

BOMBS AND BABIES: THE UNFORTUNATE RESULTS OF CONVERSION OF A MILITARY DEFENSE SITE TO A RESIDENTIAL NEIGHBORHOOD

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I. INTRODUCTION: THE PINECASTLE JEEP RANGE

During World War II, the U.S. Army used over 12,000 acres in what is now the eastern edge of the City of Orlando as a gunnery, bomb training, and military demonstration range.¹ Due to its close proximity to the Orlando Army Air Base (now Orlando Executive Airport) and the Pinecastle Army Airfield (now Orlando International Airport), this property was perfectly located for airborne target practice.² The area, known as the Pinecastle Jeep Range was intentionally bombarded with explosive and chemical bombs, rockets, bullets, scrap metal, and even an old Jeep!³ After the war, the Army terminated its lease and the property was sold to various private and public interests. Yet, the Army failed to clean the military debris, or even to verify whether unexploded bombs were properly removed, prior to abandoning the property.

In the early decades after this military training ended, the use of the Pinecastle Jeep Range was common knowledge. Yet, by the turn of the century, few people remembered its use fifty years earlier. As a result

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¹Rich Phillips & John Zarrella, *Live bombs haunt Orlando neighborhood*, CNN.COM (July 1, 2008, 10:53 AM), <http://www.cnn.com/2008/US/06/30/backyard.bombs/>.

² Frank Araico, *Pinecastle Jeep Range Case Study*, (Mar. 2010), <http://www.astswmo.org/Files/Meetings/2010/2010FFSymposium/Araico-Pinecastle.pdf>.

³ Rich McKay, *400 Live Bombs Later, Fallout is Not Over*, ORLANDO SENTINEL, July 19, 2009, <http://www.orlandosentinel.com/news/orange/orl-pinecastle-bomb-range-school-homes-071909-story.html> [hereinafter *400 Live Bombs Later*].

of an exploding population in the 1990s and early 2000s, communities were introduced into Pinecastle Jeep Range. These communities came to be known as Mockingbird, Warwick, Vista Lakes, Crowntree Lakes, and Tivoli Gardens.⁴ Thousands of people invested their life savings in purchasing new homes in the area. Further, other developments were created upon this former bombing range: (1) Orange County Public Schools opened and operated an elementary and middle school; (2) the City of Orlando operated a fire station and maintained a large nature park for public use; and (3) Orange County Government constructed a land fill.⁵

Review of the multitude of development and land transfer documents from the community yield almost no reference to the prior hazardous activity at Pinecastle Jeep Range, which is considered a “Formerly Used Defense Site” or “FUDS.” One of the few references to this prior military use, found in a voluminous pre-development report submitted to the City of Orlando, notes only briefly that the site was once used for military purposes. Later development reports and applications submitted to Orlando lack any reference at all to the FUDS. One additional study, commissioned by the Orange County School Board in 1999, did acknowledge that property for a proposed middle school within the former Pinecastle Jeep Range but incorrectly asserted that “no practice or live ordnance was dropped or fired on” the subject property.

Yet in the summer of 2007, the house of cards nearly exploded. Live munitions, known officially as an “unexploded ordnances” or “UXOs” were found adjacent to Odyssey Middle School, followed shortly thereafter by more UXOs at the school as well as the nearby

⁴ U.S. Army Corps of Eng’rs., *Update for Orange County*, (Apr. 8, 2008), <https://d83vcbxs8ojhp.cloudfront.net/pdf/2008-04-08OrangeCoPJRBriefing.pdf> [hereinafter *Update for Orange County*] (the map of the Pinecastle Jeep Range overlaid with residential communities is available online through the Orange County Property Appraiser and the author).

⁵ U.S. Army Corps of Eng’rs., *Pinecastle Jeep Range: Remedial Investigation/Feasibility*, (Mar. 27, 2008), <http://64.78.11.86/uxofiles/enclosures/PinecastleRange-PublicBrief-March08.pdf> [hereinafter *Remedial Investigation/Feasibility*] ; *Update for Orange County*, *supra* note 4 (Maps of areas of military activity as well as overlay maps of recent development and community facilities are on-file with the author).

Warwick neighborhood of Vista Lakes.⁶ In the weeks and months that followed, an increasing amount of munitions debris, included a 23 pound bomb, were found near the school and its immediate surrounding neighborhoods.⁷ The radius of discovery expanded until thousands of homes came to be within the zone of foreseeable risk, at which time nearly all further development was halted.⁸ Not so much as a hole or a fence could be dug due to the fear of exploding a buried ordnance.⁹ Later, environmental studies indicated that the lead, mercury, and nitroglycerin from decades of buried bullet decay had leached into the soil and ground water.¹⁰ Over 14 tons of bomb and other military debris were unearthed.¹¹ Worst of all, over 400 bombs were uncovered in residential yards and the local school playground.¹²

As is often the case when a severe environmental hazard is suddenly uncovered, property values plummeted as the unfortunate situation made front-page headlines on a weekly basis.¹³ Since then, community homeowners, the City of Orlando, and the U.S. Army Corps of Engineers have struggled to enable a residential community to survive amidst this devastating environmental and human health hazard. Multiple private class-action lawsuits by homeowners against property developers have been filed in both state and federal court.¹⁴ Some cases have already settled and other potential claimants have yet to file. Of the

⁶ Phillips & Zarrella, *supra* note 1 (The exact date of discovery is not indicated in any records or new reports uncovered by the author. However, all texts agree that the first bomb was discovered at Odyssey Middle School in mid-to-late July of 2007).

⁷ Rich McKay, *WWII-era bomb found buried in Orlando neighborhood*, ORLANDO SENTINEL, Nov. 7, 2007, http://articles.orlandosentinel.com/2007-11-07/news/Bomb07_1_bomb-army-corps-warwick; Phillips & Zarrella, *supra* note 1.

⁸ Orange Cnty. Bd. Of Cnty. Comm'rs. 2011-M-54, 2011 (Fla. 2011).

⁹ *Id.*

¹⁰ Greg Ryan, *Developer Survives Axis Bombing Range Suit For Now*, LAW 360 (Oct. 27, 2011, 3:22 PM), <http://www.law360.com/articles/281073/developer-survives-axis-bombing-range-suit-for-now>.

¹¹ *Another lawsuit filed in bomb range case*, TMC NEWS (July 18, 2008), <http://www.tmcnet.com/news/2008/07/18/3555457.htm>.

¹² *400 Live Bombs Later*, *supra* note 3.

¹³ *WWII bomb Cleanup underway near Pinecastle Jeep Range*, WFTV.COM (July 11, 2013, 4:20 PM), <http://www.wftv.com/news/news/local/wwii-bomb-cleanup-underway-again-near-old-pinecastle/nYnKS/>.

¹⁴ Phillips & Zarrella, *supra* note 1; McKay, *supra* note 3; Ryan, *supra* note 10.

settlements so far, only a handful of the homeowners who lost nearly all value in their homes have received thousands of dollars in recompense.¹⁵

Part I of this article will summarize the history of military use of the Pinecastle Jeep Range, including the dumping of explosives and other hazardous materials with little regard for the ecological harm or human health hazards which would be caused by such use. Part I will also explore the development conditions which enabled thousands of homes, as well as schools and parks to be built upon this dangerous location. Part II will explore efforts by government entities involved, particularly the U.S. Army Corp of Engineers, to identify and clean the areas of contamination. The role and efficiency of the Army Corps of Engineers in identification and remediation of the hazardous materials will be analyzed. There will be a particular emphasis on which remediation efforts were successful and which appear insufficient to fully identify and remove potential hazards. Additional efforts by Orange County and the City of Orlando to ensure public safety during the lengthy period of uncertainty regarding the extent and location of risk will also be discussed. Part III will describe the current state of Pinecastle communities, from both an ecological and economic standpoint. This review will describe the areas which have been cleaned of hazardous materials and describe why there are still the remaining areas of uncertainty and risk. Additionally, the current status of community facilities, property values, and public perception will be explored. A series of private lawsuits from residents of the Pinecastle Jeep Range will form the basis for review of the ability, or inability, of our legal system to sort out liability and compensate the victims.

With over 9,000 FUDS sites across the United States, it is the author's hope that this article will provide practical legal and technological advice for other communities dealing with this type of environmental hazard.¹⁶

¹⁵ *WWII bomb Cleanup underway near Pinecastle Jeep Range, supra* note 13.

¹⁶ Travis Reed, *Orlando, Fla., homes built atop WWI Bombing Range*, USA TODAY, Sept. 17, 2008, http://usatoday30.usatoday.com/news/nation/2008-09-17-4131720183_x.htm; Phillips & Zarrella, *supra* note 1.

II. THE MAKING OF A MILITARY WASTE LAND, OR FORMERLY USED DEFENSE SITE

In 1943, in the midst of its involvement in World War II, the United States government leased 11,833 acres of land in Orange County, Florida within the jurisdiction of the City of Orlando for military training purposes.¹⁷ Specifically, this large swath of land, known then as the Pinecastle Army Airfield, was needed for young pilots to train and enhance their skills in dropping explosive and chemical bombs accurately on targets.¹⁸ The land was also used for training soldiers in small arms target practice, air-to-ground rocket firing, anti-aircraft aerial firearms, and high explosive bombing.¹⁹ Such training exercises involved both visual demonstrations by trainers and repeat practice by soldiers in training.

The Army used the Pinecastle Army Airfield until late 1945. In 1946, the United States declared this land to be surplus property and by 1948 had terminated all leases for further use of the property.²⁰ In 1953, the Army issued a Range Clearance with recommendation to make future use of only the southeast 500 acres.²¹ Based on recognition that the remainder Pinecastle Army Airfield was essentially unusable for development purposes, in 1955 the Army paid a settlement to the lessor of \$20,567.²² During that time, no further attempt by the Army or any other agency of the United States government was made to locate active munitions or other hazardous materials on the property.²³ This land which had been bombarded with ordnances, bullets, shrapnel, and a myriad of other weaponry and debris, was simply abandoned to become someone else's problem down the road.

¹⁷ U.S. Army Corps of Engineers, *Formerly Used Defense Sites: Pinecastle Jeep Range Decision Document* (Jan. 2013), <http://jenniferthompson.net/wp-content/uploads/2013/02/PJR-Decision-Document-Fact-Sheet-January-2013.pdf> [hereinafter *Pinecastle Jeep Range Decision Document*].

¹⁸ Araico, *supra* note 2.

¹⁹ *Id.*

²⁰ *Id.*

²¹ *Id.*

²² *Id.*; see also *Inflation Calculator: The Changing Value of a Dollar*, DOLLARTIMES.COM (last visited May, 31, 2015), <http://www.dollartimes.com/calculators/inflation.htm> (noting \$20, 567 is equivalent to \$180,875.60 in 2015).

²³ *Id.*

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There is a lack of evidence that in 1947 the United States sought to actively hide the condition of the Pinecastle land. Instead, the government simply terminated its leases, paid a fee for the damages caused, and suggested that future development be limited to the southeastern 500 acres. At the time, the land was relatively isolated and undeveloped.²⁴ This lack of development and isolation was presumably the reason the Army sought to engage in bomb, ground-to-air, and small arms practice as such actions would be inherently dangerous and better kept far from civilians. Rather than assigning nefarious motive to the Army for the reckless abandonment of unexploded bombs and other military debris, it appears more likely that this failure to ensure long-term public notice of the hazardous nature of the property was more a result of careless short-sightedness due to the then-remote nature of the property.

Yet, since the end of World War II, Florida has been in a nearly unabated housing boom.²⁵ Suburban sprawl, a development plague to communities across the country, has been keenly experienced in Orange County, particularly within the City of Orlando.²⁶ By the late 1990s and early 2000's, the Pinecastle Army Airfield, by then known as the Pinecastle Jeep Range, was incurred upon by a development boom of: houses; business; parks; two schools; a fire house; a land fill; public roads; underground utilities; residential pools; fences; and draining ponds.²⁷ As is often the case in suburban sprawl, the new inhabitants of suburbia are usually not long term residents of the community. Therefore, such transplants are unlikely to have knowledge of any local lore in existence regarding the prior military use of the property decades earlier. And by 1990, few, if any locals recalled this prior military use of Pinecastle Jeep Range.

²⁴ Araico, *supra* note 2.

²⁵ J. Celeste Sakowicz, *Urban Sprawl: Florida's and Maryland's approaches*, 19:2 FLA. ST. U. J. LAND USE & ENVTL. L. 377, 383 (2004); Florida Humanities Council, *Post War Florida*, FLORIDA GOES TO WAR: THE SUNSHINE STATE IN WW II (last visited May 31, 2015), http://fcit.usf.edu/wwii/post_war.php.

²⁶ *Id.*; T.D. Allman, *Beyond Disney*, NAT'L GEOGRAPHIC, Mar. 2007, <http://ngm.nationalgeographic.com/2007/03/orlando/allman-text>.

²⁷ Araico, *supra* note 2; see also *Pinecastle Jeep Range Decision Document*, *supra* note 17.

However, Army documents indicate that even in the 1990s, the Army was well aware of the hidden environmental and human health hazards just below the surface. Between 1994 and 2005 there is evidence of a series of reports generated by the U.S. Government in regard to dangers on this site and the pending collision of such dangers with pending residential development.²⁸ In 1994, the Pinecastle Jeep Range was actually listed as a Superfund Military Site which needed priority remediation.²⁹ In 1997, the Army commissioned an “Archive Search Report/ Preliminary Assessment for the Former Pinecastle Jeep Range” to review the records of Pinecastle in order to ascertain what risks it posed and where.³⁰ An actual Site Inspection was also undertaken by the Army in 2005.³¹ Unfortunately, the Army did almost nothing to prevent the collusion of military hazards and residential development beyond creating reports.

Fortunately, the Army was forced to act in July of 2007 when live bombs were found adjacent to Odyssey Middle School.³² At that point, the knowledge of the hazards of military debris which had laying dormant for six decades: exploded. On a nearly weekly basis, an increasing amount of dangerous munitions were discovered at: (1) Odyssey Middle School; and (2) adjacent residential developments such as Warwick and Mockingbird.³³ Personnel at nearby Patrick Air Force Base were called in to remove these munitions.³⁴ This discovery preceded a swath of damage which included the slashing of property values within the Pinecastle vicinity and over \$10 million dollars in taxpayer money was spent attempting to remediate the hazards through repeated closures of a public middle school, evacuation of hundreds of people from their homes, closure of a public park, and additional hundreds of millions of dollars that were spent in legal fees, settlements, and judgements in private legal actions against developers who bought and sold pieces of Pinecastle Jeep Range.

A handful of documents did come to light in the 1990s and 2000s, which had they been more thoroughly investigated, might have stopped

²⁸ Update for Orange County, *supra* note 4; 400 Live Bombs Later, *supra* note 3.

²⁹ *Id.*; 400 Live Bombs Later, *supra* note 3.

³⁰ *Id.*

³¹ *Id.*

³² *Id.*

³³ Phillips & Zarrella, *supra* note 1; 400 Live Bombs Later, *supra* note 3; McKay, *supra* note 7

³⁴ *Id.*

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the looming debacle.³⁵ The Army itself had commissioned a study in 1997 entitled, “Archive Search Report/ Preliminary Assessment for the Former Pinecastle Jeep Range.”³⁶ The Archive Search Report was amended in 2004 and became part of a predevelopment report was submitted to the City of Orlando in 2007.³⁷ Yet, none of this information stopped the development or even reoriented the development toward the southeast as recommended in the Army’s Range Clearance report. Rather, development, including the schools, concentrated in the most contaminated northwest areas. In fact, Odyssey Middle School was built directly adjacent to the prime target areas of the bomb training.³⁸ This focus of development in the most heavily bombed areas of the Pinecastle Jeep Range led to immense human, financial, and political fall-out which could have been avoided had the Army’s clearance warning from the 1950s been memorialized in a meaningful fashion that would have steered future development into safer areas.

**III. ARMY AND LOCAL GOVERNMENT ATTEMPTS TO STEM THE
DANGER.**

After discovery of the first live ordnance, many more bombs were found throughout Pinecastle Jeep Range, most of which were located within the “range fan.”³⁹ The term range fan, describes the area of dispersion of rockets, bombs and even firearms which often scatter after firing, akin to the shape of a ladies hand fan if the base were the source of detonation and the spread of the fan the spread of debris.⁴⁰ This “fan” was particularly widespread because it was not created by experienced

³⁵ *Update for Orange County, supra* note 4; Remedial Investigation/Feasibility *supra* note 5; Araico, *supra* note 2.

³⁶ U.S. Army Corps of Eng’rs., *Pinecastle Jeep Range: Site Summary*, (last visited May 31, 2015), <http://www.saj.usace.army.mil/Media/FactSheets/FactSheetArticleView/tabid/6106/Article/480005/pinecastle-jeep-range-site-summary.aspx> [hereinafter *Pinecastle Jeep Range: Site Summary*].

³⁷ *Id.*

³⁸ Araico, *supra* note 2.

³⁹ *Remedial Investigation/Feasibility, supra* note 5.

⁴⁰ *Id.*

marksmen, instead it was created by inexperienced soldiers still in training who fired rockets, small arms and other weapons.

The timing of discovery of these buried explosives and military debris could not have been worse for property owners.⁴¹ When the munitions were discovered, Florida had just begun to experience the worst housing bust in its history and, along with the rest of the country, suffered through the worst financial crisis since the Great Depression. Housing values throughout suburban Orlando plummeted. In the area of the Pinecastle Jeep Range, housing values became nonexistent.⁴²

In addition to plummeting property values, the residents also had legitimate concerns for the safety of their families. As noted by the Orange County Board of County Commissioners:

The presence of unexploded ordnance, on and under soil and on and under the bottom of water bodies at the Pinecastle Jeep Range, presents a serious hazard and risk to the health, safety, and welfare of the residents, property owners, workers, and the general public who may disturb such ordnance, whether accidentally or intentionally.⁴³

Formerly Used Defense Sites, or “FUDS”, are generally considered so dangerous that the Federal Comprehensive Environmental Response Compensation and Liability Act, commonly known as CERCLA, governs much of the removal process.⁴⁴ Per CERCLA, in addressing the hazards at Pinecastle, the Army was required to engage in: 1) site inspection to sample, research, and analyze whether there was a need for a further study through a Remedial Investigation/Feasibility Study, if so, 2) engage in a Remedial Investigation/Feasibility Study to identify the type and extent of contamination and propose remediation measures and alternatives, and 3) develop a plan for remediation.⁴⁵ In response to public outcry and mandates of CERCLA, the Army, through its Corps of Engineers, quickly engaged in site inspections and public meetings to address the discovery and develop a plan to attempt to fix the problem.⁴⁶

⁴¹ *Florida Economic Outlook*, (2014), <http://edr.state.fl.us/content/conferences/fleconomic/floridaeconomicsummary.pdf> (although, the author concedes, there may be no good market point at which to discover live bombs in one’s neighborhood).

⁴² *Id.*

⁴³ Orange Cnty. Bd. Of Cnty. Comm’rs. 2011-M-54, 2011 (Fla. 2011).

⁴⁴ *Update for Orange County*, *supra* note 4; *Remedial Investigation/Feasibility*, *supra* note 5;

⁴⁵ *Id.*

⁴⁶ *Pinecastle Jeep Range: Site Summary*, *supra* note 36.

A. SITE INSPECTION

Per CERCLA, the Army's first step involved a Preliminary Assessment and Site Inspection to make an initial assessment of the locations and levels of danger in the Pinecastle Jeep Range. The Final Report for this initial Site Inspection would not be completed until July of 2007.⁴⁷ At that time, the Army Corps held a public meeting, at which it officially announced that UXOs, had been found on the Mockingbird property immediately adjacent to Odyssey Middle School. The Corps had retained an explosives team from nearby Patrick Air Force Base to safely remove the ordnances. This initial action, understandably focused on securing the safety of the school, involved temporarily shutting down the school and fencing off the property to all but removal personnel. Additionally, the Army was convinced that hazards were sufficient to warrant a full Remedial Investigation and Feasibility Study.

B. REMEDIAL INVESTIGATION AND FEASIBILITY STUDY

By February of 2008, the Remedial Investigation and Feasibility Study, or RI/FS, commenced and Pinecastle Jeep Range was divided into study Areas A through H (a significant concentration of military remains were expected to be located Areas A, E and F).⁴⁸ The RI/FS involved soil and water sampling as well as a geophysical surveys of underground anomalies or irregularities which might indicate the presence of UXOs and other explosives of concern, known as "MECs," which might pose danger if accessible and sufficient force or energy were applied. In addition, the Army sought to identify if there were munitions constituents, or "MCs," which consist of any residue from explosives, metals, and other chemicals leaching from partially exploded munitions and detonations.⁴⁹ The Army sought to ascertain the boundaries of contamination by UXOs, MECs, and MCs, as well as the concentration and depth of the same in the various areas of study.⁵⁰ The

⁴⁷ *Update for Orange County, supra* note 4.

⁴⁸ *Remedial Investigation/Feasibility, supra* note 5; *Araico, supra* note 2, *Update for Orange County, supra* note 4.

⁴⁹ *Id.*

⁵⁰ *Id.*

Army sought to estimate the costs and time period involved in remediation of the site.⁵¹

While the study period was not intended for remediation, if UXOs or MECs or other hazards were uncovered during the study period, the Army did ensure such dangers were removed.⁵² At the conclusion of the RI/FS, the Army's analysis and report of the findings as well as recommendations for future remedial action would be issued to the public.⁵³ Conceptually, these recommendations would then be implemented in coordination with the Florida Department of Environmental Protection, local governments, and community members.⁵⁴

As an initial step in the RI/FS, the Army Corps needed to establish a plan to evaluate over 12,000 areas of the Pinecastle Jeep Range. In addition to determining how to evaluate such a massive area, the Army also needed to determine which tools and techniques for detection could be used on the Florida topography of uplands and wetlands.⁵⁵

To cover the massive area for investigation, the Corps established a sampling protocol which involved geophysical transects and grids to search for anomalies.⁵⁶ The initial investigatory transects were interspersed at 250 foot intervals across most of the PJR.⁵⁷ Where actual discovery of munitions occurred during the study, the areas near the discovery would be candidates for a narrower transect evaluation of 125 feet.⁵⁸ Discovery of munitions could also lead to smaller "mini-grids" where the Army might study the entire grid area, rather than just along transects.⁵⁹

⁵¹ *Id.*

⁵² U.S. Army Corps of Eng'rs., *Pinecastle Jeep Range: Remedial Investigation; Explanation of Dig Plan*, (last visited May 31, 2015), <http://www.saj.usace.army.mil/Media/FactSheets/FactSheetArticleView/tabid/6106/Article/480008/pinecastle-jeep-range-remedial-investigation-explanation-of-dig-plan.aspx> [hereinafter *Explanation of Dig Plan*].

⁵³ *Remedial Investigation/Feasibility*, supra note 5.

⁵⁴ *Id.*

⁵⁵ *Id.*

⁵⁶ *Id.* (explaining that the technologies for such evaluation varied dependent upon topography, included either Mag-and-Dig or Digital Geophysical Mapping (DGM)).

⁵⁷ *Update for Orange County*, supra note 4 (providing further details as to the specific spacing and areas of transects).

⁵⁸ *Remedial Investigation/Feasibility*, supra note 5.

⁵⁹ *Id.*

Unfortunately, there were inherent flaws and problems in this study methodology. The most obvious was the sheer size of Pinecastle, which caused massive spacing of unstudied areas between the transects. While some of the former military activities, like small arms practice, resulted in comparatively centralized and compact areas of contamination (i.e. spent bullets), the potential “fan” of the ground-to-air missiles and the dropped bombs was essentially all of the Pinecastle Jeep Range. Further adding to the scope of the “fan,” the former weapons training engaged inexperienced and unskilled pilots and soldiers whose skill at accurately hitting designated targets was not yet honed. Even some small arms training involved shotguns with extensive firing distance and therefore a wide berth of bullets and residue.⁶⁰ As such, the only way to ensure that every buried munition was recovered and removed would be to scan every square foot of the 12,000 acre range.

A further hurdle to the transect methodology resulted from the topography and development of property within the range. In the undeveloped areas of Pinecastle, wetland areas and thick native Florida vegetation, including large saw palmettos, made it nearly impossible to access all designated transect lines. While in developed areas of the range, concrete pads and other impermeable surfaces for buildings and roads, pipe and utility cables, rendered true adherence to the designated transects similarly difficult. As such, the transects could not be easily adhered to on the property.

In order to enhance workers ability to overcome the hurdles of topography and development, the Army’s methodology utilized two types of investigatory equipment. Certain areas were evaluated using hand held metal detectors in the so-called “mag and dig” process while other areas were scanned through more sophisticated digital geophysical mapping.⁶¹ Unfortunately, even with alternative methods, not all areas on the designated grid could be properly analyzed. As noted by the

⁶⁰ *Id.*

⁶¹ Letter from Jack Rintoul, Deputy Dist. Eng’r of the U.S. Army, to Frank Bilingsley, Dir. of the Econ. and Dev. Dept. of the City of Orlando, Jacksonville Dist. Corps of Eng’rs. (Aug. 7, 2009) (on file with the Jacksonville Dist. Corps of Eng’rs.) (Most wetlands and undeveloped lands were subject to limited excavations. Further, the protocol for use of the Digital Geophysical Mapping (DGM) searched for anomalies of 1 1/2 inch or larger to a depth of 18 inches below the surface. Where hand-held magnetometers were used, all metallic anomalies were recovered).

Army Corps, “there are no munitions investigation technologies that are 100 percent effective, and munitions investigations cannot be satisfactorily performed under existing structures such as pavement and houses.”⁶²

Another self-imposed restriction upon the Army’s RI/FS methodology was a limitation upon the amount of anomalies which would be recovered (or dug up) for further evaluation. Using historic records, particularly aerial maps of the military training exercises, the Army engineers focused on areas most likely to have remnants of munitions.⁶³ Additionally, areas where munitions had actually been recovered were subject to more exacting investigation.⁶⁴ Collectively deemed “Areas of Interest,” the residential areas which fell into these two categories were subject to an investigation at a “100 percent” level.⁶⁵ Designation at the 100 percent level did not mean that every square foot of the area would be surveyed, but rather where anomalies or military debris were detected during the survey transect review, 100 percent of these anomalies and military debris would be recovered and removed.⁶⁶

However, in residential areas where military records did not indicate training exercises had occurred or munitions were not discovered in the past, the level of investigation was only established at a “20 percent” level, which meant only 20 percent of indicted anomalies would be recovered for further study.⁶⁷ As such, even if survey activities revealed 100 underground anomalies, only 20 of them would be dug up to verify whether they were a hazard.⁶⁸ Additionally, further investigation of the anomalies would be undertaken only if those

⁶² Letter from Jack Rintoul, Deputy Dist. Eng’r of the Army to Frank Billingsley, Dir. of the Econ. Dev. Dept. of Orlando, Jacksonville Dist. Corps of Eng’rs (August 12, 2009) (on file with the Jacksonville Dist. Corps of Eng’rs.; *See also* Phillips & Zarrella, *supra* note 1 (Similarly, Mike Ornella with the Army Corps was quoted as stating “we’re never going to be 100 percent sure. We’re never going to give 100 percent guarantee that the properties are clear.”).

⁶³ *Explanation of Dig Plan*, *supra* note 52.

⁶⁴ *Id.*

⁶⁵ U.S. Army Corps of Eng’rs., *Pinecastle Jeep Range Remedial Investigation: Results and Recommendations*, (July 2010), http://www.occompt.com/dmdocuments/Res_2011-M-54.pdf [hereinafter *Results and Recommendations*].

⁶⁶ *Explanation of Dig Plan*, *supra* note 52.

⁶⁷ *Id.*

⁶⁸ *Id.*

anomalies were munitions.⁶⁹ Unfortunately, the level of investigation of the elementary school was 20 percent.⁷⁰

In addition to the larger anomalies studied in the RI/FS, the Army also reviewed small arms debris from practice areas throughout the site. The Army initially categorized this as a “negligible environmental (human health) hazard.”⁷¹ In addition to small arms training, the Army had also engaged in “live-fire demonstrations” of bombs, rocketry and gunnery power.⁷² This so-called “bomb circle area” where there was a “high likelihood that military munitions may be present” is utilized today as about 500 acres of residential neighborhoods. Fortunately, this acreage was included in the 100% recovery and investigation portion of the Army’s RI/FS.⁷³

C. TIME CRITICAL REMOVAL ACTIONS

Recognizing that the RI/FS process, and subsequent preparation of a plan of action could take months or years to prepare, the Army also engaged in Time Critical Removal Actions, or “TCRAs,” for certain areas which were known to have UXOs and other hazardous material.⁷⁴ Of particular concern was the Odyssey Middle School and the Mockingbird area where UXOs had already been discovered.⁷⁵ Approximately 130 live munitions with high explosives were found at Odyssey Middle School and 85 of the same were found on the

⁶⁹ *Id.*

⁷⁰ *Update for Orange County, supra* note 4.

⁷¹ *Explanation of Dig Plan, supra* note 52.

⁷² *Id.*

⁷³ *Id.*

⁷⁴ *Remedial Investigation/Feasibility, supra* note 5 (asserting that the Army Corps maintains protocol for the removal of Munitions and Explosives of Concern); *see also* U.S. Army Corps of Eng’rs., *Munitions and Explosives of Concern (MEC) Support During Hazardous, Toxic, and Radioactive Waste (HTRW) and Construction Activities*, (August 1, 2004), <http://asktop.net/wp/download/27/EP%2075-1-2%20Munitions%20and%20Explosives%20of%20Concern%20MEC%20Support%20During%20Hazardous%20Toxic%20and%20Radioactive%20Waste%20HTRW%20and%20Construction%20Activities.pdf> (providing the protocol for the removal of munitions and explosives).

⁷⁵ *Update for Orange County, supra* note 4; *Pinecastle Jeep Range Decision Document, supra* note 17.

Mockingbird property.⁷⁶ Shortly after initiating the TCRA's at Odyssey and Mockingbird, more UXO discoveries in the Tivoli Gardens and Warwick developments led to additional TCRA actions on these sites too.⁷⁷

After conclusion of the initial TCRA action at Odyssey Middle School, the Corps determined that "no immediate risk to students or staff" existed at the school and therefore it was allowed to reopen for the normal school year.⁷⁸ Additional remediation activity was postponed until the regularly scheduled Thanksgiving and winter breaks. This additional remediation resulted in excavation of approximately 14 tons of debris and over 125 munitions! Yet even after the conclusion of this extensive removal effort, a general contractor making repairs to the school unearthed another munitions fragment which still contained highly flammable white phosphorous residue.⁷⁹ Upon contact with oxygen, the munition combusted upon the unsuspecting contractor. The Army sought to downplay this unexpected hazard, asserting that there "was never a danger to the students." Yet, following this discovery, the Corps undertook more geophysical surveys at Odyssey and surrounding neighborhoods to locate and remove munitions and other military debris.⁸⁰

D. ARMY REMEDIATION PROPOSALS

After completion of the Remedial Investigation and Feasibility Study at Pinecastle, the Army Corps issued a Report on the Feasibility Study to publicly explain its opinion on options for remediation of Pinecastle.⁸¹ Issued in July of 2010, this report revealed that the Army had recovered 759 items of munitions debris and 24 live munitions or explosives, including rockets, bombs, high explosive shells, and

⁷⁶ *Id.* (noting that "School Property is safe in the absence of digging or other ground penetrating activities).

⁷⁷ *Id.* (contending that the TCRA action yielded a 23 pound "high explosive frag bomb," as well as two other UXOs, at Tivoli Gardens).

⁷⁸ *Id.*

⁷⁹ Phillips & Zarrella, *supra* note 1.

⁸⁰ *Remedial Investigation/Feasibility*, *supra* note 5 (providing that apart from dangerous munitions, military debris recovered included tinned rations and metal fences).

⁸¹ *Results and Recommendations*, *supra* note 65.

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chemical explosives.⁸² This Report stated that no hazardous munitions nor soil contamination was found in already developed residential areas.⁸³ However, the report did acknowledge that only a few of the residential areas were investigated to the 100 percent level and many of the neighborhoods had less than 50% investigation.⁸⁴

As a result, the Army Corps concluded only 2,500 acres of the 12,000-plus acre range were part of a “potentially impacted area” and subject to future remediation action.⁸⁵ However, this conclusion was dramatically different from the 1953 Army recommendation that only the southeast 500 acres of the range was safe to develop.⁸⁶ Therefore, the Army made no recommendation for any further study or remediation on approximately 10,000 acres of the site.

Of the 2,500 acres of potentially impacted area, the Army recommended it be divided into four “munitions response sites” or MRS.⁸⁷ These sites consisted of the Demonstration Range North, Demonstration Range South, Demonstration Range East and Remaining Area MRS. The Army’s recommendation of further action varied somewhat based upon the area designation.⁸⁸ The recommendations for Demonstration Ranges North and South included: 1) removal of munitions and any contaminated soil; 2) provision of “construction support” when properties within these areas were developed; 3) encourage the City of Orlando to maintain permitting restrictions in these areas; 4) conduct a public awareness campaign; and 5) “review the situation every five years.”⁸⁹ The recommendation for Demonstrative Range East was similar except that there was no recommendation for removal of munitions.⁹⁰ The Army recommended no action at all in the

⁸² *Id.*

⁸³ *Id.*

⁸⁴ *Id.* (noting occasionally property owners refused access to the Army for investigation or remediation and in those instances, such property was not part of the RI/FS).

⁸⁵ *Id.*

⁸⁶ Araico, *supra* note 2.

⁸⁷ *Remedial Investigation/Feasibility*, *supra* note 5.

⁸⁸ *Id.*

⁸⁹ *Id.*

⁹⁰ *Id.*

Remaining Area MRS.⁹¹ Areas subject to long-term monitoring were expected to be subject to such monitoring until 2036.⁹² These conclusions were memorialized by the Army Corps in a series of “Final Decision Documents” issued in 2011.⁹³

E. LOCAL GOVERNMENT INVOLVEMENT

Although much of the study and remediation was conducted by the Army Corps, local governments, the City of Orlando and Orange County, also became entangled in the public safety and response efforts for their citizens in the Pinecastle Jeep Range. While the Army Corps focused on location and removal of bombs, these local governments focused on the immediate threats to public safety.

In December of 2007, the Building Official of Orlando issued a “temporary halt” (commonly known as a “Stop Work Order”) on “construction projects within the former Pine Castle [sic] Jeep Range Formerly Used Defense Site ... and within the Bomb Target Study Area ... extending to the west of the Pine Castle [sic] FUDS site” or at least the portions of which were under the City’s jurisdiction.⁹⁴ In issuing such a halt to construction, the Building Official explained that the munitions already discovered, and uncertainty as to what further hazards lay underground, “presents an unacceptable hazard to construction workers, passerby, property owners, neighboring property owners, and the general public.”⁹⁵

New houses, roads, pools, or any other development activity could not be undertaken within the range of the City’s Stop Work Order.⁹⁶ Fifty-seven projects which were already under construction at the time of the Stop Work Order had to come to an immediate halt.⁹⁷ As a result of munitions and other hazardous explosives being located as little as

⁹¹ *Id.*

⁹² *Update for Orange County, supra* note 4.

⁹³ U.S. Army Corps of Eng’rs., *Final Decision Document: Demonstration Range (East) MRS Former Pinecastle Jeep Range*, (June 2011) (on file at the Orlando Public Library Southeast Branch).

⁹⁴ Memorandum from Thomas Hite Bldg. Official, to Tim Johnson Manager of the Permitting Servs. Divs. of Orlando (Dec. 6, 2007) (on file with the City of Orlando and the author).

⁹⁵ *Id.*

⁹⁶ *Id.*

⁹⁷ *Id.*

four inches under the soil, even digging holes for fencing or landscaping were prohibited under the Stop Work Order.⁹⁸ This Stop Work Order remained in effect for over two years.⁹⁹ In January of 2010, the City revised the order to exempt certain geographic areas (areas which were designated by the Army Corps as “No Further Action Indicated”) from the restrictions of the stop-work order.¹⁰⁰ The remainder of areas of City jurisdiction in the Range remained subject to the Stop Work Order with certain additional notification requirements.¹⁰¹

Other areas of the Pinecastle Jeep Range were located within the jurisdiction of unincorporated Orange County (and Orange County Government operated a landfill in the midst of the FUDS) and the Orange County Board of County Commissioners was also involved in remediation activities.¹⁰² Rather than a Stop Work Order across the entire unincorporated area of Pinecastle Jeep Range, the County passed a series of resolutions which reserved to County Government (and delegated to its Building Official) the right to require additional land studies prior to issuing permits for any land disturbances within the Pinecastle area.¹⁰³ These reports had to include a certification from a licensed or certified geophysical contractor or munitions contractor, using munitions detection equipment such as ground penetrating magnetometry, electromagnetic induction, radar, sonar, or equivalent technology done in coordination with the Army Corps investigation, stating that “the site has been thoroughly inspected and examined and that no unexploded munitions have been found to exist, or if found to exist have been removed from the site.”¹⁰⁴ Such limitation extended not just to large-scale construction activities, but even laying of concrete

⁹⁸ *Remedial Investigation/Feasibility*, *supra* note 5.

⁹⁹ Memorandum from Tim Johnson Bldg. Official, to Frank Bilingsley Dir. of the Econ. Dev. Depart. of Orlando (Jan. 12, 2010) (on file with the City of Orlando and the author).

¹⁰⁰ *Id.*

¹⁰¹ *Id.*

¹⁰² *Pinecastle Jeep Range Resolution: Board of County Commissioners Discussion Item*, (Nov. 29, 2011), <https://www.occompt.com/attachments/article/4005/2011-11-29%20Discussion%20Resolution%20Pinecastle%20Jeep%20Range.ppt>

¹⁰³ Orange Cnty. Bd. Of Cnty. Comm’rs. 2008-M-11, 2008 (Fla. 2008); Orange Cnty. Bd. Of Cnty. Comm’rs. 2011-M-54, 2011 (Fla. 2011).

¹⁰⁴ *Id.*

slabs, pools, and in-ground irrigation systems.¹⁰⁵ It is estimated that the Army Corp spent over \$10 million to clean the property (some of this money from the Superfund of CERCLA) although the property is not truly clear of the munitions and other military debris.¹⁰⁶

IV. REMAINING EFFECTS ON THE HUMAN AND NATURAL ENVIRONMENT

The Army has completed the tasks it was obligated to complete under CERCLA (and great political pressure) and moved on to other projects across the country.¹⁰⁷ Yet by its own admission, the protocols used to clear the hazards had a far-from-certain likelihood of finding and removing all buried hazards.¹⁰⁸ In fact, such unwelcome discoveries have already occurred. In July of 2013, more live munitions were found at Odyssey Middle School, leading to renewed investigations at the school as well as two nearby neighborhoods.¹⁰⁹ This further evidenced an institutional understanding that munitions and explosives could still lurk beneath the ground; both Orange County and the City of Orlando keep unique construction restrictions in place in most of the former Pinecastle Jeep Range. But life goes on for the residents who live in these communities and developers continue to initiate new residential construction in the area.¹¹⁰

¹⁰⁵ *Id.*

¹⁰⁶ *400 Live Bombs Later*, supra note 3.

¹⁰⁷ Memorandum to Buddy Dyer Mayor of Orlando, Phil Diamond District 1 Comm'r., Betty T. Wyman District 2 Comm'r., Robert F. Stuart District 3 Comm'r., Patty Sheehan District 4 Comm'r., Daisy W. Lynum District 5 Comm'r., Samuel B. Ings District 6 Comm'r., to Frank Bilingsley Dir. of the Econ. Dev. Dept. (Dec. 6, 2007) (providing that Local residents solicited support not just from local government officials, but also its representative Congressional delegation).

¹⁰⁸ Memorandum from Tim Johnson Bldg. Official, to Frank Bilingsley Dir. of the Econ. Dev. Dept. of Orlando (Jan. 12, 2010) (on file with the City of Orlando and the author).

¹⁰⁹ *400 Live Bombs Later*, supra note 3 (Noting that the reasons Odyssey Middle School is the site of so many discoveries is because the Army practice was to bury leftover munitions in a covered ditch, apparently where Odyssey Middle School was subsequently built).

¹¹⁰ *See Developer wants to build on old Lee Vista bomb range*, Wftv.com (Nov. 2, 2012), <http://www.wftv.com/news/news/local/developer-wants-build-old-lee-vista-bomb-range/nSwS6/> (noting that the county was considering modifying the ordinance that prevented future developments in Pinecastle Jeep Range to allow the development of an apartment complex, which will be called Beltway Commerce Center).

The local middle and elementary schools continue to operate, as do the fire station and landfill. There are no current evacuations of any private or public facilities and many areas are cleared now to pull building permits without any extra investigation or study.¹¹¹ In areas where additional studies are needed, the construction community is well-aware of such requirements and how to conduct and complete such studies in the most efficient manner. Unfortunately, bombs continue to be discovered in the area.¹¹²

Yet, property values in these communities continue to lag well behind other areas of Orlando. In the core of the City of Orlando, residential values range from \$113 to \$218 per residential square foot.¹¹³ A similarly situated, suburban development in Orlando with significant build-out in the early 2000s, known as Lake Nona, is a few miles to the south of the Pinecastle Jeep Range. Review of average price for residential square footage in Lake Nona indicates a price of \$156 to \$222. However, the 32829 zip code primarily consist of residential homes in the Pinecastle Jeep Range, and residential square footage estimates come in at only \$100. \$100 per square foot is notably less than

¹¹¹ Memorandum from Tim Johnson Bldg. Official, to Frank Bilingsley Dir. of the Econ. Dev. Depart. of Orlando, *supra* note 99 (noting that the stop work order does not apply to: (1) “the area north of Lee Vista Blvd. and west of SR 417 (but not within the Lee Vista Blvd. right-of-way)”; (2) “the area east of 417 within Section 17, Township 23, Range 31”; and (3) “The area south of SR 528 (Beach Line Expressway).”).

¹¹² See Lauren Roth, *More munitions discovered, blown up at Odyssey Middle*, ORLANDO SENTINEL, July 15, 2013, http://articles.orlandosentinel.com/2013-07-15/features/os-odyssey-bombing-range-demolition-20130715_1_u-s-army-corps-munitions-pinecastle-range (noting that more bombs were discovered at Odyssey Middle School in 2013 but nobody was injured); see also Erica Rodriguez, *Metal-detecting helicopter helps Navy clean up Ocala National Forest bombing range*, Orlando Sentinel, Mar. 23, 2015, http://articles.orlandosentinel.com/2014-03-23/news/os-metal-detecting-helicopters-20140323_1_pinecastle-bombing-range-metal-detector-ocala-national-forest (noting that the Navy performed a routine cleanup of the Ocala National Forest, located in what was formerly known as Pinecastle Jeep Range and the Navy found bombs and other debris).

¹¹³ *Orlando, Real Estate Overview*, trulia.com (last visited Apr. 13, 2015), http://www.trulia.com/real_estate/32801-Orlando/; *Orlando Home Prices & Values*, Zillow.com (last visited Apr. 13, 2015), <http://www.zillow.com/orlando-fl/home-values/>.

homes in central Orlando, and far less than homes in the similarly situated suburban Lake Nona community.¹¹⁴

Similarly, in an informal, random sampling of twenty homes scattered around the former Jeep Range also indicated dramatic decreases in property values based upon homes sales prior to discovery of the first UXO in 2007 and sales thereafter. Of the twenty homes sampled, twelve had sold at least once before the ordnance discovery and once after discovery. Of those twelve, ten sales reflected losses in value ranging from \$80,000 to \$188,000 with nearly all losing 50% or more of their prior value.

There are some, slight, encouraging signs however. First, the real estate housing slump which affected all of Orlando official ended in 2014.¹¹⁵ Second, online real estate information centers, Trulia and Zillow, are in agreement that property values within the Pinecastle area will rise next year, perhaps not at a rapid rate but at least at a steady one.¹¹⁶ Finally, in the author's own informal review of property values, the two most recent sales in the study both reflected increases over the property values before the discovery of UXOs: one home with a modest increase of \$4,000 and the other a significant increase of \$53,000!¹¹⁷

¹¹⁴ *Orlando Home Prices & Values*, *supra* note 113 (The median home value in 32,829 is \$179,300. 32829 home values have gone up 8.6% over the past year and Zillow predicts they will rise 3.0% within the next year. The median list price per square foot in 32,829 is \$100, which is lower than the Orlando Metro average of \$108. The median price of homes currently listed in 32,829 is \$179,900 while the median price of homes that sold is \$191,585. The median rent price in 32,829 is \$1,275, which is higher than the Orlando Metro median of \$1,210. With U.S. home values having fallen by more than 20% nationally from their peak in 2007 until their trough in late 2011, many homeowners are now underwater on their mortgages, meaning they owe more than their home is worth. The percent of 32,829 homeowners underwater on their mortgage is 24.5%, which is higher than Orlando Metro at 20.9%.

¹¹⁵ *Florida Economic Outlook*, *supra* note 41.

¹¹⁶ *Orlando, Real Estate Overview*, *supra* note 113; *Orlando Home Prices & Values*, *supra* note 114.

¹¹⁷ ORANGE COUNTY PROPERTY APPRAISER (last visited June 1, 2015), <http://www.ocpafl.org> (Twenty houses were randomly selected by a colleague of the author who was not advised of the purpose of the sampling. Information for each property was culled from the Orange County Property Appraiser on April 13, 2015. These records revealed that eight of the properties randomly selected had not sold since 2007, two indicated an increased value as described above, and the remaining 13 suffered dramatic property devaluations: four properties losing more than \$150,000, two properties losing between \$100,000 and \$150,000, and the remaining four losing between \$80,000 and \$100,000.).

Both of these homes were generally located in the Vista Lakes area, one of the significantly stigmatized communities.

While the stigma of property located within a formerly used defense site had a dramatic affect on property values, there is some hope on the horizon. However, the stigma cannot be completely erased until the public is assured that every foot of the affected areas have been fully investigated and cleared. Florida law requires sellers to act in good faith and provide information to potential buyers of all known conditions which substantially affect the value of the property prior to closing.¹¹⁸ Further, every time a new ordnance is discovered, such as the event in 2013, news of the hazards and renewed concerns with the property is splashed across local newspapers and airwaves.

It would seem that the best way to overcome the stigma and fears in the real estate market regarding the former use of these properties is to engage in 100 percent recovery action of any and all anomalies under the surface. Unfortunately, the Army Corps has completed its work, at least until such time as another UXO is discovered. Thus, it falls to the private property owners to retain private, certified or licensed geophysical contractors or other munitions contractors, to fully remediate the properties.

Some property owners have also banded together to file class action lawsuits in State and federal court against former property owners and developers, such as Lennar Homes, American Newland Communities¹¹⁹, Terragon Development¹²⁰, Taylor Morrison, K.Hovanian American Mortgage¹²¹, and Terrabrook. These lawsuits resulted in limited success (if measured in individual damage awards) for the community. The

¹¹⁸ *Johnson v. Davis*, 480 So. 2d 625, 629 (Fla. 1985) (The author notes that this case has been interpreted to require the disclosure of environmental hazards and legal actions under Florida law).

¹¹⁹ See e.g., *Axis Specialty Ins. Co. v. Am. Newland Comty. L.P.*, No. 6:11-cv-00762, 2011 WL 7969586, at *1 (M.D.Fla. Aug. 26, 2011) (noting American Newland has also been sued by property insurance carrier, Axis Specialty Ins. Co.).

¹²⁰ See *Rodriguez v. Tarragon Corp.*, No. 2008-CA-016343-O, (Fla. Cir. Ct. May 22, 2013) (contending that Tarragon, Newland Communities, and Terrabrook were included as defendants).

¹²¹ See *Beard v. Hovanian Enter. Inc.*, 2008-CA-008228-O (Fla. Cir. Ct. Aug. 16, 2013) (noting that defendants included Hovnanian entities, Newland Communities, and Terrabrook entities).

named plaintiffs tend to earn a bit more than the remainder of the class, but most plaintiffs walk away from the suits with less than \$10,000 while, as described above, losses in property value often far exceeded such amount.¹²² The statute of limitations periods for such lawsuits have not yet run and therefore more homeowner lawsuits may yet be filed.¹²³

Even governments have gotten involved in legal actions resultant from this debacle including: (1) lawsuits by Orange County Public Schools against consultants who failed to identify the risks at Odyssey Middle School; (2) a suit by homeowner Lennar against the U.S. Army; (3) and formal complaints by development interests against the City of Orlando regarding the stop work order.

V. CONCLUSION: LESSONS FOR THE FUTURE

Hindsight is always 20/20 and casting blame upon the U.S. Army for activities which occurred almost seventy years ago may not accomplish much other than to embarrass the military. However, it is hoped that the Army may learn from the public outcry and subsequent political pressure from this debacle, and others across the county, that it cannot bombard lands and waters with dangerous military debris and then abandon the areas without proper remediation or assurance that future development will be curtailed. Further, it is hoped that today's environmental regulations, such as the National Environmental Policy Act (NEPA) and CERCLA, would also serve to discourage the military's prior laissez-faire attitude toward creating and abandoning such environmental hazards.

However, for those local governments and communities living within one of the 9,000 other FUDS across our country, it is important to hold the military responsible for the full investigation and remediation of these hazardous sites. As noted by Orlando Mayor Buddy Dyer, "We

¹²² Eloísa Ruano González, *Homeowners near former bombing range settle suit for \$1.2 million*, ORLANDO SENTINEL, Feb. 17, 2011, http://articles.orlandosentinel.com/2011-02-17/news/os-bombing-range-lawsuit-southeast-or20110216_1_bombing-range-pinecastle-jeep-range-bombs-and-munitions-debris (In a Class Action lawsuit between Newport residents and The Ryland Group, Inc. filed in April of 2008 settled in February of 2011 for 1.2 Million. This was split among 118 plaintiffs based upon property's proximity to the range, purchase price, and decline in market value. Primary plaintiffs were awards will rate from \$1,000 to \$25,000).

¹²³ FLA. STAT. § 95.11 (2014) (noting the statute of limitations is 5 years).

have to make sure that the federal government, who has the ability to right this wrong, does so.”¹²⁴ The fight for 100 percent investigation, at least in areas not physically blocked by houses or roads, is warranted. Such an expense will not be undertaken lightly by the Army and so federal political pressure, in the form of a congressional delegation, may be necessary. However, human and environmental health are worth the effort.

Although, if after best efforts from the community, the Army will not provide and fund such investigation, local private coalitions should be formed to fund and organize private remediation actions. Local private coalitions can secure technical or financial assistance from local governments. If direct funding assistance from local governments is not available, financial tools such as special assessments, community development district taxation, tax deferments, or other similar financial mechanisms which may enable the private coalition to garner sufficient funds to accomplish remediation.¹²⁵

However, allowing unknown buried hazards to lie in the ground, leaching into soil and water and posing an ever-present threat to human safety, fails to protect the soil and water resources, human health, or property values. Therefore, all efforts should be made by citizens and their representatives to gain the security that zero military hazards are left under the surface.

¹²⁴ Phillips & Zarrella, *supra* note 1.

¹²⁵ Mechanisms such as special assessments and community development district taxation enable the local government to secure immediate bond financing to pay for remediation costs, while ensuring that such bonds are repaid by the affected properties over a 10, 20 or even 30 year period. Such government bonds can usually generate greater initial capital, at a lower rate of interest, than private funding would secure. Alternatively, tax exemption or deferments would be used an off-set of the costs for private property owners to remediate the property. Alternatively, tax exemptions usually require proof that the property owner engaged certain services at their own expense, in this case munition investigation and recovery, and then allow such property owner exemption from part or all of their property taxes for a certain period of time, usually less than ten years.