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June 2013

# DEFENSE INFRASTRUCTURE

## DOD's Excess Capacity Estimating Methods Have Limitations

# GAO Highlights

Highlights of [GAO-13-535](#), a report to congressional committees

## Why GAO Did This Study

Due in part to challenges DOD faces in reducing excess infrastructure, DOD's Support Infrastructure Management is on GAO's High Risk List of program areas vulnerable to fraud, waste, abuse, and mismanagement, or are most in need of transformation. Since 1988, DOD has relied on the BRAC process as a primary means of reducing excess infrastructure or capacity and realigning bases to meet changes in the size and structure of its forces. In 1998 and 2004, Congress required DOD to submit reports that, among other things, estimated the amount of DOD's excess capacity at that time. Also, in March 2012, DOD testified that it had about 20 percent excess capacity. The methods used to develop such preliminary excess capacity estimates differ from the data-intensive process—supplemented by military judgment—that DOD has used to formulate specific base closure and realignment recommendations.

A Senate Armed Services Committee report directed GAO to review how DOD identifies bases or facilities excess to needs. The objective of this report is to discuss how DOD has estimated its excess capacity, outside of the BRAC process. To do so, GAO reviewed excess capacity estimates from 1998, 2004, and 2012; analyzed DOD's data; reviewed supporting documentation; assessed assumptions and limitations of DOD's analysis; and interviewed DOD officials.

In commenting on a draft of this report, DOD stated that GAO had properly highlighted the limitations of its approach to estimating excess capacity and contrasted it with the method used to develop BRAC recommendations.

View [GAO-13-535](#). For more information, contact Brian Lepore at (202) 512-4523 or [leporeb@gao.gov](mailto:leporeb@gao.gov)

June 2013

## DEFENSE INFRASTRUCTURE

### DOD's Excess Capacity Estimating Methods Have Limitations

#### What GAO Found

The Department of Defense's (DOD) methods for estimating excess capacity outside of a congressionally-authorized Base Realignment and Closure (BRAC) process have limitations. DOD used similar processes in its excess capacity analyses conducted in 1998 and 2004. This process included three major steps: (1) categorizing bases according to their primary missions and defining indicators of capacity; (2) developing ratios of capacity-to-force structure for DOD's baseline year of 1989; and (3) aggregating the analysis from the installation level across the military services and department-wide.

In both its 1998 and 2004 reports, DOD recognized some limitations with its methods for estimating excess capacity and stated that its analyses lacked the precision necessary to identify specific installations or functional configurations for realignment or closure. In addition, GAO's review of DOD's methods for estimating excess capacity outside of a congressionally-authorized BRAC process identified a number of limitations. First, DOD's approach assigns each installation to only one mission category, even though most installations support more than one mission. This approach effectively excluded significant portions of some bases' infrastructure from the analysis. Second, the services measured capacity for some similar functions differently such as test and evaluation facilities, which makes it difficult for DOD to evaluate excess capacity across the department. Third, DOD did not attempt to identify any excess capacity or capacity shortfall that existed in 1989; hence it is uncertain to what extent DOD's estimates of excess capacity may be overstated or understated. Finally, in instances where DOD's analysis indicated that projected capacity was less than needed capacity—indicating a capacity shortage—within an installation category, DOD treated these cases as having zero or no excess capacity when aggregating the results of its analysis. If DOD had treated those installation categories as having a capacity shortages, DOD's method would have calculated a lower number of bases and consequently a lower percentage of excess capacity across the department than DOD reported to Congress.

DOD's testimony in March 2012 and again in March 2013, that it had about 20 percent excess capacity remaining after the end of BRAC 2005, relied on earlier calculations that the department made in 2004 and 2005. Specifically, these estimates were reached by subtracting DOD's estimate of the amount of capacity that would be eliminated by the approved recommendations from BRAC 2005—3 to 5 percent of plant replacement value—from DOD's 2004 estimate that it had 24 percent excess capacity. However, pre-BRAC estimates of the percentage of bases that may be excess to needed capacity, which is expressed as a percentage of bases, and plant replacement value, which is measured in dollars, are not comparable measures. In March 2013, the Acting Deputy Under Secretary of Defense (Installations and Environment) testified that the method upon which DOD's current estimate is based is helpful in determining whether an additional BRAC round is justified, but only through the BRAC process is the Department able to determine specifically which installations or facilities are excess.

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## **Abbreviations**

BRAC	Base Realignment and Closure
DOD	Department of Defense

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June 20, 2013

Congressional Committees

Due in part to challenges the Department of Defense (DOD) faces in reducing excess and obsolete infrastructure, DOD's Support Infrastructure Management is on GAO's High Risk List of program areas that are vulnerable to fraud, waste, abuse, and mismanagement, or are most in need of transformation. Since 1988, DOD has relied on the Base Realignment and Closure (BRAC) process as one of the primary means of reducing excess infrastructure or facilities<sup>1</sup> and realigning bases to meet changes in the size and structure of its forces.

The Defense Base Closure and Realignment Act of 1990,<sup>2</sup> as amended, has governed the BRAC process since 1990. The law established the procedures for making recommendations for base closures and realignments and originally required DOD to submit a 6-year force structure plan and to base its closure and realignment decisions on that plan, as well as on selection criteria proposed and established for the round by DOD. For the 1991, 1993, and 1995 BRAC rounds, DOD performed a detailed capacity analysis based on extensive data collection efforts to identify specific bases capable of accommodating additional forces in order to develop its proposed list of closures and realignments. In 1997, after DOD requested another BRAC round, Congress required DOD to submit a report on, among other things, the need for any additional BRAC rounds and an estimate of the amount of DOD's excess capacity at the time.<sup>3</sup> In 2001, when Congress authorized a BRAC round

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<sup>1</sup> Facilities and/or infrastructure that DOD determines are underused or unused are referred to as "excess capacity." (From DOD BRAC 2005 FAQs).

<sup>2</sup> Pub. L. No. 101-510, Title XXIX (1990)(10 U.S.C. 2687 note). Throughout this report, we will refer to the Defense Base Closure and Realignment Act of 1990 (as amended) as "the 1990 BRAC statute."

<sup>3</sup> The National Defense Authorization Act for Fiscal Year 1998, Pub. L. No. 105-85, § 2824 (1997). The act also required DOD to report on costs and savings from the prior BRAC rounds. Congress chose not to authorize a BRAC round at that time.

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to begin in 2005,<sup>4</sup> it required DOD to submit a force structure plan to cover a 20-year period and an infrastructure inventory with its budget justification documents for fiscal year 2005 before proceeding with the extensive data gathering efforts and analysis associated with the BRAC process. The submission was also to discuss categories of excess infrastructure and infrastructure capacity.

In its required 1998 report, DOD reported that it had 23 percent excess base capacity.<sup>5</sup> Congress directed us to review that report, and in November 1998, we concluded that DOD's report provided a rough indication of excess capacity, and we made no recommendations.<sup>6</sup> Similarly, in certifying the need for another round of BRAC to begin in 2005, DOD reported in 2004 that it had 24 percent excess capacity at that time.<sup>7</sup> Additionally, in March 2012, six months after BRAC 2005 concluded,<sup>8</sup> the Deputy Under Secretary of Defense (Installations and Environment) testified before the House Armed Services Committee during a hearing on the Department's request for two more rounds of BRAC in 2013 and 2015.<sup>9</sup> In that hearing, the Deputy Under Secretary stated that BRAC 2005 eliminated roughly 3 to 5 percent of DOD's excess capacity, leaving roughly 20 percent excess. Congress, however, has thus far declined to authorize additional BRAC rounds. In March

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<sup>4</sup> Congress authorized BRAC 2005 with the passage of the National Defense Authorization Act for Fiscal Year 2002, Pub. L. No. 107-107, Title XXX (2001). The law reauthorized the BRAC process by amending the 1990 BRAC statute. Among other things, the law added several new sections to the 1990 BRAC statute, including sections 2912 through 2914, which established or revised various requirements for DOD to address in order for the 2005 round to continue.

<sup>5</sup> Department of Defense, *The Report of the Department of Defense on Base Realignment and Closure*, April 1998.

<sup>6</sup> GAO, *Military Bases: Review of DOD's 1998 Report on Base Realignment and Closure*, [GAO/NSIAD-99-17](#) (Washington, D.C.: Nov. 13, 1998).

<sup>7</sup> Department of Defense, *Report Required by Section 2912 of the Defense Base Closure and Realignment Act of 1990, as amended through the National Defense Authorization Act for Fiscal Year 2003*, Mar. 2004.

<sup>8</sup> The BRAC statute required DOD to complete recommendations for closing or realigning bases made in BRAC 2005 by September 15, 2011—6 years from the date the President submitted his certification of approval of the recommendations to Congress.

<sup>9</sup> *The Request for Authorization of Another BRAC Round and Additional Reductions in Overseas Bases*, Before the Readiness Subcommittee of the House Committee on Armed Services, 112<sup>th</sup> Cong. 38 (Mar. 8, 2012) (statement of Under Secretary of Defense (Installations and Environment) Dr. Dorothy Robyn).

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2013, the Acting Deputy Under Secretary again testified that BRAC 2005 reduced capacity only by about 3 percent and that excess capacity remains.<sup>10</sup>

Such preliminary estimates of excess infrastructure capacity, which DOD has developed outside the BRAC process primarily to support the need for future BRAC rounds, differ from the data-intensive process, supplemented by the use of military judgment that DOD has used to formulate the recommendations for specific base closures and realignments that it has proposed to the BRAC Commission within the BRAC process. For example, to develop recommendations for the 2005 BRAC round, DOD collected an estimated 25 million pieces of capacity and military value data from DOD databases and from hundreds of defense installations. These data were certified as to their accuracy by hundreds of persons in senior leadership positions across the country. The DOD Inspector General and the services' audit agencies also played an important role in ensuring that the data used in the BRAC analyses were accurate. In our March 2013 report, *Military Bases: Opportunities Exist to Improve Future Base Realignment and Closure Rounds*, we provide a detailed assessment of that process.<sup>11</sup>

In Senate Report 112-173 accompanying the Senate Armed Services Committee's version of the National Defense Authorization Act for Fiscal Year 2013, we were directed to review the systems and processes that DOD uses to identify the extent to which bases or facilities are excess to needs.<sup>12</sup> The objective of this report is to discuss how DOD has estimated the amount of its excess infrastructure or capacity, outside of the BRAC process.

To determine how DOD developed its preliminary estimates of excess capacity, we reviewed excess capacity estimates for the military services,

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<sup>10</sup> At the March 2013 hearing, the Acting Deputy Under Secretary testified that whether DOD would request additional BRAC rounds was "pre-decisional." *Is Base Realignment and Closure (BRAC) Appropriate at this Time? Before the Readiness Subcommittee of the House Committee on Armed Services*, 113<sup>th</sup> Cong. 5 (Mar. 14, 2013) (statement of Acting Under Secretary of Defense (Installations and Environment) John Conger).

<sup>11</sup> GAO, *Military Bases: Opportunities Exist to Improve Future Base Realignment and Closure Rounds*, [GAO-13-149](#) (Washington, D.C.: Mar. 7, 2013).

<sup>12</sup> S. Rpt. No. 112-173, at 272-273 (2012).

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the Defense Logistics Agency, and DOD as a whole. Specifically, we obtained and reviewed (1) the written March 14, 2013 testimony by the Acting Deputy Under Secretary of Defense (Installations and Environment) and transcript from the hearing, and (2) the written March 8, 2012, testimony by the Deputy Under Secretary of Defense (Installations and Environment) and the transcript from that hearing, to identify applicable estimates of excess capacity. We also reviewed DOD's 1998 and 2004 reports to Congress on excess capacity and we analyzed the data used in DOD's analyses, along with other supporting documentation, and we assessed the underlying assumptions and limitations, if any, of DOD's analysis to identify the basis upon which DOD made those excess capacity estimates. Based on our review of the documentation provided, we determined that the data was sufficiently reliable to facilitate our analysis of the assumptions and potential limitations within DOD's method for estimating excess capacity. We also interviewed officials in the Office of the Secretary of Defense to determine the basis for and the relationship between different excess capacity estimates. We conducted this performance audit from July 2012 to June 2013 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

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## Background

The first BRAC Commission was chartered by the Secretary of Defense in 1988, and operated in accordance with processes later established by the Defense Authorization Amendments and Base Closure and Realignment Act of 1988.<sup>13</sup> Since that time, the BRAC process has changed in many ways, with a variety of requirements and procedures mandated by subsequent BRAC statutes or adopted by DOD. Among these is the requirement that the Secretary of Defense develop a current force structure plan. DOD's force structure plan is designed to identify the number and type of forces that DOD needs to combat the anticipated threats to the security of the United States. As specified in DOD's force structure plan in support of BRAC 2005, the President's National Security Strategy and the Secretary of Defense's National Defense Strategy

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<sup>13</sup> Pub. L. No. 100-526 (1988).

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provide the focus for the military forces. DOD then analyzes current and future threats, challenges, and opportunities to develop the force structure plan. DOD's planning framework helps determine the capabilities required to respond to a range of scenarios. The Department then analyzes the force requirements for the most likely, the most dangerous, and the most demanding circumstances.

One of the objectives of the first BRAC Commission was to review the current and planned military base structure in light of force structure assumptions and, using the process and the criteria the Commission developed, to identify which bases should be realigned or closed. To accomplish this, the Commission used a two-phase approach. Phase I grouped bases into 22 overall categories, such as training bases and administrative headquarters, and then focused on determining the military value of bases within each category, each base's capacity to absorb additional missions and forces, and the overall excess capacity within the category. The Commission then ranked the bases to identify those warranting review in phase II, which focused on assessing the cost and savings of base realignment and closure options.

The Defense Base Realignment and Closure Act of 1990 substantially revised the process for DOD base closure and realignment actions within the United States, establishing an independent Defense Base Closure and Realignment Commission and providing for BRAC rounds in 1991, 1993, and 1995. One of the key elements of the 1990 BRAC statute was the requirement that DOD submit a force structure plan and that closure and realignment decisions be based on that force structure plan and on the final selection criteria established for the BRAC round. As part of the BRAC process for 1991, 1993, and 1995, an important step in the military services' approach for identifying bases to close or realign was determining whether excess capacity existed at their bases. The starting point for this step was comparing changes in the force structure plan to the base structure of the military services. After applying military value criteria<sup>14</sup> and other specific BRAC criteria,<sup>15</sup> each of the services

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<sup>14</sup> The military value criteria included considerations such as current and future mission requirements, operational readiness, availability of land, ability to accommodate force requirements, and cost and manpower implications.

<sup>15</sup> Other criteria included factors such as the extent and timing of costs and savings, economic impact on communities, community infrastructure, and environmental impact.

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developed their recommendations for closures and realignments for submission to the BRAC Commission.

In May 1997, the Secretary of Defense announced his intention to ask Congress to authorize two additional BRAC rounds. Later that year, Congress enacted section 2824 of the National Defense Authorization Act for Fiscal Year 1998, which required that the Secretary of Defense provide the congressional defense committees with a comprehensive report on a range of BRAC issues, including the need for any additional BRAC rounds and an estimate of the amount of DOD's excess capacity.<sup>16</sup> DOD submitted the required report in April 1998 and estimated that DOD had 23 percent excess capacity. In the report, DOD also stated that its method for estimating excess capacity determined the extent to which reductions in base structure had kept pace with reductions in force structure since 1989.

The National Defense Authorization Act for Fiscal Year 2002 amended the 1990 BRAC statute by authorizing a BRAC round for 2005, and required DOD to report to Congress on several BRAC-related issues in 2004 in order for the 2005 round to proceed. The statute directed, among other things, that the Secretary of Defense provide Congress with a 20-year force structure plan and a worldwide inventory of military installations and facilities as part of DOD's fiscal year 2005 budget justification documents. In addition, as part of the force structure plan and inventory submission, the Secretary was to prepare (1) a description of the infrastructure necessary to support the force structure described in the force-structure plan, (2) a discussion of categories of excess infrastructure and infrastructure capacity, and (3) an economic analysis of the effect of the closure or realignment of military installations to reduce excess infrastructure. DOD provided the required report, which estimated that the department had 24 percent excess capacity, on March 23, 2004. In that report, the Secretary of Defense also certified that an additional round of BRAC was needed and that the round would result in savings by fiscal year 2011.

Subsequently, an initial part of DOD's BRAC recommendations development process for the 2005 round involved an overall capacity

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<sup>16</sup> The National Defense Authorization Act for Fiscal Year 1998, Pub. L. No. 105-85, § 2824 (1997). The act also required DOD to report on costs and savings from the prior BRAC rounds. Congress chose not to authorize a BRAC round at that time.

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analysis of specific locations or functions and subfunctions at specific locations. The analysis relied on data calls to obtain certified data to assess such factors as maximum potential capacity, current capacity, current usage, excess capacity, and capacity needed to meet surge requirements. This capacity analysis—in conjunction with the department’s 20-year force structure plan, military value analysis, and transformational options; applicable guiding principles, objectives, or policy imperatives identified by individual military services or joint cross-service groups; and military judgment—was used to identify realignment and closure scenarios for further analysis, ultimately leading to finalized recommendations for base realignments and closures.

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## DOD’s Methods for Calculating Pre-BRAC Estimates of Excess Capacity Have Limitations

Our review of DOD’s pre-BRAC estimates of excess capacity found that the methods DOD has used and the resulting estimates have limitations. DOD used similar methods in 1998 and 2004 to calculate its pre-BRAC estimates of excess capacity. However, our current review identified a number of additional limitations with DOD’s methods. For example, DOD’s approach assigns each installation to only one mission category, even though most installations support more than one mission. In addition, to arrive at the excess capacity estimate it provided to Congress in 2012 and repeated in 2013, DOD subtracted an estimate of excess capacity that it expected would be disposed of during the 2005 BRAC round from the amount of excess capacity estimated to exist immediately before that BRAC round to arrive at the current excess capacity estimate of about 20 percent. However, because DOD’s pre-BRAC excess capacity estimate, expressed as a percentage of bases, and plant replacement value, expressed in dollars, are not measured in the same units, they are not comparable measures.

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## DOD’s Method for Estimating Excess Capacity in 1998 and 2004

DOD based its 1998 and 2004 estimates of 23 percent and 24 percent excess capacity, respectively, on a method that compared measures of force structure projected to be in place at the end of the 5-year Future Years Defense Programs that were current at the time of each estimate, to associated indicators of capacity.<sup>17</sup> DOD’s 1998 and 2004 technique

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<sup>17</sup> The Future Years Defense Program that was current when the 1998 analysis was performed projected force structure through 2003, and the Future Years Defense Program that was current when the 2004 analysis was performed projected force structure through 2009.

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## Categorizing Bases and Defining Indicators

consisted of three major steps: (1) categorizing bases according to their primary missions and defining indicators of capacity, (2) developing ratios of capacity-to-force structure for DOD's baseline year of 1989, and (3) aggregating these various excess capacity indicators that were calculated at the installation level to the military service level and then department-wide.

To begin DOD's analysis, each of the military services identified categories for their bases, identified bases that the services considered major installations,<sup>18</sup> and categorized their bases according to their primary missions—such as depots, training, or administration—so that each installation was included in only one category. Figure 1 shows the installation categories used by each military service and the Defense Logistics Agency.

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<sup>18</sup> Prior to the 2005 BRAC round, DOD did not have a consistent definition of what constituted a major base. For BRAC 2005, DOD defined major bases as those that had a plant replacement value exceeding \$100 million.

**Figure 1. Installation Categories for the Military Services and the Defense Logistics Agency.**



Source: GAO analysis of DOD data.

The services then defined various indicators of capacity—such as maneuver base acres or facility square feet—for each installation category.

### Developing Ratios of Capacity-to-Projected Force Structure and Comparing to a Baseline

Next, DOD divided each services' indicators of capacity by a measure of force structure—such as the number of military and civilian personnel authorized, authorized end strength, or the size of the acquisition workforce—to develop ratios of capacity-to-projected force structure and compared them to ratios from 1989, which was used as a baseline. For its 1998 analysis DOD projected force structure through 2003, and for its 2004 analysis DOD projected force structure through 2009 because these dates marked the end of DOD's Future Year's Defense Program projections that were current at the time the analyses were performed.

For example, as illustrated in Figure 2, in its 1998 capacity analysis, DOD projected, that in 2003, there would be 6.575 million square feet of administrative space on Army administrative bases, and DOD projected that there would be 65,516 military and civilian personnel assigned to those bases, resulting in a capacity-to-force structure ratio of 100.4. Similarly, according to its 2004 capacity analysis, DOD projected that, in 2009, there would be 6.121 million square feet of administrative space on Army administrative bases, and DOD projected that there would be 64,598 military and civilian personnel assigned to those bases, resulting in a capacity-to-force structure ratio of 94.8.

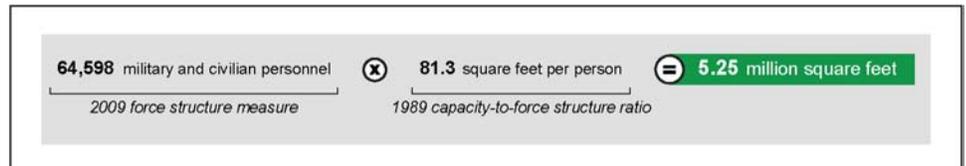
**Figure 2. Selected Examples of How DOD Calculated Its Capacity-to-Force Structure Ratios**



Source: GAO analysis of DOD data.

DOD then calculated the extent to which the ratio of capacity-to-force structure for each base category differed from the ratio in 1989, which was used as a baseline. To do this, DOD first calculated an estimate of capacity it would need for the year in question for each of its various indicators of capacity. For instance, to continue with the second example above, DOD calculated an estimate of administrative capacity the Army would need for 2009. As illustrated in Figure 3, DOD calculated its needed capacity indicators by multiplying the projected 2009 force structure measure (64,598 military and civilian personnel in this case) by the 1989 capacity-to-force ratio (81.3 for Army administrative bases), which in this case resulted in an estimated needed capacity of 5.25 million square feet of Army administrative space.

**Figure 3: Example of How DOD Estimated the Administrative Space the Army Would Need in 2009**



Source: GAO analysis of DOD data.

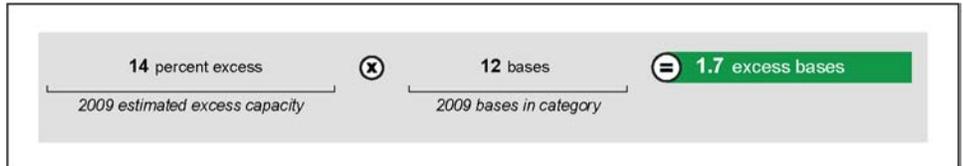
To calculate the projected excess capacity for 2009, DOD subtracted a base category's estimated needed capacity from its projected 2009 capacity. In our Army administrative base example, DOD subtracted its estimated needed capacity for 2009 of 5.25 million square feet from its estimated existing capacity in 2009 of 6.12 million square feet, which resulted in DOD's estimate of 0.87 million square feet of excess Army administrative space or 14 percent of the Army's existing administrative space in 2009.

### Aggregating the Analysis across the Military Services and Department-wide

After computing these indicators of excess capacity for each category of installation for each military service and the Defense Logistics Agency, DOD then aggregated these indicators departmentwide. Specifically, DOD first multiplied the number of bases in a category by the percentage of excess for that category, which resulted in DOD's estimate of the number of excess bases in each category. Continuing our Army administrative capacity example above, as illustrated in Figure 4, the percentage of excess capacity (in this case, the Army's estimated 14-percent excess of projected administrative space in 2009) would be multiplied by the number bases in the category (12 in the case of Army administrative bases), resulting in an estimated number of excess administrative bases (1.7 in this case).<sup>19</sup>

<sup>19</sup> Because DOD's method used various indicators of capacity and various measures of force structure, DOD computed the estimated number of excess bases in each category so that a department-wide excess could be aggregated.

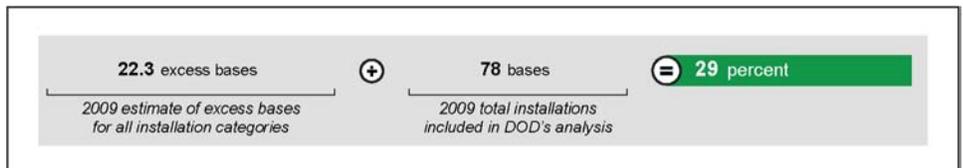
**Figure 4: Example of How DOD Estimated the Number of Excess Army Administrative Bases in 2009**



Source: GAO analysis of DOD data.

As illustrated in Figure 5, to calculate an overall indication of excess capacity for each DOD component, DOD summed the estimated number of excess bases for each installation category within a component (22.3 in the case of the Army) and divided this by the sum of the number of all bases in all categories for that component (78 in the case of the Army), which resulted in a percentage of excess bases for the component. In our example, DOD estimated that 29 percent of the Army’s bases were in excess to its estimated needed capacity.

**Figure 5: Example of How DOD Aggregated the Estimated Excess Capacity for the Army**



Source: GAO analysis of DOD data.

Finally, the departmentwide excess was calculated by summing the estimated number of excess bases for each military service and the Defense Logistics Agency (65.2), summing the number of bases included in the analysis (276), then dividing the sum of the excess bases by the total number of bases in the analysis, resulting in estimated departmentwide excess of 24 percent.

**The Methods DOD Used to Estimate Excess Capacity in 1998 and 2004 Have Limitations**

DOD recognized some limitations within its method for estimating excess capacity, stating in both its 1998 and 2004 reports to Congress that the analysis it performed provided an indication of the type and amount of excess capacity within the department, but recognizing that the analyses lacked the precision to identify specific installations or functional

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configurations for realignment or closure. In addition, our current review of DOD's method for estimating excess capacity outside of a congressionally-authorized BRAC process identified a number of limitations.

First, DOD assigned each base to only one installation category, even though most bases support more than one mission. This approach effectively excluded significant portions of a base's infrastructure from the analysis. For example, in the case of Army maneuver bases, using base acres as the indicator of capacity does not include about 204 million square feet of buildings located on the 12 Army maneuver bases in DOD's analysis. Another limitation associated with DOD's method is that the services measured capacity for some similar functions differently. For example, the Army and Air Force measured capacity for test and evaluation facilities in terms of physical total square feet of space, while the Navy measured its capacity for these facilities in terms of work years. These differences make it difficult for DOD to assess excess capacity across the department. A third limitation is that, in using 1989 as a baseline, DOD assumed that the bases and facilities as they existed in 1989 were appropriately sized to support missions, and DOD did not identify any excess capacity or capacity shortfall that may have existed at that time. This approach, in essence, transfers any excesses and shortfalls that existed in 1989 into DOD's estimates of future capacity needs because, as illustrated in Figure 3 above, the capacity-to-force structure ratio from 1989 was used to calculate the needed capacity for 2009. It is therefore uncertain to what extent DOD's estimates of excess capacity are overstated or understated. Finally, in both the 1998 and 2004 analyses, in instances where DOD's analysis indicated that projected capacity was less than needed capacity—indicating a capacity shortage—within a specific installation category, DOD treated these cases as having zero or no excess capacity. Despite the data showing capacity shortages, DOD used this data to aggregate the results of its analysis across the department. If DOD had treated those installation categories as having capacity shortages, DOD's estimates would have resulted in a lower number of excess bases and consequently a lower percentage of excess capacity across the department than DOD reported to Congress.

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DOD's Statements about  
Remaining Excess  
Capacity in 2012 and 2013  
Relied on Two Earlier  
Calculations

DOD's testimony in March 2012 and March 2013,<sup>20</sup> that by its estimates DOD had about 20 percent excess capacity remaining after the end of BRAC 2005, relied on earlier calculations that the department made in 2004 and 2005. First, in 2004, using the method described above, the department estimated that it had 24 percent excess capacity. Then, in 2005, DOD's report transmitting its recommendations to the BRAC Commission<sup>21</sup> stated that, while it is difficult to measure the full extent of the improvements in effectiveness and efficiency of the BRAC 2005 recommendations, four statistics would illustrate the breadth and depth of the effect of its proposed actions. One of those statistics was the department's projection that DOD's plant-replacement value would be reduced by 5 percent.<sup>22</sup> After the BRAC Commission reviewed DOD's recommendations and made some changes, including reducing the number of closures at major installations,<sup>23</sup> DOD revised its estimate of the expected percentage reduction in plant-replacement value and projected that it would likely be around 3 percent. In 2012, the Deputy Under Secretary of Defense (Installations and Environment) said that these estimates from 2004 and 2005 suggested that roughly 20 percent excess capacity remained. However, because DOD's pre-BRAC excess capacity estimate, which is expressed as a percentage of bases, and plant replacement value, which is expressed in dollars, are not measured in the same units, they are not comparable measures.

In March 2013, the Acting Deputy Under Secretary of Defense (Installations and Environment) testified that the method upon which DOD's current estimate of 20 percent excess capacity is based is helpful

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<sup>20</sup> *The Request for Authorization of Another BRAC Round and Additional Reductions in Overseas Bases, Before the Readiness Subcommittee of the House Committee on Armed Services, 112<sup>th</sup> Cong. 38 (Mar. 8, 2012) (statement of Under Secretary of Defense (Installations and Environment) Dr. Dorothy Robyn); Is Base Realignment and Closure (BRAC) Appropriate at this Time? Before the Readiness Subcommittee of the House Committee on Armed Services, 113<sup>th</sup> Cong. 5 (Mar. 14, 2013) (statement of Acting Under Secretary of Defense (Installations and Environment) John Conger).*

<sup>21</sup> Department of Defense, *Base Closure and Realignment Report* (May 2005).

<sup>22</sup> The other three statistics included eliminating about 18,000 civilian support positions; net annual savings of over \$5 billion per year from BRAC 2005 actions, in addition to about \$7 billion from previous BRAC rounds; and vacating about 12 million square feet of leased space.

<sup>23</sup> While DOD recommended closures at 33 major installations, the BRAC Commission recommended closures at 24 major installations.

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in making a broad assessment in determining whether an additional BRAC round is justified, but it cannot identify specific installations or functional configurations for realignment or closure. The Acting Deputy Under Secretary further stated that the specific capacity analysis that is an integral part of the BRAC process is preferable to aggregate metrics used in DOD's pre-BRAC estimates. He further stated that only through the BRAC process is the Department able to determine excess capacity by installation and by mission or function in a process that is thorough and fair.

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## Agency Comments

We provided a draft of this report to DOD for comment. In its written comments, which are reproduced in appendix I, DOD stated that we properly highlighted the limitations of its approach used to estimate excess capacity. In addition, DOD stated that our report provides proper context for its methodology by contrasting it with the extensive and detailed data collection and analysis that DOD has used to develop BRAC recommendations. DOD concluded that only through the BRAC process is it able to determine excess capacity by installation and mission or function in a fair and thorough way. DOD also provided a technical comment which we incorporated into our report.

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We are sending copies of this report to appropriate congressional committees and the Secretary of Defense; the Secretaries of the Army, Navy, and Air Force; the Commandant of the Marine Corps; and the Director, Office of Management and Budget. This report is also available at no charge on our Web site at <http://www.gao.gov>.

If you or your staff have any questions about this report, please contact me at (202) 512-4523 or [leporeb@gao.gov](mailto:leporeb@gao.gov). Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this report. GAO staff who made major contributions to this report are listed in appendix II.



Brian J. Lepore  
Director  
Defense Capabilities and Management

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The Honorable John Culberson  
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The Honorable Sanford Bishop  
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# Appendix I: Comments from the Department of Defense



ACQUISITION,  
TECHNOLOGY  
AND LOGISTICS

## OFFICE OF THE UNDER SECRETARY OF DEFENSE

3000 DEFENSE PENTAGON  
WASHINGTON, DC 20301-3000

JUN 7 2013

Mr. Brian Lepore  
Director, Defense Capabilities and Management  
U.S. Government Accountability Office  
441 G Street, N.W.  
Washington, DC 20548

Dear Mr. Lepore:

This is the Department of Defense (DoD) response to the GAO Draft Report 13-535, "Defense Infrastructure: DOD's Excess Capacity Estimating Methods Have Limitations" dated May 10, 2013 (GAO Code 351752).

The report properly highlights the limitations of the DoD parametric approach used to estimate excess capacity. By stating how such an approach used outside the BRAC process contrasts with the extensive and detailed analysis and data collection the Department uses to develop recommendations, the report provides the proper context for DoD's methodology. For example the report indicates the estimates are preliminary "to support the need for future BRAC" in contrast to DoD's collecting "an estimated 25 million pieces of capacity and military vale data" to formulate the development of recommendations. My recent testimony before Congress reiterates this difference: "...the parametric analytical approach is helpful in making a broad assessment to support a judgment that an additional BRAC round is justified..." However, as the Department has continued to caution, this approach is not intended to identify specific installations or organizations to realign or close. The specific capacity analysis that is an integral part of the BRAC process is preferable to aggregate metrics. The Department believes that only through a BRAC process is it able to determine excess capacity by installation and by mission or function in a process that is thorough and fair.

We continue to appreciate the work of the GAO in its review of BRAC related issues.

Sincerely,

A handwritten signature in blue ink that reads "John Conger".

John Conger

Acting Deputy Under Secretary of Defense  
(Installations and Environment)

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# Appendix II: GAO Contact and Staff Acknowledgments

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## GAO Contact

Brian J. Lepore, (202) 512-4523 or [leporeb@gao.gov](mailto:leporeb@gao.gov).

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## Staff Acknowledgments

In addition to the contact named above, Harold Reich (Assistant Director), Ronald Bergman, Timothy Burke, Susan Ditto, Gregory Marchand, Carol Petersen, Amie Steele, Laura Talbott, John Van Schaik, and John Wren made significant contributions to the report.

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# Related GAO Products

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*Military Bases: Opportunities Exist to Improve Future Base Realignment and Closure Rounds.* [GAO-13-149](#). Washington, D.C.: March 7, 2013.

*GAO's 2013 High Risk Series: An Update.* [GAO-13-283](#). Washington, D.C.: February 2013.

*DOD Joint Bases: Management Improvements Needed to Achieve Greater Efficiencies.* [GAO-13-134](#). Washington, D.C.: November 15, 2012.

*Military Base Realignments and Closures: The National Geospatial-Intelligence Agency's Technology Center Construction Project.* [GAO-12-770R](#). Washington, D.C.: June 29, 2012.

*Military Base Realignments and Closures: Updated Costs and Savings Estimates from BRAC 2005.* [GAO-12-709R](#). Washington, D.C.: June 29, 2012.

*Military Base Realignments and Closures: Key Factors Contributing to BRAC 2005 Results.* [GAO-12-513T](#). Washington, D.C.: March 8, 2012.

*Excess Facilities: DOD Needs More Complete Information and a Strategy to Guide Its Future Disposal Efforts.* [GAO-11-814](#). Washington, D.C.: September 19, 2011.

*Military Base Realignments and Closures: Review of the Iowa and Milan Army Ammunition Plants.* [GAO-11-488R](#). Washington, D.C.: April 1, 2011.

*GAO's 2011 High-Risk Series: An Update.* [GAO-11-394T](#). Washington, D.C.: February 17, 2011.

*Defense Infrastructure: High-Level Federal Interagency Coordination Is Warranted to Address Transportation Needs beyond the Scope of the Defense Access Roads Program.* [GAO-11-165](#). Washington, D.C.: January 26, 2011.

*Military Base Realignments and Closures: DOD Is Taking Steps to Mitigate Challenges but Is Not Fully Reporting Some Additional Costs.* [GAO-10-725R](#). Washington, D.C.: July 21, 2010.

*Defense Infrastructure: Army Needs to Improve Its Facility Planning Systems to Better Support Installations Experiencing Significant Growth.* [GAO-10-602](#). Washington, D.C.: June 24, 2010.

*Military Base Realignment and Closures: Estimated Costs Have Increased While Savings Estimates Have Decreased Since Fiscal Year 2009.* [GAO-10-98R](#). Washington, D.C.: November 13, 2009.

*Military Base Realignment and Closures: Transportation Impact of Personnel Increases Will Be Significant, but Long-Term Costs Are Uncertain and Direct Federal Support Is Limited.* [GAO-09-750](#). Washington, D.C.: September 9, 2009.

*Military Base Realignment and Closures: DOD Needs to Update Savings Estimates and Continue to Address Challenges in Consolidating Supply-Related Functions at Depot Maintenance Locations.* [GAO-09-703](#). Washington, D.C.: July 9, 2009.

*Defense Infrastructure: DOD Needs to Periodically Review Support Standards and Costs at Joint Bases and Better Inform Congress of Facility Sustainment Funding Uses.* [GAO-09-336](#). Washington, D.C.: March 30, 2009.

*Military Base Realignment and Closures: DOD Faces Challenges in Implementing Recommendations on Time and Is Not Consistently Updating Savings Estimates.* [GAO-09-217](#). Washington, D.C.: January 30, 2009.

*Military Base Realignment and Closures: Army Is Developing Plans to Transfer Functions from Fort Monmouth, New Jersey, to Aberdeen Proving Ground, Maryland, but Challenges Remain.* [GAO-08-1010R](#). Washington, D.C.: August 13, 2008.

*Defense Infrastructure: High-Level Leadership Needed to Help Communities Address Challenges Caused by DOD-Related Growth.* [GAO-08-665](#). Washington, D.C.: June 17, 2008.

*Defense Infrastructure: DOD Funding for Infrastructure and Road Improvements Surrounding Growth Installations.* [GAO-08-602R](#). Washington, D.C.: April 1, 2008.

*Military Base Realignment and Closures: Higher Costs and Lower Savings Projected for Implementing Two Key Supply-Related BRAC Recommendations.* [GAO-08-315](#). Washington, D.C.: March 5, 2008.

*Defense Infrastructure: Realignment of Air Force Special Operations Command Units to Cannon Air Force Base, New Mexico.* [GAO-08-244R](#). Washington, D.C.: January 18, 2008.

*Military Base Realignment and Closures: Estimated Costs Have Increased and Estimated Savings Have Decreased.* [GAO-08-341T](#). Washington, D.C.: December 12, 2007.

*Military Base Realignment and Closures: Cost Estimates Have Increased and Are Likely to Continue to Evolve.* [GAO-08-159](#). Washington, D.C.: December 11, 2007.

*Military Base Realignment and Closures: Impact of Terminating, Relocating, or Outsourcing the Services of the Armed Forces Institute of Pathology.* [GAO-08-20](#). Washington, D.C.: November 9, 2007.

*Military Base Realignment and Closures: Transfer of Supply, Storage, and Distribution Functions from Military Services to Defense Logistics Agency.* [GAO-08-121R](#). Washington, D.C.: October 26, 2007.

*Defense Infrastructure: Challenges Increase Risks for Providing Timely Infrastructure Support for Army Installations Expecting Substantial Personnel Growth.* [GAO-07-1007](#). Washington, D.C.: September 13, 2007.

*Military Base Realignment and Closures: Plan Needed to Monitor Challenges for Completing More Than 100 Armed Forces Reserve Centers.* [GAO-07-1040](#). Washington, D.C.: September 13, 2007.

*Military Base Realignment and Closures: Observations Related to the 2005 Round.* [GAO-07-1203R](#). Washington, D.C.: September 6, 2007.

*Military Base Closures: Projected Savings from Fleet Readiness Centers Likely Overstated and Actions Needed to Track Actual Savings and Overcome Certain Challenges.* [GAO-07-304](#). Washington, D.C.: June 29, 2007.

*Military Base Closures: Management Strategy Needed to Mitigate Challenges and Improve Communication to Help Ensure Timely Implementation of Air National Guard Recommendations.* [GAO-07-641](#). Washington, D.C.: May 16, 2007.

*Military Base Closures: Opportunities Exist to Improve Environmental Cleanup Cost Reporting and to Expedite Transfer of Unneeded Property.* [GAO-07-166](#). Washington, D.C.: January 30, 2007.

*Military Bases: Observations on DOD's 2005 Base Realignment and Closure Selection Process and Recommendations.* [GAO-05-905](#). Washington, D.C.: July 18, 2005.

*Military Bases: Analysis of DOD's 2005 Selection Process and Recommendations for Base Closures and Realignments.* [GAO-05-785](#). Washington, D.C.: July 1, 2005.

*Military Base Closures: Observations on Prior and Current BRAC Rounds.* [GAO-05-614](#). Washington, D.C.: May 3, 2005.

*Military Base Closures: Assessment of DOD's 2004 Report on the Need for a Base Realignment and Closure Round.* [GAO-04-760](#). Washington, D.C.: May 17, 2004.

*Military Bases: Review of DOD's 1998 Report on Base Realignment and Closure.* [GAO/NSIAD-99-17](#). Washington, D.C.: November 13, 1998.

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