and bonds. State programs that help to purchase land may also provide funding to purchase development rights, which can be much less costly. By purchasing develop-



ment rights, states can preserve farms and ranches, while restricting the land from incompatible uses. In addition to more permanent programs, many states also have funded one-time land purchases to buffer military installations against encroachment.

Lawmakers in Florida recognize that the state's land conservation plans often overlap with the military's need to protect resources to ensure the sustainability of military missions. The Florida Forever Act, enacted in 2001, provides funding to state agencies and local governments for acquisition of conservation lands, some of which serve as a buffer around military installations.¹⁴⁰ Funds distributed from the Florida Forever Trust Fund support restoration and protection of the state's diverse ecosystems and landscapes and also provide habitat for imperiled species. Since its inception, the Florida Forever Program has acquired more than 718,000 acres. One of the more recent acquisitions in 2013 involved 1,578 acres around Camp Blending Joint Training Center.¹⁴¹ The Florida Department of Military Affairs is managing the land as a natural forested area, not only providing numerous environmental benefits, but also preventing future encroachment in the vicinity of a major military training area.¹⁴² Florida also passed a law in June 2013 to authorize acquisition of non-conservation lands to buffer military installations from encroachment.¹⁴³ Lands may either be purchased outright or secured through other means, including conservation easements.

North Carolina also provides funding to acquire conservation lands. Created in 1996, the Clean Water Management Trust Fund awards grants to local governments, state agencies and conservation groups to help fund projects that restore degraded waters, protect unpolluted waters and preserve the ecological diversity of the state.¹⁴⁴ The fund also supports projects that create buffers around military bases. More than \$1 billion has been allocated to nearly 1,400 projects since 1996.¹⁴⁵ In 2015, trustees awarded \$3.5 million in grants to support land conservation efforts around military bases and flight paths.¹⁴⁶ State funds will be paired with federal matching dollars and contributions from local land trusts.¹⁴⁷

The impetus for Virginia's land acquisition program came in response to the BRAC Commission's 2005 recommendation to move Naval Air Station Oceana out of Virginia Beach because the city had allowed too much development under flight paths.¹⁴⁸ The state enacted a law shortly thereafter to require all localities with a U.S Navy Master Jet Base to establish programs to purchase incompatible use property and prohibit new development deemed incompatible with air operations in certain defined zones.¹⁴⁹ Virginia State Delegate Richard L. Anderson (R), a retired 30-year Air Force colonel and chairman of the Virginia General Assembly Military and Veteran Caucus, stated that "this initiative by the Commonwealth of Virginia established buffer zones that significantly mitigated the threatened adverse impacts of a BRAC cycle on Virginia and preserved military installations that had been present on Virginia soil for more than a half-century."¹⁵⁰

EXCHANGING LAND

Aside from purchasing land, states can permit land exchanges to prevent further encroachment. In its 2012 session, the Arizona Legislature passed a measure to give the state flexibility over use of state trust lands. ("State trust lands"—10.9 million acres in Arizona—were granted at the time of statehood and are intended to produce revenue for various public institutions. Twenty-three states manage trust lands today.) The measure revised the process to review, evaluate and approve proposed exchanges of state trust lands for other public lands for certain purposes, one of which is preservation and protection of military facilities in the state.¹⁵¹ Proposed exchanges are subject to two land appraisals and an analysis of the financial impact of the exchange on each county, city, town and school district in which the lands are located, as well as the physical and natural resource impacts of the exchange on the local community. The law also requires two public hearings for each proposed exchange and approval from voters in a general election. The law became effective in November 2012 after voters approved a required amendment to the state constitution authorizing land exchanges.¹⁵²

AGRICULTURE AND CONSERVATION EASEMENTS

Just as military activities are threatened by unchecked growth and development, so too are nearby working lands and wildlife habitat. Lands used for farming, ranching and forestry are vital to sustaining agricultural productivity, safeguarding natural resources and maintaining a rural way of life. Although states have

◀ Agricultural land neighboring the Army's Kahuku Training Area on the Hawaiian island of Oahu. This land will remain in agriculture in perpetuity through the use of conservation easements.

SEAN DAVEY, SEAN DAVEY PHOTOGRAPHY

implemented a wide variety of programs to preserve working landscapes, the United States still loses one million acres of farmland to development each year. In addition, the loss of wildlife habitat is transforming military bases into unlikely refuges for more than 400 threatened and endangered species.

Easements—defined as voluntary, legal agreements between a landowner and a government agency or other entity that define the use of land in order to protect its agricultural or conservation values—also can be used to protect land around military installations. Lands protected through an easement can include the following: working farm, ranch or forestland; scenic vistas; wildlife habitat; watershed areas



COURTESY DEPT. OF DEFENSE

and historic sites. Millions of acres of private land in the United States are currently under agricultural and conservation easements.¹⁵³

An easement can be an attractive option for a landowner who wishes to protect his or her land for future generations without giving up private ownership. Easements also offer great flexibility, tailoring restrictions to the needs of individual landowners and the unique features of the property. Landowners also can benefit financially through federal and state tax credits designed to compensate those who choose to donate an easement, rather than sell it.¹⁵⁴ At least 15 states—Arkansas, California, Colorado, Connecticut, Delaware, Florida, Georgia, Iowa, Maryland, Massachusetts, Mississippi, New Mexico, New York, South Carolina and Virginia— and Puerto Rico offer a conservation easement tax credit, allowing landowners to claim up to 50 percent of the fair market value of land donated to a government

agency or private land trust. Five states—Colorado, Georgia, New Mexico, South Carolina and Virginia—allow credits to be transferred to individuals or corporations with high tax liability, generating immediate income for the donor.

At least 17 states—California, Colorado, Florida, Georgia, Hawaii, Illinois, Maine, Maryland, Nebraska, New York, North Carolina, Ohio, Pennsylvania, South Carolina, Texas, Virginia and Wyoming—have funding programs to help state agencies and local governments purchase conservation easements.¹⁵⁵ Other states, including some mentioned above, also have agricultural conservation easement programs to protect important farmland.¹⁵⁶

Landowners may also qualify for preferential treatment in the assessment of property taxes in several states. In Maine, North Carolina and Vermont, for example, property taxes for agriculture and forest lands are based on the value of the land in its current use, rather than market value.¹⁵⁷ This method allows for valuation of land based on the actual use of the property, rather than what the use might be if the property were sold or developed. This results in tax savings for the landowner. As of September 2015, Vermont landowners had enrolled more than 18,020 parcels of qualifying forestland and farmland, about one-third of the state's total land area.¹⁵⁸

Florida is currently the only state to tie purchase of conservation easements to protection of military installations. The Florida Forever Act, described earlier, encourages purchase of conservation easements in addition to outright purchase of property, largely because of the easement's lower cost to the public and ability to allow private landowners to retain ownership.¹⁵⁹ The law dedicates 3.5 percent of money in the Florida Forever Trust Fund for acquisition of agricultural lands through conservation easements and similar instruments. The state has purchased numerous conservation easements during the past decade, including in June 2013 when the state acquired a 20,850 acre easement for property adjacent to Eglin Air Force Base, the largest in the country.¹⁶⁰ The land will continue to be owned and managed by a private citizen for economic benefit; under terms of the easement, however, it will not be developed into new residential or commercial uses that could impede the base's mission.

All states except North Dakota have laws that enable creation of conservation easements.¹⁶¹ Enabling legislation typically describes the methods of creation and duration of the easement and establishes procedures for public review, registration, amendment and termination. Most states allow any federal, state or local government body to hold easements.¹⁶² Non-governmental entities, such as land trusts and other nonprofit conservation organizations, also are permitted to hold easements. Most easements remain with the property even if it is sold or passed to heirs, thus binding the original owner and all subsequent owners to easement conditions.¹⁶³ The entity that holds the easement is responsible for monitoring and enforcing its terms.

SENTINEL LANDSCAPES

Formed in 2013, the Sentinel Landscapes Partnership is an effort to protect working lands, preserve wildlife habitat and sustain military readiness by focusing on places where these priorities overlap. Federal partners, including the departments of Defense, Agriculture and Interior, are working with state, local and private actors to recognize and reward landowners for practices that benefit their lands and livelihood, while also effectively contributing to the sustainment of military installations, training ranges and airspace.

The Sentinel Landscapes Partnership presents states and the federal government with an unparalleled opportunity to capitalize on the linkage between national defense, conservation and working lands. Leveraging resources to encourage landscapes in the vicinity of military installations to remain as farms, ranches, forestlands, or simply open space, will not only benefit the people and wildlife that depend on these lands, but also serve as a valuable buffer from the kind of development that puts military testing and training activities at risk.



Farms, ranches and forests around military bases are a valuable buffer from the kind of development that puts military testing and training activities at risk.

One of the key objectives of the Sentinel Landscapes Partnership is to encourage state participation and the use of state resources to more effectively engage private landowners and provide them with a range of incentives to promote compatible land use. Legislation enacted in Minnesota in 2015 aims to do just that. House Bill 283 establishes a coordinating committee to identify lands around Camp Ripley, a National Guard training center, that meet the criteria of a Sentinel Landscape. The committee will work with willing landowners to encourage management practices compatible with the National Guard training facility. Representative Ron Kresha (R), one of the bill's sponsors, believes Camp Ripley is an important resource for the state and viewed the legislation as a first step toward nomination for official Sentinel Landscape status.

In July 2016 the Partnership announced the designation of three new Sentinel Landscapes—Camp Ripley in Minnesota, Avon Park Air Force Range in Florida and Eastern North Carolina.¹⁶⁴ These areas join Joint Base Lewis-McChord in Washington, Fort Huachuca in Arizona and Naval Air Station Patuxent River-Atlantic Test Ranges in Maryland. The project at Camp Ripley involves more than 40 miles of the Mississippi River, with 16 local, state and federal partners sharing responsibility for protecting water quality. They have committed more than \$5.18 million to protect or enhance 34,903 acres, which will protect Camp Ripley's training mission, the integrity of the region's natural resources, and provide expanded access to hunting, fishing and recreation.

State laws that help to minimize encroachment and sustain the economic benefits of the military's presence also support the goals of the Sentinel Landscapes Partnership. Policy options include farmland and forestry preservation programs and tax incentives for private land conservation and economic development. More information can be found at www.sentinellandscapes.org.



Although DoD is a strong proponent of renewable energy, the department must ensure that wind turbines, solar panels and other infrastructure located on or near military installations are compatible with test and training activities.

Energy Development Compatibility with Military Mission

As states and localities increase renewable energy capacity and related electrical transmission to meet demand and fulfill renewable portfolio standards, the expansion into previously undeveloped land may affect the military mission.¹⁶⁵ While renewable energy can bring benefits to both military and civilian communities, its development may have unintended impacts on military operations by interfering with communication, airspace and test and training ranges. Often, potential impacts can occur miles from a planned development and the effects are not always apparent to developers or civilian communities.

Renewable energy installations and transmission lines can impact low-level flight or nighttime exercises if they are located near training routes and special use or restricted airspace. Wind turbines can interfere with surveillance, air traffic control and other radar systems.¹⁶⁶ High-voltage transmission lines have the potential to create electromagnetic interference, ultimately degrading military communication and navigation. Furthermore, solar photovoltaic panels, hot water heating systems and solar towers can reflect sunlight and create hazards for air operations through glint—a momentary flash of bright light—or glare—a continuous source of bright light.¹⁶⁷

Although DoD is a strong proponent of renewable energy, the department must ensure that wind turbines, solar panels and other infrastructure located on or near military installations are compatible with test and training activities.¹⁶⁸ This need for compatibility is becoming increasingly imperative as renewable energy investment grows due to state renewable portfolio standards, cost reductions, increased demand and financial incentives, including federal tax credits.

With these considerations in mind, the secretary of defense created the DoD Siting Clearinghouse in 2010 to address the potential impacts of renewable energy development on military testing, training or

operations. The clearinghouse works closely with state and local governments, developers and other federal agencies to provide timely, coordinated reviews of proposed energy projects to prevent or minimize operational impacts through their Mission Compatibility Evaluation process.¹⁶⁹ The clearinghouse is not a regulatory authority and generally serves in an advisory role to the appropriate permitting agency.

The clearinghouse website contains information on DoD's ongoing efforts to include the military mission in energy siting decisions, as well as a library of relevant reports and copies of all signed mitigation agreements.¹⁷⁰ Most important, the website provides a portal for state and local governments to contact DoD for an impact assessment. The clearinghouse's informal review process, which is most often used by developers to gain early siting information, can also provide mission compatibility information to public entities.

The clearinghouse conducts reviews of thousands of projects, the vast majority of which are found to have minimal impact on military operations and readiness.¹⁷¹ The clearinghouse will review project or geographic data to identify any missions that may be of concern. When compatibility concerns are identified, the clearinghouse works with the energy proponent to identify reasonable and affordable impact mitigation solutions. For example, the clearinghouse and a developer reached an agreement in North Carolina to allow modified siting of wind turbines to lessen impacts on the Seymour-Johnson Air Force Base.¹⁷² This process is best used as early in siting decisions as possible, and is designed to be collaborative, rather than to deliver a final DoD position.

At the state level, legislatures are working to prevent and mitigate energy-related encroachment on military installations early in the siting process to reduce costs, streamline the permitting process and preserve the military mission. Encroachment is often unintentional, and state and local siting authorities may not be aware of the need to include military operations in planning discussions. State lawmakers can help ensure these projects will be compatible with military activities by including DoD and representatives from nearby military installations in stakeholder discussions with local, state and federal siting authorities, state utility commissions, state agencies, tribal governments and local communities. Early coordination can often overcome energy-related compatibility challenges, saving states and localities from unplanned mitigation expenses and permitting obstacles.

Legislatures can ensure compatibility of new energy projects with military operations through several processes, including early notification of DoD, requesting an informal review from the department, ensuring any conflicts are resolved before completing permitting and construction, and enacting planning guidelines or siting ordinances with maps of military mission conflict areas. This coordination can occur at utility commissions, state or local siting boards and permitting offices.

California is one state that has adopted comprehensive measures to increase coordination with nearby military installations. The state enacted Senate Bill 1468 in 2002 requiring the impacts of new growth on military readiness activities to be considered in zoning and land use decisions.¹⁷³ Legislation revised the definition of open-space to include areas adjacent to military installations, military training routes and restricted airspace, helping prevent encroachment. Additionally, the bill required the state Office of Planning and Research to prepare and publish a compatibility planning handbook for local officials, planners and builders to decrease land use conflicts on or near military installations.¹⁷⁴ Senate Bill 1462 (enacted in 2004) requires the governor to develop a conflict resolution process for proposed local or state projects that could potentially affect military activities.¹⁷⁵ The bill also requires planning agencies to notify the U.S. Armed Forces of any changes to a community's general plan if the changes lie within 1,000 feet of a military installation, beneath a low-level flight path, and within or beneath special use airspace. Furthermore, the legislation would develop a process for DoD to request a consultation with planning agencies and provide electronic maps identifying military installations and special use airspace to the Office of Planning and Research. The state has also taken subsequent measures since 2004 to streamline military-community interactions on energy development. For example, the state has developed the California Military Land Use Compatibility Analyst to help localities consider the effects of new growth on military readiness, installations and airspace.¹⁷⁶

In the 2013 legislative session, North Carolina enacted House Bill 484 to establish a permitting process for wind energy siting that includes consideration of any effects on military operations and readiness at each point in the application process.¹⁷⁷ For example, prospective permit applicants must submit a pre-application package with information on the project and any possible impacts to military installations.

Prospective applicants must also give written notification to military installations potentially affected by the development. At other points in the application process, the commanding officers of each major military installation are notified of the project in writing and invited to provide input. In the same year, the state enacted another bill (House Bill 433) that places limits on building heights for new construction or retrofits within five miles of military installations to protect airspace.¹⁷⁸ Also included in the legislation is the development of a study examining the feasibility and desirability of creating a North Carolina Military Clearinghouse to prevent incompatible development.

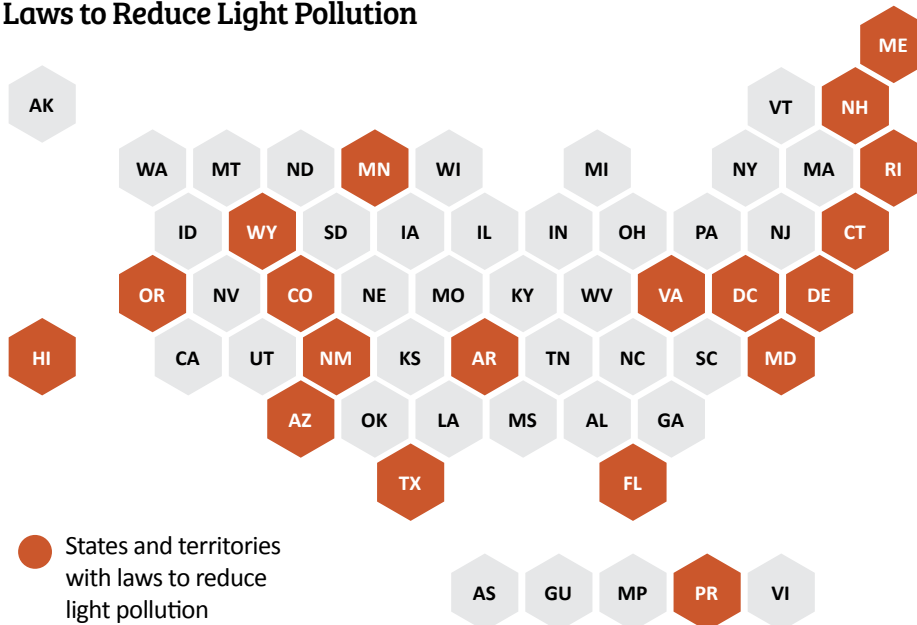
Washington state enacted House Bill 1570 in 2011, requiring the Energy Facility Site Evaluation Council, cities, towns and counties to provide written notice to DoD of permit applications for energy projects connected to transmission lines of 115 kilovolts or greater.¹⁷⁹

Energy-related encroachment may be exacerbated by differences in states' siting authorities. A number of states authorize energy installations, such as wind turbines, at the county or municipal level, rather than through a state permitting office. In Oregon, for example, siting for wind energy facilities under 35 megawatts is regulated by local governments.¹⁸⁰ The state Department of Energy has developed a model ordinance on energy projects for local governments that includes guidance on siting renewable energy and transmission lines.¹⁸¹ In Virginia, the state Corporation Commission provides a certificate for the siting of all new utility facilities and localities may adopt separate siting ordinances. The Virginia Department of Environmental Quality's Local Government Outreach Stakeholder Group has developed a series of model renewable energy ordinances for localities.¹⁸² In the model ordinance for utility-scale wind energy, resources for notifying DoD of proposed installations are included.

Moreover, legislatures can collaborate with military entities on renewable energy research and development or assist with military self-generation goals by streamlining the process for renewable energy facilities on military lands. For example, Hawaii enacted House Bill 1513 in 2015, which established a two-year matching grant fund for entities that have contracted with DoD's Office of Naval Research on renewable

energy and energy efficiency research and development.¹⁸³ Several states, including Kansas, Utah and Vermont, have enacted legislation in recent years to provide financial incentives or regulatory policies for increased use of renewable energy at military installations.¹⁸⁴

Laws to Reduce Light Pollution



Reducing Light Pollution

With the use of night-vision equipment, a significant portion of military training is now conducted at night. These exercises simulate combat situations, helping troops develop their situational awareness and ultimately minimize casualties. But increasing urbanization, combined with the excessive and inefficient use of light, has created a kind of pollution that can interfere with military training and lead to numerous other disturbances.¹⁸⁵

At least 17 states, the District of Columbia and Puerto Rico have laws in place to reduce light pollution (See Appendix E).¹⁸⁶

The majority of states that have enacted

so-called "dark skies" legislation have done so to promote energy conservation, public safety, aesthetic interests and astronomical research capabilities. Municipalities in a number of states have also been active on this issue, adopting light pollution regulations as part of their zoning codes.¹⁸⁷

Most state laws are limited to outdoor lighting fixtures installed on the grounds of a state building or facility or on a public roadway. The most common dark skies legislation requires the installation of shielded

light fixtures that only emit light downward. Replacement of unshielded with fully shielded lighting units often allows for use of a lower wattage bulb, resulting in energy savings. Other laws require the use of low-glare or low-wattage lighting, regulate the amount of time that certain lighting can be used, and incorporate Illuminating Engineering Society guidelines into state regulations.¹⁸⁸

Known as a worldwide hub for astronomy, Arizona's light pollution law dates back to 1986.¹⁸⁹ The law requires all outdoor light fixtures to be fully or partially shielded, with the exception of emergency, construction and navigational airport lighting. Fixtures not in compliance are allowed provided they are extinguished between the hours of midnight and sunrise by automatic device. Some laws are more specific than others. For example, in Colorado, installation of new outdoor lighting fixtures requires consideration of costs, energy conservation, glare reduction, minimizing light pollution and the preservation of the natural night environment.¹⁹⁰ A "full-cutoff fixture" must be used when output is greater than a certain amount of lumens.

Other states have sought to encourage these types of measures at the local level. New Hampshire, for example, has made it a priority to preserve dark skies as a feature of rural character. To that end, state law encourages municipalities to adopt ordinances and regulations to conserve energy and minimize light pollution.¹⁹¹ The effect of beachfront lighting on avian and marine life is also a concern in many coastal states. In Florida, a statewide model lighting ordinance guides local governments in developing policies to protect hatching sea turtles.¹⁹²

Texas is the only state with a law in place specifically aimed at reducing light pollution around military installations. In 2007, the Texas Legislature amended an existing law regarding the regulation of outdoor lighting to authorize state counties, at the request of the military, to adopt measures governing the use of outdoor lighting within five miles of a military installation.¹⁹³ The provision only applies to counties with at least five military bases and a population of more than 1 million people or adjacent counties located within five miles of a base. County regulations must be designed to protect against interferences with military training activities. Counties may accomplish this goal in a number of ways: (1) require that a permit be obtained before installing certain types of lighting; (2) prohibit the use of particular lighting fixtures; (3) establish requirements for the shielding of outdoor lighting; or (4) regulate the times during which certain types of lighting may be used.

In 2011, Missouri lawmakers considered, but did not pass, the Night Sky Protection Act, which would have reduced the amount of light emitted into the night sky in designated military training areas and would have required the state Air Conservation Commission to develop voluntary guidelines to achieve specified standards by 2050.¹⁹⁴ A similar bill was considered in Kansas in 2009.¹⁹⁵

Limiting Noise Impacts from Military Activities on Surrounding Communities

Communities adjacent to military bases frequently experience high levels of noise that can affect residents' health, welfare and quality of life. Aircraft flights, ordnance detonations, combat engineering demolitions and artillery use are a few of the activities that can disrupt daily life in the vicinity of a military installation.¹⁹⁶ States can minimize the effects of noise on surrounding communities by requiring that new developments adhere to prescribed sound attenuation standards. These standards often require use of soundproofing techniques, such as building thicker walls or using additional insulation, to reduce the intensity of exterior noise.

An Arizona law enacted in 1996 requires municipalities that have territory in the vicinity of a military airport to institute sound attenuation standards for newly constructed residential houses and certain public buildings.¹⁹⁷ In 2004, the Legislature extended the scope of the law to include ancillary military facilities at Luke Air Force Base and Yuma Marine Corps Air Station.¹⁹⁸ Virginia enacted similar legislation in 2005, allowing municipalities to adopt regulations requiring use of "acoustical treatment measures" for residential buildings in areas affected by above-average noise levels due to their proximity to a military airport.¹⁹⁹ In establishing the regulations, a locality may adopt one or more noise overlay zones as an amendment to its zoning map and may establish various measures to be installed within each zone, depending on the severity of aircraft noise.²⁰⁰

Real Estate Disclosure

Another way to discourage encroachment is to ensure that buyers or renters of property located near a military installation are aware of the associated risks and potential effects on quality of life caused by high noise and training accidents. Disclosures of this nature can serve as a valuable deterrent to incompatible development. Laws in Arizona, Kansas, Maryland and Virginia require or encourage real estate disclosures in military areas.²⁰¹

Arizona law requires a seller of residential property located near a military airport or ancillary military facility to provide a written disclosure to the buyer before transferring title.²⁰² In addition, a 2001 Arizona law requires owners of property located within defined “high noise and accident potential zones” to notify potential buyers, renters or lessees that the property is located in the zone and is subject to certain requirements under the law.²⁰³ The state also requires this type of disclosure on land under military training routes and restricted air space.²⁰⁴ To facilitate this process, the state real estate department and affected municipalities maintain a registry of information containing maps of military flight operations and a list of contact people who are familiar with flight operations at each airport.²⁰⁵

In 2010, the Kansas Legislature enacted a comprehensive measure that requires municipalities to consider adopting a mandatory disclosure requirement for any property within defined areas that would inform buyers of the potential for noise, smoke, dust, light and electromagnetic interference generated by normal military operations.²⁰⁶

Shared Services Agreements

Defense communities across the country are taking advantage of relatively new statutory authority, enacted as part of the Fiscal Year 2013 defense authorization act, allowing installations to enter into intergovernmental support agreements with states and local governments to share a variety of municipal services.²⁰⁷ Partnerships can increase base efficiency around water, energy, transportation, security and emergency services.²⁰⁸ They can also support military personnel and their families in the areas of recreation, children’s services, libraries and housing. By leveraging each other’s strengths through such partnerships, military installations and communities can save costs while also enhancing the quality of services and improving installation-community cooperation.

Conclusion

As DoD continues to reorganize its infrastructure to become more efficient and adjust to a changing national security environment, state-level proactive strategies will become even more critical to the sustainability of military operations and defense communities. This report is intended to provide state legislatures with an overview of state responsibilities and related policy options to strengthen the relationship between bases and surrounding communities, and to ensure a suitable environment for military installations. No single solution exists to mitigate the effects of base changes or prevent encroachment; however, states may wish to consider the options presented in this report in tandem with state and local views about land use, economic development, private property rights or other issues of concern. With these strategies in mind, states can work to secure the future of their military installations and ensure that communities continue to benefit from the jobs and business opportunities the military provides.

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Appendix A

Economic Impact of Military Presence by State

State/ Territory	DoD Office of Economic Adjustment Study (FY 2015) ¹			State-Commissioned Studies ²	
	Defense Spending FY 2014	% of State GDP	Defense Personnel Active, Civilian, Guard/Res.	Year	Key Findings
Alabama	\$12.2 billion	5.90%	52,116	N/A	None Found
Alaska	\$3.3 billion	6.10%	27,764	N/A	None Found
Arizona	\$10.0 billion	3.40%	42,547	2008	<ul style="list-style-type: none"> • \$9.1 billion in economic output • 96,328 jobs created or supported • Annual state and local tax revenue of \$401 million
Arkansas	\$1.4 billion	1.20%	20,229	N/A	None Found
California	\$49.3 billion	2.10%	269,540	N/A	None Found
Colorado	\$8.7 billion	2.80%	61,294	2015	<ul style="list-style-type: none"> • \$27 billion in total state output from DoD expenditures • 170,000 jobs, 5.2% of total • \$11.6 billion in earnings, 7.5% of total
Connecticut	\$9.7 billion	3.80%	15,414	N/A	None Found
Delaware	\$676.8 million	1.00%	9,959	2011*	<ul style="list-style-type: none"> • The Delaware National Guard paid costs of nearly \$67.5 million to employ 759 military personnel and civilian employees as well as \$24.2 million to the 2,462 Soldiers and Airmen on drill status. • The DNG spent nearly \$33 million in construction
District of Columbia	\$6.8 billion	5.70%	25,550	N/A	None Found
Florida	\$17.6 billion	2.00%	126,292	2013	<ul style="list-style-type: none"> • Total defense spending amounted to \$31.3 billion • Defense spending was directly or indirectly responsible for \$73.4 billion, or 9.4% of Florida's 2011 Gross State Product • Provided a total of 758,112 direct and indirect jobs.
Georgia	\$12.6 billion	2.60%	129,463	N/A	<ul style="list-style-type: none"> • None Found
Hawaii	\$7.8 billion	9.80%	73,487	2012	<ul style="list-style-type: none"> • Direct and indirect impacts exceeded \$14.7 billion • Provided 102,000 jobs
Idaho	\$643.3 million	1.00%	10,436	N/A	<ul style="list-style-type: none"> • None Found
Illinois	\$7.0 billion	0.90%	57,078	2014	<ul style="list-style-type: none"> • \$13.3 billion in gross state product • \$9.7 billion in earnings and retirement benefits • Provided 150,000 jobs
Indiana	\$3.9 billion	1.20%	31,376	N/A	None Found
Iowa	\$1.4 billion	0.80%	12,969	N/A	<ul style="list-style-type: none"> • None Found

State/ Territory	DoD Office of Economic Adjustment Study (FY 2015) ¹			State-Commissioned Studies ²	
	Defense Spending FY 2014	% of State GDP	Defense Personnel Active, Civilian, Guard/Res.	Year	Key Findings
Kansas	\$3.3 billion	2.30%	41,152	2009	<ul style="list-style-type: none"> • \$7.7 billion per year in gross state product, 7% of total • 169,560 jobs supported directly or indirectly (9.4% of total employment) • \$393.6 million per year in city/county, region and state tax revenue
Kentucky	\$9.0 billion	4.70%	57,080	2016	<ul style="list-style-type: none"> • Nearly \$12 billion in federal military spending • With over 38,000 full-time employees, it is the largest employer in Kentucky. • About 28,500 military retirees received \$637 million in retirement pay.
Louisiana	\$3.8 billion	1.50%	41,250	2013	<ul style="list-style-type: none"> • \$8.7 billion in economic output • 82,700 jobs tied to the military (4.35% of total employment) • \$287 million in state and local tax revenue
Maine	\$2.6 billion	4.70%	11,794	N/A	None Found
Maryland	\$20.5 billion	5.70%	93,183	2015	<ul style="list-style-type: none"> • 15 military installations supported 410,219 jobs • Generates \$57.4 billion in total output and \$25.7 billion in total wages
Massachusetts	\$12.2 billion	2.60%	24,174	2015	<ul style="list-style-type: none"> • Military installations total expenditures over \$8 billion in 2013 • A total of 57,618 jobs supported directly or indirectly by the military's presence in Massachusetts. • Total economic output of \$13.2 billion
Michigan	\$2.9 billion	0.60%	25,689	2016	Supported over 105,000 job throughout the state
					<ul style="list-style-type: none"> • Added more than \$9 billion in Gross State Product • Created nearly \$10 billion in personal income • Activities supported nearly \$8 billion in personal expenditures
Minnesota	\$4.3 billion	1.30%	21,823	N/A	None Found
Mississippi	\$5.2 billion	4.90%	37,006	N/A	• None Found
Missouri	\$10.6 billion	3.70%	43,020	2013	<ul style="list-style-type: none"> • Created \$39.76 billion in total economic impact • Added 275,350 direct and indirect jobs
Montana	\$519 million	1.10%	9,185	N/A	None Found
Nebraska	\$1.5 billion	1.30%	16,776	2015*	<ul style="list-style-type: none"> • Nebraska Military Department employed 4,545.5 jobs with a total payroll of about \$150 million • Received \$22 million in federal appropriations
Nevada	\$2.3 billion	1.60%	20,683	2014	<ul style="list-style-type: none"> • The DoD budget in Nevada accounted for 53,000 jobs • Increased economic output by \$28 billion • Provided \$9 billion in increased personal earnings • Created \$307 million in increased state taxes
New Hampshire	\$1.4 billion	2.00%	6,350	N/A	None Found

State/ Territory	DoD Office of Economic Adjustment Study (FY 2015) ¹			State-Commissioned Studies ²	
	Defense Spending FY 2014	% of State GDP	Defense Personnel Active, Civilian, Guard/Res.	Year	Key Findings
New Jersey	\$6.6 billion	1.20%	33,834	2013	<ul style="list-style-type: none"> \$4.8 billion in DoD military expenditures resulted in \$6.5 billion in gross state product Creation of 73,234 direct and indirect jobs
New Mexico	\$3.1 billion	3.40%	23,539	N/A	None Found
New York	\$9.1 billion	0.60%	61,765	2012	In Progress
North Carolina	\$9.8 billion	2.00%	144,881	2013	<ul style="list-style-type: none"> \$48 billion in gross state product, roughly 10% of the state's economy 540,000 direct and indirect jobs – 340,000 in the private sector alone Provided for \$30 billion in personal income
North Dakota	\$747.2 million	1.40%	13,296	N/A	None Found
Ohio	\$6.9 billion	1.20%	60,224	N/A	None Found
Oklahoma	\$4.7 billion	2.60%	57,080	2011	<ul style="list-style-type: none"> \$9.6 billion in gross state product, 7% of statewide total Supported 133,800 direct and indirect jobs Average military job paid \$41,742 compared to the state average of \$38,237
Oregon	\$1.3 billion	0.60%	13,356	N/A	None Found
Pennsylvania	\$12.7 billion	1.90%	57,919	N/A	None Found
Rhode Island	\$2.0 billion	3.50%	12,216	N/A	None Found
South Carolina	\$5.3 billion	2.70%	65,632	2012	<ul style="list-style-type: none"> \$15.7 billion in economic activity 138,161 jobs supported Since 2000, DoD has distributed over \$34 billion to defense contractors, accounting for 2% of gross state product each year
South Dakota	\$456.8 million	1.00%	9,257	N/A	None Found
Tennessee	\$2.4 billion	0.80%	71,441	N/A	None Found
Texas	\$37.9 billion	2.30%	218,523	2015 – 2016	<ul style="list-style-type: none"> \$136 billion in total economic impact More than 232,000 personnel at 15 military installations \$16.64 billion in total defense contract funds \$13.8 billion in DoD military expenditures
Utah	\$3.2 billion	2.20%	30,486	2014	In Progress (2014 HB 313)
Vermont	\$295.5 million	1.00%	4,931	N/A	None Found
Virginia	\$53.0 billion	11.20%	246,553	2014	<ul style="list-style-type: none"> Defense spending was \$59.6 billion or 13% of gross state product Military spending accounts for 44% of federal spending in Virginia
Washington	\$12.6 billion	2.90%	107,341	2010	<ul style="list-style-type: none"> \$7.9 billion in military installation expenditures and \$5.2 billion in contract spending \$12.2 billion in gross state product, 4% of total Supported 191,600 jobs
West Virginia	\$527 million	0.70%	10,204	N/A	None Found

State/ Territory	DoD Office of Economic Adjustment Study (FY 2015) ¹			State-Commissioned Studies ²	
	Defense Spending FY 2014	% of State GDP	Defense Personnel Active, Civilian, Guard/Res.	Year	Key Findings
Wisconsin	\$2.3 billion	0.80%	18,035	N/A	None Found
Wyoming	\$370 million	0.90%	7,171	N/A	None Found
American Samoa	N/A	N/A	N/A	N/A	None Found
Guam	N/A	N/A	N/A	N/A	None Found
Northern Mariana Islands	N/A	N/A	N/A	N/A	None Found
Puerto Rico	N/A	N/A	N/A	N/A	None Found
U.S. Virgin Islands	N/A	N/A	N/A	N/A	None Found

* Study focused on National Guard

NOTES

1. U.S. Department of Defense (DoD), Office of Economic Adjustment, *Defense Spending by State: Fiscal Year 2015* (Washington, D.C.: DoD, 2016), <https://www.oea.gov/resource/defense-spending-state-fiscal-year-2015>.
2. National Conference of State Legislatures (NCSL) compiled data, 2016.

Appendix B

State Military Advisory Bodies

STATE	MILITARY ADVISORY BODY		
	Name	Date Created	Authority
Alabama	Job Creation and Military Stability Commission	2011	2011 Ala. Acts, Act 350 (2011 SJR 69)
Alaska	Force Advocacy and Structure Team	2009	Admin. Order 264 (2012)
Arizona	Governor's Military Affairs Commission	2004	Exec. Order 4 (2004) (Amended by 2014 HB 2135 and 2014 Exec. Order 2)
Arkansas	None Found	N/A	N/A
California	Governor's Advisor for Military Affairs	2006	Exec. Order S-16-06 (2006)
	Governor's Military Council	2013	Cal. Military and Veterans Code §59 (2015 AB 442)
Colorado	Office of Economic Development – Aerospace and Defense Industry Champion	2014	Colo. Rev. Stat. §24-48.5-123 (2014 HB 1351)
	National Defense Support Council	2012	N/A
Connecticut	Office of Military Affairs	2007	Conn. Gen. Stat. §32-58b (2007 SB 937)
	Military and Defense Advisory Council		
Delaware	BRAC Task Force	2005	2005 SJR 7
District of Columbia	None Found	N/A	N/A
Florida	Defense Support Task Force	2011	Fla. Stat. §288.987 (Created by 2011 HB 143; Amended by 2012 HB 7041 and 2012 SB 922/HB 7075)
Georgia	Military Affairs Coordinating Committee	1994	Exec. Order 07.01.11.01 (2011)
	Governor's Defense Initiative	2012	N/A
Hawaii	Chamber of Commerce Military Affairs Council	1985	N/A
Idaho	Military Advocacy Commission	2015	Exec. Order 1 (2015)
Illinois	Interagency Military Base Support and Economic Development Committee	2005	Ill. Rev. Stat. ch. 20, §605-215 (2005 SB 1354)
Indiana	Commission on Military and Veterans Affairs	1992	Ind. Code §§2-5-20-1 et seq. (1992 SB 28)
	Military Base Task Force	2004	Exec. Order 2 (2004)
Iowa	None Found	N/A	N/A
Kansas	Governor's Military Council	1998	Exec. Order 03 (2011)
Kentucky	Commission on Military Affairs	1992	Ky. Rev. Stat. §154.12-203 (Created by 1992 HB 652; Amended by 2010 HB 434, 2011 HB 122 and 2014 HB 289)
	Task Force on Military Base Realignment	2008	Exec. Order 0272 (2008)
Louisiana	Military Advisory Council	2012	La. Rev. Stat. Ann. §§29:61 et seq. (2012 HB 936)
Maine	Governor's Office of Redevelopment, Re-employment and Business Support	2005	Exec. Order 03 FY 06/07 (2005)
	Governor's Advisory Council	2005	Exec. Order 10 FY 06/07 (2005)
Maryland	Military Installation Council	2003	Md. Economic Development Code Ann. §§11-201 et seq. (Created by 2003 HB 888; Amended by 2010 SB 55)
	Governor's Subcabinet on Base Realignment and Closure	2007-2011	2007 Md. Laws, Chap. 6 (2007 SB 110)

STATE	MILITARY ADVISORY BODY		
	Name	Date Created	Authority
Massachusetts	Military Asset and Security Strategy Task Force	2012	Exec. Order 541 (2012); Codified Mass. Gen. Laws Ann. ch. 6, §216 (2014 HB 3736)
Michigan	None Found	N/A	N/A
Minnesota	None Found	N/A	N/A
Mississippi	Military Communities Council	1997	Exec. Order 1317 (2013)
Missouri	Office of the Military Advocate	2015	Mo. Rev. Stat. §41.1012 (2015 HB 1070)
	Missouri Military Partnership	2014	Exec. Order 1 (2014)
	Military Preparedness and Enhancement Commission	2005	Mo. Rev. Stat. §41.1010 (Created by 2005 SB 252/HB 348; Amended by 2008 HB 1678)
Montana	None Found	N/A	N/A
Nebraska	Commission on Military Affairs	2016	2016 Neb. Laws, L.B. 754
	Base Realignment and Closure Task Force	2008	N/A
Nevada	Governor's Military Council	2013	Exec. Order 14 (2013)
	Joint Military Affairs Committee	2007	N/A
New Hampshire	None Found	N/A	N/A
New Jersey	None Found	N/A	N/A
New Mexico	Military Base Planning Commission	2003	N.M. Stat. Ann. §§9-15-49 et seq. (Created by 2003 SB 287/HB 323; Amended by 2004 SB 333, 2005 HB 307, 2009 HB 286 and 2014 HB 3193)
	Office of Military Base Planning and Support		
New York	None Found	N/A	N/A
North Carolina	Advisory Commission on Military Affairs	2001	N.C. Gen. Stat. §§127C-1 et seq. (Created by 2001 SB 1005; Amended by 2004 SB 1159 and 2011 HB 200)
	State Military Affairs Commission	2013	2013 N.C. Sess. Laws, Chap. 227 (Created by 2013 SB 613; Amended by 2015 HB 558)
North Dakota	Governor's Military Task Force	N/A	N/A
Ohio	Aerospace and Aviation Technology Committee	2014	Ohio Rev. Code Ann. §122.98 (2014 HB 292)
Oklahoma	Strategic Military Planning Commission	2003	Okla. Stat. tit. 74, §5401 (Created by 2003 HB 1396; Amended by 2010 HB 2290, 2011 HB 1556 and 2014 HB 3193)
Oregon	None Found	N/A	N/A
Pennsylvania	Military Community Enhancement Commission	2014	Pa. Cons. Stat. tit. 12, §§401 et seq. (2014 HB 1550)
	Military Installation and Base Development Caucus	2011	N/A
Rhode Island	Defense Economy Planning Commission	2010	N/A
South Carolina	Military Base Task Force	2006	Exec. Order 4 (2013)
South Dakota	None Found	N/A	N/A
Tennessee	None Found	N/A	N/A
Texas	Military Preparedness Commission	2003	Tex. Government Code Ann. §§436.001 et seq. (Created by 2003 SB 652; Amended by 2009 HB 2546)
	Regional Military Sustainability Commissions	2009	Tex. Local Government Code Ann. §§397A.051 et seq. (Created by 2009 HB 2919; Amended by 2015 HB 2232)

STATE	MILITARY ADVISORY BODY		
	Name	Date Created	Authority
Utah	Veterans and Military Affairs Commission	2014	Utah Code Ann. §§36-28-101 et seq. (2014 HB 313)
	Utah Defense Alliance	1990s	N/A
Vermont	None Found	N/A	N/A
Virginia	Military Advisory Council	2002	Va. Code §2.2-2666.1 (Created by 2002 SB 322; Amended by 2007 HB 2690 and 2011 SB 1280/HB 1842)
	Commission on Military Installations and Defense Activities	2013	Exec. Order 60 (2013); Exec. Order 11 (2014)
Washington	Military Alliance	2012	N/A
West Virginia	None Found	N/A	N/A
Wisconsin	None Found	N/A	N/A
Wyoming	None Found	N/A	N/A
American Samoa	None Found	N/A	N/A
Guam	Military Advancement Commission	N/A	Guam Code §§1400 et seq.
Northern Mariana Islands	None Found	N/A	N/A
Puerto Rico	None Found	N/A	N/A
U.S. Virgin Islands	None Found	N/A	N/A

Source: National Conference of State Legislatures (NCSL) compiled data, 2016.

Appendix C

Grant/Loan Programs to Enhance the Value of Military Installations

STATE/ TERRITORY	GRANT PROGRAMS		
	Name	Dates Active	Statute Citation
Alabama	None Found	N/A	N/A
Alaska	Military Facility Zones	2012 - Present	Alaska Stat. §26.30.005 et seq. (2012 HB 316)
Arizona	Military Installation Fund	2004-2008; Reactivated 06/03/2013	Ariz. Rev. Stat. Ann. §26-262 (Created by 2004 HB 2140; Amended by 2010 SB 1350)
Arkansas	None Found	N/A	N/A
California	Infrastructure State Revolving Fund Program	2004 - Present	Cal. Government Code §63050 (1994 AB 1495)
Colorado	None Found	N/A	N/A
Connecticut	None Found	N/A	N/A
Delaware	None Found	N/A	N/A
District of Columbia	None Found	N/A	N/A
Florida	Defense Infrastructure Grant Program	1999 - Present	Fla. Stat. §288.980 (Created by 1999 SB 1566; Amended by 2012 HB 7075 and 2013 SB 1784)
	Defense Reinvestment Grant Program		
Georgia	Job Tax Credit Program (Military Zone Designation)	2004	Ga. Code §48-7-40.1 (2004 HB 984)
Hawaii	None Found	N/A	N/A
Idaho	None Found	N/A	N/A
Illinois	None Found	N/A	N/A
Indiana	(Local Support of Active Military Base)	2014	Ind. Code §36-1-4-20 (2014 SB 260)
Iowa	None Found	N/A	N/A
Kansas	Strong Military Bases Program (Economic Development Initiatives Fund)	2007	Kan. Stat. Ann. §79-4804
Kentucky	None Found	N/A	N/A
Louisiana	None Found	N/A	N/A
Maine	None Found	N/A	N/A
Maryland	BRAC Revitalization and Incentive Zone Program	2008 - Present	Md. Economic Development Code Ann. §5-1301 et seq. (Created by 2008 SB 601; Amended by 2009 HB 1429)
Massachusetts	None Found	N/A	N/A
Michigan	None Found	N/A	N/A
Minnesota	None Found	N/A	N/A
Mississippi	None Found	N/A	N/A
Missouri	None Found	N/A	N/A
Montana	None Found	N/A	N/A
Nebraska	None Found	N/A	N/A
Nevada	None Found	N/A	N/A
New Hampshire	None Found	N/A	N/A
New Jersey	None Found	N/A	N/A

STATE/ TERRITORY	GRANT PROGRAMS		
	Name	Dates Active	Statute Citation
New Mexico	None Found	N/A	N/A
New York	Military Base Retention Grant	2012	N.Y. Unconsolidated Laws §6254
North Carolina	None Found	N/A	N/A
North Dakota	None Found	N/A	N/A
Ohio	None Found	N/A	N/A
Oklahoma	Military Strategic Planning Commission Incentive Fund	2003	Okla. Stat. tit. 74, §5403 (2003 HB 1397)
	Military Base Protection Grant Program	2006	2006 Okla. Sess. Laws, Chap. 234 (2006 SB 1675)
Oregon	None Found	N/A	N/A
Pennsylvania	None Found	N/A	N/A
Rhode Island	Military Facility Protection Program	2014	R.I. Gen. Laws §§3-32-1 et seq. (2014 HB 8172)
	Defense Economy Community Reinvestment Program		
South Carolina	None Found	N/A	N/A
South Dakota	None Found	N/A	N/A
Tennessee	None Found	N/A	N/A
Texas	Military Value Revolving Loan Fund	2003	Tex. Government Code Ann. §436.156 et seq.; Tex. Government Code Ann. §§436.153-436.1532 (2003 SB 652)
	Defense Economic Adjustment Assistance Grant Program	1997	Tex. Government Code Ann. §486.001 et seq. (Created by 1997 SB 227; Amended by 2009 HB 2546)
Utah	Utah Military Installation Development Authority	2007	Utah Code Ann. §63H-1-201 (Created by 2007 SB 232; Amended by 2012 SB 49 and 2013 SB 221)
Vermont	None Found	N/A	N/A
Virginia	None Found	N/A	N/A
Washington	None Found	N/A	N/A
West Virginia	None Found	N/A	N/A
Wisconsin	None Found	N/A	N/A
Wyoming	None Found	N/A	N/A
American Samoa	None Found	N/A	N/A
Guam	None Found	N/A	N/A
Northern Mariana Islands	None Found	N/A	N/A
Puerto Rico	None Found	N/A	N/A
U.S. Virgin Islands	None Found	N/A	N/A

Source: National Conference of State Legislatures (NCSL) compiled data, 2016.

Appendix D

Land Use and Conservation Laws

STATE/ TERRITORY	ENHANCED COMMUNICATION AND NOTIFICATION TO MILITARY	INCORPORATING MILITARY INTO LOCAL LAND USE PLANS	REQUIRING COMPATIBLE LAND USE	LAND CONSERVATION PROGRAMS
Alabama	2014 Ala. Acts, #14	None Found	None Found	None Found
Alaska	None Found	None Found	None Found	None Found
Arizona	Ariz. Rev. Stat. Ann. §§9-461.06, 9-462.04, 9-500.28	Ariz. Rev. Stat. Ann. §9-461.05	Ariz. Rev. Stat. Ann. §9-461.05, 28-8481	Ariz. Rev. Stat. Ann. §26-262; 2012 Ariz. Sess. Laws, Chap. 278
Arkansas	None Found	None Found	Ark. Stat. Ann. §14-56-426	None Found
California	Cal. Government Code §§65352, 65404, 65944; Cal. Public Resources Code §25519.5	Cal. Government Code §65302	None Found	Cal. Public Resources Code §10230
Colorado	Colo. Rev. Stat. §§29-20-105.6, 31-23-206	Colo. Rev. Stat. §31-23-204	None Found	Colorado Constitution Art. 27, §1
Connecticut	None Found	None Found	None Found	None Found
Delaware	None Found	None Found	None Found	None Found
District of Columbia	None Found	None Found	None Found	None Found
Florida	Fla. Stat. §163.3175	Fla. Stat. §163.3177	None Found	Fla. Stat. §§259.105-259.1051; 2013 Fla. Laws, Chap. 222
Georgia	Ga. Code §36-66-6	None Found	None Found	Ga. Code §§12-6a-1 et seq.
Hawaii	None Found	None Found	None Found	Hawaii Rev. Stat. §§173a-1 et seq.
Idaho	None Found	None Found	None Found	None Found
Illinois	None Found	None Found	Ill. Rev. Stat. ch. 620, §52/1 et seq.	Ill. Rev. Stat. ch. 525, §§33/1 et seq.
Indiana	None Found	None Found	None Found	None Found
Iowa	None Found	None Found	None Found	None Found
Kansas	Kan. Stat. Ann. §12-773	Kan. Stat. Ann. §12-773	None Found	None Found
Kentucky	Ky. Rev. Stat. §100.187	Ky. Rev. Stat. §100.187	None Found	None Found
Louisiana	La. Rev. Stat. Ann. §§33:4734, 33:4780.52	None Found	None Found	None Found
Maine	None Found	None Found	None Found	Me. Rev. Stat. Ann. tit. 5, §§6200 et seq.
Maryland	None Found	None Found	None Found	Md. Natural Resources Code Ann. §§5-1501 et seq.
Massachusetts	Mass. Gen. Laws Ann. ch. 40B, §4C	None Found	None Found	None Found
Michigan	None Found	None Found	None Found	None Found
Minnesota	None Found	None Found	None Found	Minn. Stat. §190.33
Mississippi	None Found	None Found	None Found	None Found
Missouri	None Found	None Found	Mo. Rev. Stat. §67.1203	None Found
Montana	None Found	None Found	None Found	None Found
Nebraska	Neb. Rev. Stat. §§14-407, 19-923, 15-1103	None Found	None Found	Neb. Rev. Stat. §81-15, 174.01

STATE/ TERRITORY	ENHANCED COMMUNICATION AND NOTIFICATION TO MILITARY	INCORPORATING MILITARY INTO LOCAL LAND USE PLANS	REQUIRING COMPATIBLE LAND USE	LAND CONSERVATION PROGRAMS
Nevada	None Found	Nev. Rev. Stat. §278.160	None Found	None Found
New Hampshire	None Found	None Found	None Found	None Found
New Jersey	N.J. Rev. Stat. §§40:55D-62.1, 40:55D-12.4	None Found	None Found	None Found
New Mexico	None Found	None Found	None Found	None Found
New York	None Found	None Found	None Found	N.Y. Environmental Con- servation Law §§54-0301- 54-0303
North Carolina	N.C. Gen. Stat. §§153A-323, 160A-364	None Found	2013 N.C. Sess. Laws, Chap. 206	N.C. Gen. Stat. §113A- 253.2 et seq.
North Dakota	None Found	None Found	None Found	None Found
Ohio	None Found	None Found	None Found	Ohio Rev. Code Ann. §§901.21-901.22
Oklahoma	None Found	None Found	Okla. Rev. Stat. tit. 11, §43-101.1	None Found
Oregon	None Found	None Found	None Found	None Found
Pennsylvania	None Found	None Found	None Found	Pa. Cons. Stat. tit. 27, §6101 et seq.
Rhode Island	None Found	None Found	None Found	None Found
South Carolina	None Found	S.C. Code Ann. §6-29-1630	None Found	S.C. Code Ann. §§6-1-320, 50-3-1110 et seq., 48-59- 10 et seq.
South Dakota	None Found	None Found	S.D. Codified Laws Ann. §50-10-32 et seq.	None Found
Tennessee	None Found	None Found	None Found	None Found
Texas	Tex. Local Government Code §§397.005, 397.006	Tex. Local Government Code Ann. §397.003	None Found	Tex. Natural Resources Code Ann. §183.051 et seq.
Utah	None Found	None Found	None Found	Utah Code Ann. §63M-6- 201 et seq.
Vermont	None Found	None Found	None Found	None Found
Virginia	Va. Code §§15.2-2204, 15.2- 2211	Va. Code §§15.2-2223	None Found	2008 Va. Acts, Chap. 653; Va. Code §3.2-200 et seq.
Washington	Wash. Rev. Code §§36.70A.530, 80.50.071	None Found	Wash. Rev. Code §36.70A.530	None Found
West Virginia	None Found	None Found	None Found	None Found
Wisconsin	Wis. Stat. §62.23	Wis. Stat. §66.1001	None Found	None Found
Wyoming	None Found	None Found	None Found	Wyo. Stat. §9-15-103 et seq.
American Samoa	None Found	None Found	None Found	None Found
Guam	None Found	None Found	None Found	None Found
Northern Mariana Islands	None Found	None Found	None Found	None Found
Puerto Rico	None Found	None Found	None Found	None Found
U.S. Virgin Islands	None Found	None Found	None Found	None Found

Source: National Conference of State Legislatures (NCSL) compiled data, 2016.

Appendix E

State Light Pollution Laws

STATE/TERRITORY	STATUTE CITATION	SUMMARY
Alabama	None Found	N/A
Alaska	None Found	N/A
Arizona	Ariz. Rev. Stat. Ann. §§49-1101 et seq.	Requires all outdoor light fixtures to be fully or partially shielded except incandescent fixtures of 150 watts or less and other sources of 70 watts or less. Emergency and construction lighting is exempt. Fixtures not in compliance are allowed provided they are extinguished between the hours of midnight and sunrise by automatic device.
Arkansas	Ark. Stat. Ann. §§8-14-101 et seq.	Requires outdoor lighting fixtures installed using public funds to be shielded, unless a municipality, county or public utility determines that the cost of acquiring shielded fixtures will be prohibitive. Requires each electric public utility to offer a shielded lighting service option to customers. Exceptions may apply.
California	None Found	N/A
Colorado	Colo. Rev. Stat. §§24-82-901 et seq.	Requires new outdoor lighting fixtures installed by or on behalf of the state using state funds to meet the following requirements: (1) consideration is given to costs, energy conservation, glare reduction, minimizing light pollution and the preservation of the natural night environment; (2) fixture emits only as much light as necessary for the intended purpose; (3) a full cutoff fixture is used when the output is more than 3,200 lumens; and (4) in the case of roadway lighting, the purpose of an artificial light cannot be achieved by installing reflective markers, lines, informational signs, etc. Exceptions may apply.
Connecticut	Conn. Gen. Stat. §13a-110a	Prohibits the use of state funds to install or replace a permanent outdoor lighting fixture on a roadway unless (1) the fixture is designed to maximize energy conservation and minimize light pollution, (2) the fixture emits only as much light as necessary for the intended purpose, (3) a full cutoff fixture is used when the output is more than 1,800 lumens and (4) the purpose of an additional light cannot be achieved by lowering the speed limit, installing reflective markers, etc. Exceptions may apply.
	Conn. Gen. Stat. §4b-16	Prohibits the use of state funds to install or replace a permanent outdoor lighting fixture on the grounds of any state building unless (1) the fixture is designed to maximize energy conservation and minimize light pollution, (2) the fixture emits only as much light as necessary for the intended purpose and (3) a restricted uplight fixture is used when the output is more than 1,800 lumens. Exceptions may apply.
Delaware	Del. Code Ann. tit. 7, §§7101a et seq.	Prohibits the use of state funds to install or replace a permanent outdoor lighting fixture unless (1) the fixture is designed to maximize energy conservation and minimize light pollution, (2) the fixture emits only as much light as necessary for the intended purpose, (3) a cutoff luminaire is used when the output is more than 1,800 lumens and (4) in the case of roadway lighting, the purpose of an additional light cannot be achieved by lowering the speed limit, installing reflective markers, etc. Exceptions may apply.
District of Columbia	D.C. Code Ann. §§8-1776.01 et seq.	Directs the preparation of a report recommending strategies and standards for optimal lighting methods and levels in the District of Columbia. The report must include an analysis of standards advocated for by the International Dark Sky Association, among others.
Florida	Fla. Stat. §161.163; Fla. Admin. Code §§62b-55.001 et seq.	Contains a model lighting ordinance to guide local governments in developing policies that protect hatching marine turtles from the adverse effects of artificial lighting, provide overall improvement in nesting habitat degraded by light pollution and increase successful nesting activity and production of hatchlings.
Georgia	None Found	N/A
Hawaii	2011 Hawaii Sess. Laws, Act 287	Establishes detailed standards for outdoor lighting, including a requirement that all new outdoor light fixtures emitting a certain amount of lumens be fully shielded. Where fully shielded lighting is not required, light fixtures must meet specified criteria.
Idaho	None Found	N/A
Illinois	None Found	N/A
Indiana	None Found	N/A
Iowa	None Found	N/A

STATE/TERRITORY	STATUTE CITATION	SUMMARY
Kansas	None Found	N/A
Kentucky	None Found	N/A
Louisiana	None Found	N/A
Maine	2009 Me. Laws, Chap. 22	Directs the state planning office to review existing commercial outdoor lighting standards and make recommendations on language that will limit light pollution and encourage the preservation of dark skies in natural areas.
Maryland	Md. State Finance and Procurement Code Ann. §14-412	Prohibits the use of state funds to install or replace a permanent outdoor lighting fixture on the grounds of any state building unless (1) the fixture is designed to maximize energy conservation and minimize light pollution, (2) the fixture emits only as much light as necessary for the intended purpose and (3) a restricted upright fixture is used when the output is more than 1,800 lumens. Exceptions may apply.
Massachusetts	None Found	N/A
Michigan	None Found	N/A
Minnesota	Minn. Stat. §16B.328	Requires the commissioner of administration, in consultation with other agencies and interested parties, to develop a model ordinance governing outdoor lighting to reduce light pollution that can be adapted for use by cities, counties and towns. Prohibits the use of state funds to install or replace an outdoor lighting fixture unless (1) the fixture is designed to maximize energy conservation and minimize light pollution among others, (2) the fixture emits only as much light as necessary for the intended purpose, (3) a full cutoff fixture is used when the output is more than 1,800 lumens and (4) in the case of roadway lighting, the purpose of an additional light cannot be achieved by lowering the speed limit, installing reflective markers, etc. Exceptions may apply.
Mississippi	None Found	N/A
Missouri	None Found	N/A
Montana	None Found	N/A
Nebraska	None Found	N/A
Nevada	None Found	N/A
New Hampshire	N.H. Rev. Stat. Ann. §§9-E:1 et seq.	Prohibits the use of state funds to install or replace a permanent outdoor lighting fixture unless (1) consideration is given to minimizing glare and light trespass, (2) the fixture emits only as much light as recommended for that purpose by the Illuminating Engineering Society of North America or the Federal Highway Administration and (3) a fully shielded fixture is used when the output is more than 1,800 lumens. Exceptions may apply. Declares it a policy of the state to encourage municipalities to enact such local ordinances and regulations as they deem appropriate to conserve energy, minimize light pollution and glare, and preserve dark skies as a feature of rural character.
New Jersey	None Found	N/A
New Mexico	N.M. Stat. Ann. §§74-12-1 et seq.	The Night Sky Protection Act regulates outdoor lighting fixtures to preserve the state's dark sky while promoting safety, conserving energy and protecting the environment for astronomy. Requires all outdoor lighting fixtures to be shielded, except incandescent fixtures of 150 watts or less or other sources of 70 watts or less. Prohibits outdoor recreational facilities from using lighting after 11:00 p.m. Provides for a fine of up to \$25 for any person, firm or corporation in violation of the law. Exceptions may apply.
New York	None Found	N/A
North Carolina	None Found	N/A
North Dakota	None Found	N/A
Ohio	None Found	N/A
Oklahoma	None Found	N/A
Oregon	Or. Rev. Stat. §455.573	Requires the use of shielded outdoor lighting fixtures when a light is installed or replaced on a public building. Allows a municipality to waive the above requirement when it determines that the use of a shielded lighting fixture is not practical because of the historic character of the building or for other reasons.
Pennsylvania	None Found	N/A

STATE/TERRITORY	STATUTE CITATION	SUMMARY
Rhode Island	R.I. Gen. Laws §§42-136-1 et seq.	Requires the installation of any new or replacement permanent outdoor lighting unit by or for a state agency to meet the following requirements: (1) consideration is given to conserving energy and minimizing light pollution; (2) the new or replacement fixture permits no more than 2% of the total lumen in the zone of 90 to 180 degrees if the total output is more than 3,200 lumens; (3) the fixture emits the minimum amount of light necessary for the intended purpose or the amount specified in recommendations or regulations; and (4) roadway lighting should be achieved using reflective markers, lines or informational signs in place of additional lighting unless these are not sufficient. Exceptions may apply.
South Carolina	None Found	N/A
South Dakota	None Found	N/A
Tennessee	None Found	N/A
Texas	Tex. Local Government Code §§240.031 et seq.	On the request of a military installation, base, or camp commanding officer, a county may adopt orders regulating the installation and use of outdoor lighting within five miles of the military facility in any unincorporated territory of the county. The order must be designed to protect against the use of outdoor lighting that interferes with military training activities. The order may require that a permit be obtained from the county prior to installation of certain types of outdoor lighting, prohibit certain types of outdoor lighting incompatible with military activities, establish a fee to cover the cost of administering the order, establish requirements for the shielding of outdoor lighting, and regulate the times during which certain types of outdoor lighting may be used. Counties subject to the law are those with a population of more than one million with at least five military bases and any county adjacent to that county that is within five miles of an installation, base, or camp. The law also applies to certain astronomical observatories.
	Tex. Health and Safety Code §§425.001 et seq.	Prohibits the use of state funds to install or replace an outdoor lighting fixture on a roadway unless (1) the fixture is designed to maximize energy conservation and minimize light pollution among others, (2) the fixture emits only as much light as necessary for the intended purpose, (3) a full cutoff fixture is used when the output is more than 1,800 lumens and (4) the purpose of an additional light cannot be achieved by lowering the speed limit, installing reflective markers, etc. Exceptions may apply.
Utah	None Found	N/A
Vermont	None Found	N/A
Virginia	Va. Code §2.2-1111	Requires state agencies to procure only shielded outdoor light fixtures. Provides for waivers of this requirement for operational, safety, or cost concerns, as well as specific aesthetic needs.
Washington	None Found	N/A
West Virginia	None Found	N/A
Wisconsin	None Found	N/A
Wyoming	Wyo. Stat. §37-16-202	Requires electric utilities to offer tariffs for utility-provided outdoor lighting that provide an option for electric customers to choose fixtures designed to minimize light illuminating unintended areas and maintain dark skies.
American Samoa	None Found	N/A
Guam	None Found	N/A
Northern Mariana Islands	None Found	N/A
Puerto Rico	P.R. Code §§8031 et seq.	The following applies to outdoor emission sources located on private property: (1) colored lights, lights used on signs and lights used for decoration purposes must have shades and automatic on-off switches; and (2) lighting systems that provide security or illuminate walkways, parking lots, etc. may only use low-pressure sodium emission sources. Requires certain lighting systems to be turned off between 11 p.m. and dawn the next day. Prohibits certain types of outdoor lighting fixtures unless approved by the appropriate body. Establishes classes for outdoor areas in accordance with their ambient lighting characteristics.
U.S. Virgin Islands	None Found	N/A

Source: National Conference of State Legislatures (NCSL) compiled data, 2016.

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