

***ADDENDUM:
Fiscal Impact of
Incompatible Land Use to Fort Bragg***

Prepared for:

FORT BRAGG REGIONAL ALLIANCE

(Formerly BRAC Regional Task Force)

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OVERVIEW OF THE STUDY

TischlerBise has been retained by the Fort Bragg Regional Alliance (FBRA) (formerly Fort Bragg BRAC Regional Task Force (BRAC-RTF)), to conduct a *Fiscal Impact Analysis of Compatible and Incompatible Land Uses in the Fort Bragg Region*. The main part of the effort is a *Cost of Land Use Fiscal Impact Analysis* for jurisdictions adjacent to Fort Bragg, particularly those areas with property identified as critical and important to preserve to ensure compatibility with the base. A *Cost of Land Use Fiscal Impact Study* examines the fiscal impact of prototypical land uses that are currently developed (or anticipated to be developed in the future) in a jurisdiction and seeks to answer the question, ***“What type of development pays for itself?”*** This study included the counties of Harnett, Hoke, and Moore and the Town of Aberdeen, and the results were issued in June 2011 and are available under separate cover.

FBRA is also interested in understanding the fiscal impact to Fort Bragg of incompatible land uses. Namely, what is the cost to the base if development occurs in areas near the base that will affect training capabilities. A continuum of effects could result from the presence of incompatible land uses adjacent to a military base—from curtailed training hours to relocation of training functions to realignment or closure. This write-up attempts to describe and quantify the fiscal impacts to Fort Bragg from incompatible development in the region. ¹

¹The majority of information discussed herein is from the Directorate of Plans Training and Mobilization (DPTM) at Fort Bragg.

STATEMENT OF THE ISSUE

In recent years, much has been written about the challenges of incompatible land uses surrounding military bases. At the most extreme, incompatible land uses can lead to closure or realignment of an installation—or at least serious consideration for closure or realignment. Less drastically, it can have an incremental impact on military training activities that over time could have a detrimental effect on a community's economy.

The issue of incompatible land use from the military standpoint has been about loss of mission-readiness and base operability. Installations can become frustrated with “workarounds” due to issues arising from complaints from neighbors. The military's training ground is land that is increasingly being threatened—from many factors (people, animals, natural habitats, and endangered species).

To many stakeholders in military communities, the loss of the base may seem unfathomable. However, the threat of encroachment to bases is real—and can ultimately result in realignment or closure. An example of this possibility was summarized by the National Academy of Public Administration in their report, *Strengthening National Defense*, regarding the Hampton Roads/Naval Air Station Oceana, Virginia.² In 2005, the BRAC Commission identified Oceana for possible closure and realignment, specifically due to encroachment issues. The Panel notes that “community officials said that was a ‘wake up call’ that stunned everyone. *The communities had never foreseen the possibility of the base closing.*”³ The “lessons learned” from this experience is that “[l]ocalities and States have to see ‘what’s in it for them’.”⁴ And that localities—as well as the state—came to fully appreciate the potential devastating loss to the economy if the base were to close. In this case, unprecedented state legislative changes and financial support occurred.

The efforts being undertaken by the FBRA and other groups in the Fort Bragg region seek to balance local and regional planning needs and priorities with those of Fort Bragg to ensure continued viability of the installation.

² National Academy of Public Administration, *Strengthening National Defense: Countering Encroachment through Military-Community Collaboration*, September 2009.

³ *Strengthening National Defense*, Appendix F, “Reports of Panel Site Visits,” p. F-13 (emphasis added).

⁴ *Ibid.*, p. F18.

BRIEF DESCRIPTION OF FORT BRAGG

The Fort Bragg *Real Property Master Plan: Long Range Component*⁵ describes the installation as follows:

Fort Bragg is home to the Army's Airborne and Special Operations Forces, and is one of the largest military installations in the world. As the Army's preeminent Power Projection Platform, its troops must be able to deploy within 18 hours to anywhere in the world and then fight to win. To support this formidable force projection capability, the Army invested resources to develop a vast supporting infrastructure of buildings, airfields, ranges, and training land at Fort Bragg.

Further, the Master Plan articulates Fort Bragg's mission as follows:

- Provide the people, infrastructure, and services to train, sustain, mobilize, and rapidly deploy America's forces, while enhancing the environment, security, and well-being of the greater Fort Bragg community;
- Provide a home station and deployment facility for the assigned units, including XVIII Airborne Corps, 82d Airborne Division, and U.S. Army Special Operations Command (USASOC) units;
- Support the training of Reserve Component forces;
- Serve as a major Power Protection Platform for the mobilization training, equipping, and worldwide deploying of U.S. armed forces in military and non-military contingencies; and
- Train XVIII Airborne Corps forces and other assigned forces to deploy worldwide, fight, and win using airborne warfare.

A key component of the mission is **airborne** training, which requires drop zones and field landing strips. Fort Bragg currently has six major drop zones (DZ) (Sicily, Normandy, Salerno, Holland, Nijmegen, and St. Mere Eglise) as well as Luzon DZ on Camp Mackall. Three DZs have Field Landing Strips (FLS)—Sicily, Holland, and Luzon. These areas are used for training purposes for paratrooper and equipment drops (airdrops), aircraft landings and offloading supplies (airland) with accompanying live-fire training for simulations of seizing of an airport.

Fort Bragg is home to two of the three dirt landing strips on the east coast (at Holland DZ and Luzon DZ) capable of handling C-17 Cargo Aircraft. C-17 aircraft have a capacity of 105 paratroopers with a payload capacity of approximately 170,000 pounds. Compare this to a C-130 aircraft with a capacity of 60 paratroopers and a payload capacity of approximately 35,000 pounds.

⁵ *Fort Bragg Real Property Master Plan: Long Range Component*, Preliminary Report, October 2008.

Currently, approximately 90 percent of Fort Bragg's land area is used for active training purposes. However, a deficit of training lands has been identified:

The Range and Training Land Program-Development Plan documented that enough land exists to train the 82d Airborne Division's platoon-, company-, and battalion-level mission-essential tasks. On the other hand, when the maneuver requirements of the Special Forces were added, a shortage of land was evident. This deficit increased when the training requirements of the Army Reserve and National Guard were added.⁶

CURTAILED OPERATIONS AT ST. MERE EGLISE DROP ZONE

In 1992, incompatible land uses on the border of St. Mere Eglise DZ forced the Airborne Training Block of the Military Free-fall School to relocate to Yuma Proving Ground, Arizona. Figure 1 shows the residential development near St. Mere Eglise DZ. Because of the relocation, the four-week training program is split between Fort Bragg and Yuma Proving Ground, where trainees spend the first part of training at Fort Bragg in a classroom and a wind tunnel before relocating for temporary duty to Yuma for the remainder of the class. At Yuma, personnel train for day and night HALO (high altitude, low opening) and HAHO (high altitude, high opening) operations.

⁶ Fort Bragg Real Property Master Plan: Long Range Component; p. 12-32.

Figure 1. Incompatible Land Use Adjacent to St. Mere Eglise Drop Zone



Source: Fort Bragg Real Property Master Plan: Long Range Component, Preliminary Report, October 2008; p. 8-16.

Each year, 10 Military Free-fall School classes at Yuma are provided at a current average full-loaded cost per class of \$70,000 to \$100,000. This results in an additional cost to the Army of \$700,000 to \$1 million each year due to the relocated training. This is an ongoing annual cost that the Army will incur for this training in the future. Since the school closed in 1992, looking backward and adjusting for inflation, the total cost incurred to date ranges from approximately \$11 million to almost \$16 million.

Figure 2. Historical Cost of Relocating Training from St. Mere Eglise, Fort Bragg, to Yuma Proving Ground

Year	<i>Inflation Adjusted Cost per Year: Low</i>	<i>Inflation Adjusted Cost per Year: High</i>
1992	\$434,000	\$620,000
1993	\$448,000	\$640,000
1994	\$455,000	\$650,000
1995	\$469,000	\$670,000
1996	\$483,000	\$690,000
1997	\$497,000	\$710,000
1998	\$504,000	\$720,000
1999	\$518,000	\$740,000
2000	\$532,000	\$760,000
2001	\$546,000	\$780,000
2002	\$553,000	\$790,000
2003	\$567,000	\$810,000
2004	\$581,000	\$830,000
2005	\$602,000	\$860,000
2006	\$623,000	\$890,000
2007	\$644,000	\$920,000
2008	\$665,000	\$950,000
2009	\$665,000	\$950,000
2010	\$672,000	\$960,000
2011	\$700,000	\$1,000,000
Total	\$11,158,000	\$15,940,000

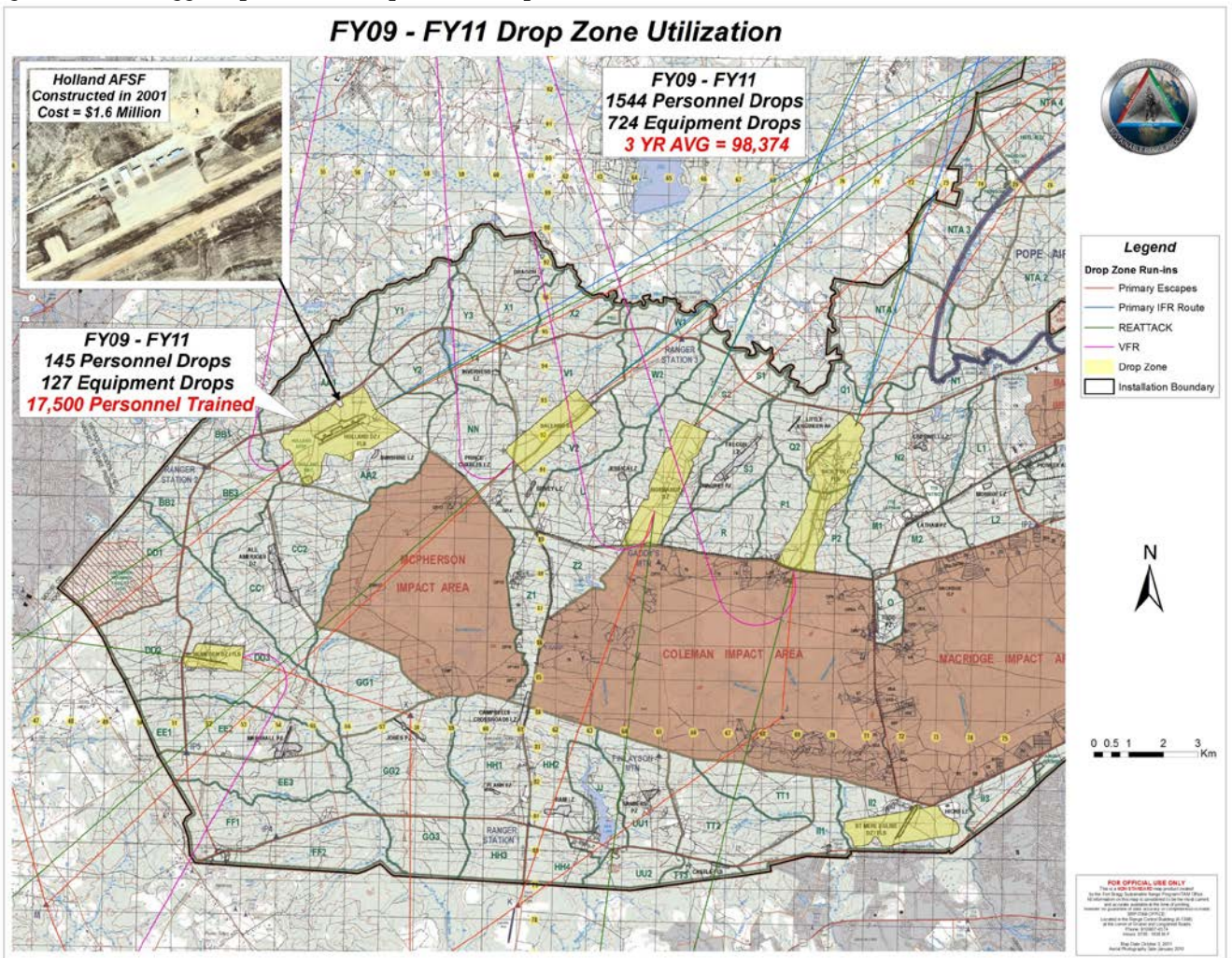
This cost will continue into the future at \$700,000 to \$1 million per year to provide the necessary training.

According to DPTM staff, it is unlikely that complete closure of St. Mere Eglise will occur. It is used now in a more restrictive manner for more controlled drops by special operations with small aircraft and helicopters.

FISCAL IMPACT OF AN HYPOTHETICAL CLOSURE OF HOLLAND DROP ZONE

To illustrate the potential impact of incompatible land uses on Fort Bragg, DPTM staff provided information on the effects on training if one of the main Drop Zones were to close. As noted above, Holland DZ is one of three air fields that can accommodate a C-17 aircraft. Holland DZ is located at the northwest edge of the Fort Bragg Range Complex adjacent to Moore County.

Figure 3. Fort Bragg Drop Zone and Impact Area Map



Source: Fort Bragg Directorate of Plans Training and Mobilization

For training purposes, the Army recently built an airfield training complex at Holland DZ that includes an “austere” airfield—essentially a no-frills landing strip and steel buildings as well as an adjacent urban area—to reflect realistic conditions for Army and Air Force training to conduct “airfield seizure” operations. Airfield seizure trainings require a series of activities including airdrops of equipment and troops, live-fire, and airplane landings in one location to simulate a realistic airport takeover in hostile environments. The cost to the Army to construct this environment at Holland DZ was **\$6 million**.

In addition, in 2012 the Army is planning to build an additional airfield at Holland DZ for the Gray Eagle Unmanned Aerial System (UAS). The estimated cost is **\$6.5 million**. The location for this runway is important for the UAS to stay within range of the other drop zones without flying over populated areas.

In total, one-time costs to the Army to develop the training environment at Holland DZ is estimated at **\$12.5 million**. These costs would need to be incurred at another site if Holland were to close or its use curtailed. A summary is provided below.

Figure 4. One-Time Costs Incurred at Holland Drop Zone

One-Time Costs	<i>Cost</i>
Airfield Seizure Training Complex	\$2,000,000
Assault Landing Zone	\$4,000,000
Gray Eagle UAS Landing Area (2012)	\$6,500,000
Grand Total	
	\$12,500,000

Source: Fort Bragg DPTM

The Holland DZ is the only drop zone at Fort Bragg that allows for an uninterrupted flow of training (including live firing (small arms/unit fires)) unlike other drop zones that require “check fires” on impact areas during airborne operations. That is at Holland DZ, not only can weapons be fired at the site by personnel involved in the training, but other personnel not directly involved with the airfield training exercise but doing artillery training within the impact area can continue without interruption. At other drop zones, the airborne operation affects other artillery training, which leads to down time and lost training opportunities. Holland DZ handled 12 percent of the sorties from FY2009 to FY2011 and on average accounts for 18 percent of the paratrooper drops. A summary of sorties and drops at Holland DZ is provided in Figure 5.

Figure 5. Number of Sorties and Drops (FY09-FY11)

	Fort Bragg		% Holland of
	Total	Holland DZ	Total Fort Bragg
Personnel Sorties (FY09-FY11 Total)	1,544	145	9%
Heavy Equipment Sorties (FY09-FY11 Total)	724	127	18%
Grand Total Sorties	2,268	272	12%
Annual Average Number of Paratroopers Dropped	98,374	17,500	18%

Source: Fort Bragg DPTM

If Holland DZ were to close, additional costs will be incurred, particularly due to increased costs of aircraft flight hours to support training the same number of paratroopers. With Holland DZ handling 12 percent of drop zone activity over the last three fiscal years, an impediment to training at Holland DZ will require changes in the aircraft used or the number of flights necessary. A number of alternatives are possible including (a) additional aircraft or flights; (b) increased number of flight passes or additional lifts; or (c) change in aircraft type from C-17 to C-130, which reduces the number of paratroopers per planeload from 105 to 60.

While the 17,500 paratrooper jumps currently at Holland DZ would be accommodated at other drop zones, several potential issues emerge:

1. With less drop zone capacity and the same demand, drop zone availability becomes an issue.
2. Because activity at Holland DZ tends to be large tactical unit operations, it has a higher priority than other smaller jumps. Those other jumps still need to occur, but will likely be accommodated wherever possible by extending the flight day or by requiring aircraft to stay extra days at the installation. An estimated impact is an additional 15 percent in number of flight hours to accommodate this potential scenario.
3. The shift to other drop zones would result in interrupted training flow, which impacts readiness.

Given the above, rough costs can be estimated as the potential fiscal impact to the Army. To position aircraft from other Air Force Bases (e.g., Charleston AFB, SC; McChord AFB, WA) to Pope Army Airfield, a cost is incurred. On average it costs approximately \$94,000 per day for a C-17 and \$56,000 per day for a C-130. Reducing this to an average cost per paratrooper, the C-130 has a higher cost of \$933 per seat, which is \$38 higher per paratrooper thus illustrating an economy of scale of using the larger aircraft.

While it may not necessarily be a situation of shifting the paratroopers currently jumping at Holland from a C-17 to a C-130, we provide an average cost per aircraft for illustrative purposes.

Figure 6. Cost Comparisons by Type of Aircraft per Paratrooper

	<u>Aircraft</u>		Cost Differential
	C-17	C-130	
Cost per Flight Hour	\$11,658	\$6,964	
Avg Number of Flight Hours to Position Aircraft for Training	8	8	
Average Cost per Aircraft per Day for Mission	\$94,000	\$56,000	
Capacity (# of Paratroopers per Aircraft)	105	60	
Cost per Seat of Capacity per Day	\$895	\$933	\$38

Source: Fort Bragg DPTM; calculations by TischlerBise

Another way to look at this is marginally, comparing daily and yearly costs for use of a C-17 and a C-130. Because an aircraft cannot be used “incrementally,” once a certain threshold is reached, another plane will be needed. For instance, with a C-130 aircraft, to train the same number of paratroopers as could be accommodated in a C-17, two planes would be needed. Therefore, instead of \$94,000 per day for a C-17, the daily cost would increase to \$112,000 (\$56,000 x 2), an increase of \$18,000 per day. Extrapolating for a full year of training results in an additional cost of **\$3.9 million per year** (215 training days x \$18,000 per day increased cost). Again, although it may not be a situation of replacing C-17s with C-130s, the daily and yearly cost differential illustrates the economies of scale of being able to use the larger C-17 aircraft.

Figure 7. Cost Comparisons by Type of Aircraft

	<u>Aircraft</u>		Cost Differential
	C-17	C-130	
Average Cost per Aircraft per Day for Mission	\$94,000	\$56,000	
Number of Planes Needed per Mission	1	2	
Total Cost per Day per Mission	\$94,000	\$112,000	\$18,000
Estimated Number of Training Days in Year			215
Estimated Cost Differential			\$3,870,000

Source: Fort Bragg DPTM; calculations by TischlerBise

Under a hypothetical Holland DZ closure scenario, a rough estimate is that a 15 percent increase in flight hours will be required to accommodate the same training as today. **This has the potential to increase costs by a range of \$18.3 million to \$30.6 million annually**, depending on the type of aircraft used to accommodate the additional training needs. (See Figure 8.) This would be in addition to the initial “fixed” cost of ensuring the availability of the aircraft. Furthermore, when deployed troops return to

Fort Bragg over the next several years, there will be additional training demand to be accommodated. If limitations occur on existing drop zones, this will further increase costs.

Figure 8. Estimated Annual Cost Increase Due to Hypothetical Closure of Holland DZ

Avg Annual Number of Paratroopers at Holland DZ	17,500	
Avg # of Flight Hours per Jump	1	
Avg Annual Number of Flight Hours at Holland DZ	17,500	
<i>Hypothetical Percentage Increase in Flight Hours</i>	<i>15%</i>	
<i>Hypothetical Increase in Number of Flight Hours</i>	<i>2,625</i>	
	C-17	C-130
Cost per Flight Hour	\$11,658	\$6,964
Hypothetical Cost Impact	\$30,602,250	\$18,280,500

Source: Fort Bragg DPTM; calculations by TischlerBise

As noted above, it has been documented that Fort Bragg has a deficit of training lands. Any additional closures or requirement to shift training will exacerbate the shortage. To date, Fort Bragg has tried to mitigate the shortage by using off-post extraterritorial lands. However, a closure or limitation at Holland DZ would further exacerbate this shortage as well as have other immediate impacts in addition to the quantifiable costs noted above. A closure would transfer training activities to the remaining drop zones capable of handling a C-17 (Luzon) and C-130 (Sicily). This would in turn result in the following:

- The remaining drop zones/field landing strips would experience increased utilization with units competing for fewer resources.
- The increased utilization would result in increased repair costs and downtime.
- A shift to Luzon would impede training because it is located at Camp Mackall, which is outside of Fort Bragg impact ranges. At Luzon, live-fire training is not allowed and training flow would therefore be interrupted. Under a Holland closure scenario, because Luzon is the only remaining C-17 capable landing strip, Luzon would have to be used for those missions but would not therefore allow for a realistic training environment.
- As airdrops occur at other drop zones that require “check fires,” other training is affected. This results in overall downtime and lost training opportunities and/or increased costs as training is accommodated at other sites.

SUMMARY

It is not possible to know what might trigger a relocation of training activities from Fort Bragg to another installation—either through BRAC or other means. However, given the current economic downturn and increased resistance to federal budget increases—even for defense spending, the military is tasked with being as efficient and effective as possible in achieving its mission. Increasing costs for training and mission readiness due to incompatible development off-base is inefficient and will affect the effectiveness of training. As discussed above, the cost impacts are estimated at an already incurred \$700,000 to \$1 million per year for the free-fall training school. Other potential impacts under a hypothetical drop zone closure would result in an additional \$12.5 million one-time cost for airfield infrastructure construction as well as annual estimated costs of \$18 million to \$30 million. To the extent the impacts can be further quantified, a stronger case can be made to reduce and eventually prevent incompatible land uses adjacent to military bases.