HEADQUARTERS, DEPARTMENT OF THE ARMY
REPORT TO CONGRESS

Feasibility to Reuse the Blue Grass Chemical Agent-Destruction Pilot Plant and Blue Grass Army Depot Infrastructure

August 2023

Preparation of this brief, including government and contractor resources, cost the Department of Defense a total of $725,856.66 in Fiscal Year 2023.

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Appendix

Executive Summary

As directed by the National Defense Authorization Act for Fiscal Year 2023, the purpose of this study is to assess missions, plants, and industries feasible for Army or Department of Defense requirements at the Blue Grass Chemical Agent-Destruction Pilot Plant (BGCAPP) located at the Blue Grass Army Depot (BGAD) in Richmond, KY, following remediation and demolition of the facility. All five directives from the NDAA (see *Purpose*) are covered through this feasibility study.

The primary focus of the feasibility study is the BGCAPP. Due to significant related impacts, and at the request of Senator McConnell's office, the study scope also includes BGCA and portions of BGAD. Information and data informing this study was gathered and analyzed over a six-week period. During this time interviews with stakeholders from the DoD, Department of the Army, and the Blue Grass community; outreach to industry; on-site assessment and engagement with leadership and subject matter experts from BGCAPP, BGCA, and BGAD; and review of documents, specifications, plans, and studies were completed.

Public Law 99-145, passed in 1986, requires facilities used to destroy the U.S. unitary chemical weapons stockpile to be cleaned, dismantled, and disposed of. The study team was focused on identifying reuse opportunities that, within the constraints of law, policy, and regulation, would best serve Army, DoD, and National objectives, and strengthen the overall health of the Defense Industrial Base.

Key findings from the study include: 1) there are 54 facilities totaling nearly 200,000 square feet of space that are highly feasible for reuse, and another 37 facilities, totaling approximately 700,000 square feet, with lesser degrees of reuse feasibility across BGAD; 2) repurposing the BGCAPP site and/or facilities may impact the BGAD explosive arcs and could result in loss of depot explosive storage capacity; 3) most of the impacted BGCAPP, BGCA, and BGAD employees will be released from their jobs well ahead of, in some cases years before, BGCAPP facilities become available; and 4) the workforce supporting BGCAPP operations is highly skilled, and the unemployment rate in Madison County, KY is low.

The study team identified and analyzed 14 opportunities for reuse of facilities at BGAD, and found five to be most promising, three of which have strategic importance and align with the purpose of the Organic Industrial Base, while the other two may contribute meaningfully to the economic health of BGAD and the local community and provide meaningful value to Army customers. These opportunities are:

- Establish a production capability for metal shipping containers on BGAD to help mitigate strategic risks from extreme levels of foreign supplier dependency
- Establish a production capability on BGAD for chemicals critical to the defense industry
- Locate the planned production capability for 155mm artillery munitions metal components on BGAD to add capacity and resiliency to the organic munitions industrial base
- Expand BGAD's current security guard training program and stand up a security guard training academy on BGAD to serve the entire AOIB, and potentially other Army installations
- Collaborate with Army National Guard on a centralized Army regional security monitoring center

BGAD has existing facilities and infrastructure to repurpose and sufficient space to support executing on all five of these opportunities simultaneously, if directed to do so. This study will serve as an input to upcoming industry days at BGAD that may identify additional opportunities to reuse or repurpose the facilities at BGAD. (Update: Industry Days were successfully executed on 27-28 Jun 2023)

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Purpose of this Study

The purpose of this study is to assess the feasibility and potential for reuse of the Blue Grass Chemical Agent-Destruction Pilot Plant (BGCAPP) located on Blue Grass Army Depot (BGAD) in Richmond, KY. Planning and development of the BGCAPP facility began in 2003 to enable the destruction of chemical weapons and agents in accordance with the Chemical Weapons Convention (CWC) that was ratified by the United States in 1997.

BGCAPP completed its mission to destroy the chemical weapons stored at BGAD on July 7, 2023. Planned follow-on activities at the site, which include processing secondary wastes, cleaning and dismantling the facilities, and completing administrative actions related to environmental permits, are currently expected to be completed no earlier than the latter half of 2027.

BGCAPP represents a $2 billion investment by the U.S. Government and taxpayer, which includes the cost of roads, access and security, facilities and equipment, and services and utilities.[1] With the upcoming completion of the chemical munitions destruction mission and remediation of the BGCAPP facilities and site, the Government wishes to understand the potential for reuse of the BGCAPP facilities, infrastructure, and/or site.

The National Defense Authorization Act (NDAA) for Fiscal Year 2023 directed the completion of a feasibility study to assess potential reuse of the Blue Grass Chemical Agent-Destruction Pilot Plant through the accompanying Joint Explanatory statement. Text from the relevant section from the NDAA follows:[2]

> *We direct the Secretary of Defense, in consultation with the Secretary of the Army, to conduct a feasibility study to assess potential missions, plants, or industries feasible for Army or Department of Defense needs at the Blue Grass Chemical Agent-Destruction Pilot Plant following the demolition and remediation of the Blue Grass Chemical Agent-Destruction Pilot Plant located at the Blue Grass Army Depot in Richmond, Kentucky, and report the findings of that study to the congressional defense committees by not later than March 1, 2023. The study shall include:*
>
> *(1) Identification of any buildings and infrastructure in the Blue Grass Chemical Agent-Destruction Pilot Plant that could remain for future Army or Department of Defense use;*
> *(2) Cost savings associated with repurposing existing infrastructure for Army or Department of Defense purposes;*
> *(3) Opportunities to fulfill requirements for defense Organic Industrial Base operations;*
> *(4) Opportunities to fulfill requirements of Army Materiel Command strategic planning, including ammunition production; and*
> *(5) Opportunities to fulfill Army or Department of Defense modernization requirements.*

The Blue Grass Army Depot is an important part of the OIB and a meaningful contributor to the local economy. In addition to providing host-site services to BGCAPP, it actively supports the storage, receipt, inspection, issue, maintenance, and demilitarization of conventional munitions, and other assigned missions. BGAD employs nearly 600 people with a payroll of $72M in 2022.[3] BGCAPP currently employs

nearly 1,500 people and the chemical munitions destruction mission has contributed more than $1 billion in local payrolls since 2006. Blue Grass Chemical Activity (BGCA) employs over 160 people. Congressman Andy Barr, representing the Kentucky Sixth District, said, “The Blue Grass Army Depot isn’t just the home of an important chemical demilitarization project, it is a key component of Madison County’s economic engine. Kentuckians working at BGAD have proven that they can tackle the most complex challenges facing our military and deserve the opportunity to expand their capabilities.”[4]

The U.S. Government and taxpayer have made a major investment in developing the capabilities to safely destroy the chemical munitions stored at the Blue Grass Army Depot. The goal of this feasibility study is to identify the best opportunities to repurpose or reuse the BGCAPP facilities in a way that is most beneficial to the Nation, the Department of Defense, and/or the U.S. Army.

Scope and Objectives of this Study

The Office of the Secretary of Defense assigned responsibility for completing this feasibility study to the U.S. Army Materiel Command (AMC). AMC delegated responsibility for conducting this study and preparing the draft report to the Joint Munitions Command (JMC), which is the headquarters organization overseeing the BGAD. JMC contracted Wilson Perumal & Company, Inc. (WP&C), an independent consulting firm with extensive experience with AMC, JMC, and the OIB to develop the study methodology, gather information and data, perform required analyses, and draft this feasibility study report. An Integrated Project Team (IPT) with members from AMC, JMC, and WP&C worked together over a period of six weeks to conduct the feasibility study, and this study report is the output of their collaborative work.

Although the primary scope of the feasibility study is the BGCAPP (as described in the NDAA), there are significant related impacts on the BGCA and BGAD organizations caused by the completion of the chemical munitions destruction mission and the remediation and demolition of the BGCAPP facilities. Further, other existing BGAD facilities and capabilities may enhance the potential for reuse of the BGCAPP facilities located on BGAD. Additionally, guidance was provided by both AMC leadership and the Office of the Chief, Legislative Liaison to look across relevant BGCA and BGAD facilities.

Therefore, the scope of this study includes not only BGCAPP, but also BGCA and portions of the BGAD organization and facilities as well. The total scope of this feasibility study includes:

- All facilities (buildings and infrastructure) and workforce of BGCAPP
- All other facilities and workforce (including permanent, term, and contractor personnel) directly affected by or made available by the end of the BGCAPP chemical munitions destruction mission
- Other available or potentially available BGAD facilities that may enhance the potential for reuse of facilities made available by the completion of the BGCAPP chemical munitions destruction mission

Scope by organization is summarized in the two tables below:

FACILITIES:

Organization	In-Scope	Out-of-Scope
BGCAPP	All buildings and infrastructure (all located within the Chemical Limited Area (CLA))	None
BGCA	All buildings and infrastructure (includes buildings in the CLA, restricted area, and in the administrative area)	None
BGAD	Selected buildings and infrastructure that are currently available or could be made available to support opportunities evaluated by this study	Buildings and infrastructure not available or not useful to support opportunities evaluated in this study

WORKFORCE:

Organization	In-Scope	Out-of-Scope
BGCAPP	All personnel (includes permanent and contractor personnel impacted by the end of the chemical munitions destruction mission)	None
BGCA	All personnel (includes personnel impacted by the end of BGCA's mission to support BGCAPP operations; all are currently permanent personnel)	None
BGAD	Personnel that directly support the chemical munitions destruction mission (all are term personnel)	BGAD personnel that are not impacted by the end of the chemical munitions destruction mission

Given the purpose and scope of this feasibility study, the specific objectives of this study are to:

- Determine which buildings and infrastructure at the BGCAPP facility are feasible to remain for current or future Army or DoD use
- Identify potential opportunities to reuse or repurpose existing BGCAPP, BGCA, and/or BGAD buildings and infrastructure that could include government uses, Public Private Partnership (P3) opportunities, or hybrid government/contractor shared work scenarios
- Evaluate identified opportunities to fulfill requirements for defense Organic Industrial Base operations, AMC planning requirements (including ammunition production), or Army or DoD modernization requirements
- Identify zones of opportunity (by industry, product, and/or service) that may be a fit for the existing BGCAPP facility and/or workforce
- Estimate the cost savings or cost avoidance that may be realized by repurposing existing facilities and infrastructure for Army or DoD use
- Estimate the economic impact to the region and state of the projected sunset of the chemical munitions destruction mission onboard BGAD
- Determine the annual sustainment costs for the remaining infrastructure/buildings (i.e., the real property that will not be demolished) within chemical weapons destruction complex
- Research and document potential environmental constraints including issues associated with and/or permits required for the reuse of the facility by government or commercial contractors

As an input to this feasibility study, the IPT conducted onsite observations and assessments of buildings, infrastructure, and equipment at BGAD, BGCA, and BGCAPP; interviewed more than 100 subject matter experts, leaders, and stakeholders from numerous organizations (including AMC, ASA(ALT), BGAD, BGCA, Bluegrass Area Development District, DoD, JMC, PEO ACWA, CMA, and commercial companies); and reviewed more than 110 documents, reports, and data sources. To explore opportunities to bring new missions to BGAD, the IPT prepared and sent a survey of interest to 48 government leads, interviewed 35 individuals, organized a BGAD industry day to surface potential opportunities, and developed comprehensive site assessment and opportunity evaluation methodologies and conducted thorough analysis of both the site and identified opportunities.

Stakeholder Organizations

Numerous stakeholder organizations were identified during the execution of the feasibility study. The stakeholder organizations highlighted below are those that are directly impacted by the end of the chemical munitions destruction mission onboard BGAD or those that were identified by Army leaders at AMC and JMC as being most likely to have potential needs or opportunities that may use/repurpose the in-scope facilities and workforce.

Assistant Secretary of the Army (Acquisitions, Logistics, and Technology) (ASA (ALT))

- Continuously modernizes the U.S. Army through the timely development and delivery of overmatch capability to deter adversaries and win our Nation's wars.[6]
- Serves as a key partner to AMC to enable the successful fielding and sustainment of Army systems and materiel.
- Higher Headquarters to the program executive offices (PEOs) that manage programs supported by facilities throughout the Army Organic Industrial Base.
- Has acquisition authority and program decision and execution authority

PEO Assembled Chemical Weapons Alternatives (PEO ACWA)

- Is responsible for the safe and environmentally compliant destruction of the remaining U.S. chemical weapons stockpile stored at the U.S. Army Pueblo Chemical Depot in Colorado and at the Blue Grass Army Depot in Kentucky.[5]
- Provides oversight of BGCAPP and the chemical munitions destruction mission.

Joint Program Executive Office – Armaments and Ammunition (JPEO A&A)

- Develops, procures, and fields lethal armaments and ammunition providing Joint warfighters and Allied Partners overmatch capabilities.[6]
- Serves as a key partner to AMC and JMC to enable the successful fielding and sustainment of armament and ammunition.
- Manages programs supported by JMC's OIB facilities.
- Has acquisition authority and program decision and execution authority

Army Materiel Command (AMC)

- Assigned responsibility for completing the feasibility study by the Office of Secretary Defense.
- Delivers precision sustainment and materiel readiness to an expeditionary global force from the Joint Strategic Support Area to the tactical point of contact across the spectrum of conflict in support of the joint force.[7]
- Is the Higher Headquarters responsible for JMC and the Army's Organic Industrial Base (OIB) facilities and execution of OIB modernization, upgrades, and annual workload plans.

Joint Munitions Command (JMC)

- Delegated responsibility by AMC to perform the Feasibility Study and draft the study report.
- Provides the Joint Force with ready, reliable, lethal munitions at the speed of war sustaining global readiness.[8]
- Is the Higher Headquarters responsible for BGAD and numerous other installations.
- Exercises tactical control over the U.S. Army Chemical Materials Activity.

U.S. Army Chemicals Materials Activity (CMA)

- Manages the Nation's stockpile of chemical weapons, assesses and destroys chemical warfare materiel, complies with chemical weapons treaty, and protects people and the environment.[9]
- Is the Headquarters entity for BGCA.

Blue Grass Army Depot (BGAD)

- Is the Army depot upon which the BGCAPP and BGCA facilities are located.
- Employs federal employees, some of whom support the chemical munitions destruction mission and others which support missions not related to BGCAPP.
- Is impacted by the sunset of the chemical munitions destruction mission with affected employees, buildings, and infrastructure.

Blue Grass Chemical Activity (BGCA)

- Supports delivery of chemical munitions to the BGCAPP for destruction while safely securing, storing, and monitoring the chemical stockpile to protect the workforce, the public, and the environment.[10]
- Employs federal employees, all of whom support the chemical munitions destruction mission at BGCAPP.
- Is assigned responsibility for buildings and infrastructure that are impacted by completion of the chemical munitions destruction mission at BGCAPP.

Blue Grass Chemical Agent-Destruction Pilot Plant (BGCAPP)

- Safely destroys the stockpile of chemical weapons stored at BGAD.
- Employs contractor personnel all of whom support the chemical munitions destruction mission at BGCAPP as well as a limited number of federal employees (PEO ACWA).
- Is assigned responsibility for buildings and infrastructure that are impacted by completion of the chemical munitions destruction mission at BGCAPP.

Community-, State-, and National-level Leaders

- Have active interests in the impacts (e.g., local and regional workforce and economic impacts) from completion of the chemical munitions destruction mission at BGAD.

PART 1

Background and Context

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1.1 – Chemical Destruction Mission History

The history of the Chemical Munitions Destruction Mission covers an approximately 50-year period beginning in the 1970s and continuing today. The destruction mission was formalized in 1972, chemical weapons destruction operations began in 1989, and are to be completed in 2023 in accordance with the Chemical Weapons Convention (CWC, officially the Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on their Destruction) to which the U.S. is a signatory.

The chemical destruction mission has directly impacted Blue Grass Army Depot and ultimately led to the establishment of the Blue Grass Chemical Agent-destruction Pilot Plant and Blue Grass Chemical Activity.

This section summarizes the key events, including organizational changes, law and treaty impacts, planning and development, and execution progress over three time periods (1970- 1999, 2000-2019, and 2020-today) and provides a historical summary of the U.S. chemical weapon destruction complex.

1.1.1 – 1970-1999: Origins of the Chemical DEMIL Mission

The chemical munitions destruction mission began in 1972 with the establishment of the AMC Program Manager (PM) for De-militarization of Chemical Material, a precursor to Chemical Materials Activity (see **Figure 1** on the next page), to begin incineration of chemical weapons. In 1986, Public Law 99-145 passed, requiring safe destruction of the U.S. unitary chemical weapons stockpile. The law also requires disposal facilities to be cleaned, dismantled, and disposed of.[11]

In addition to Public Law 99-145, the U.S. and Soviet Union signed an agreement in 1989 to destroy much of their chemical weapon stockpiles, which later culminated in an international treaty known as the Chemical Weapons Convention (CWC).[12]

Through the 1990s, additional laws and revisions were passed impacting the chemical mission. Ultimately, the U.S. ratified the CWC in 1997 through Public Law 104-208 and funded a new pilot program to identify and demonstrate destruction alternatives to incineration of the chemical munitions.

In 1992, the Army combined elements from the former U.S. Army Soldier and Biological Chemical Command and PM for Chemical Demilitarization to consolidate the Army's chemical

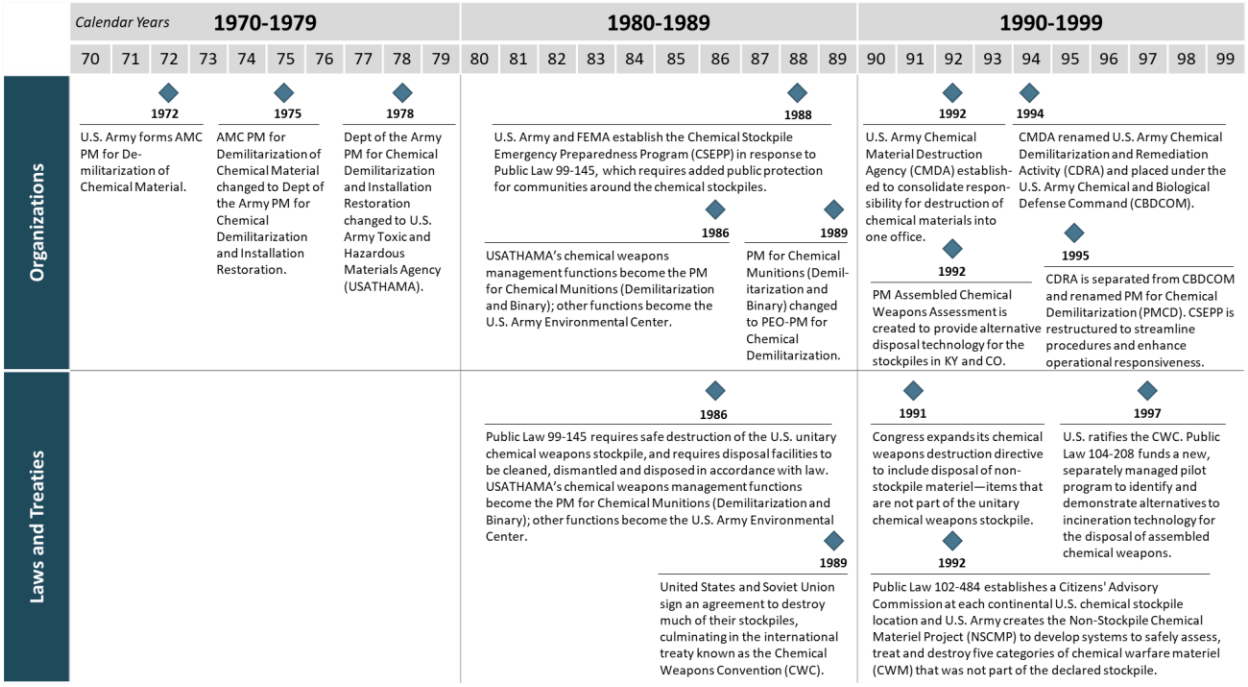

Figure 1: Chemical Munitions Destruction History Timeline 1970-1999. Precursors to present day Program Executive Office Assembled Chemical Weapons Alternatives and Chemical Materials Agency formed during this period and began the destruction of the chemical stockpile.

Agent, munitions storage, and demilitarization functions under a single organization named the U.S. Army Chemical Materials Agency (CMA). The same year, the Program Manager for Assembled Chemical Weapons Assessment (PM ACWA) was created to provide alternative disposal technology for the chemical weapons stockpiles in Kentucky and Colorado, an effort that would ultimately lead to the development, construction, and operation of BGCAPP.[13]

1.1.2 – 2000-2019: Further Planning and Development

In 2002, Public Law 107-248 assigned PM ACWA responsibility for the destruction of the remaining chemical weapons stored in Kentucky and Colorado (see **Figure 2**). Consequently, ACWA's name changed to Assembled Chemical Weapons Alternatives to reflect the change from an assessment program to implementation program.[11,12]

The planning and development process for BGCAPP began in 2003 with a contract awarded to the Bechtel Parsons Blue Grass JV to design, construct, pilot, test, operate, and ultimately close the facility. Groundbreaking began in 2006, with final design approval in 2010.
Construction of the facility and infrastructure continued over the next decade, with most of the buildings completed by 2019. Mission execution started that year with the destruction of mustard agent-filled munitions in the BGCAPP Static Detonation Chamber (SDC).[11,12]

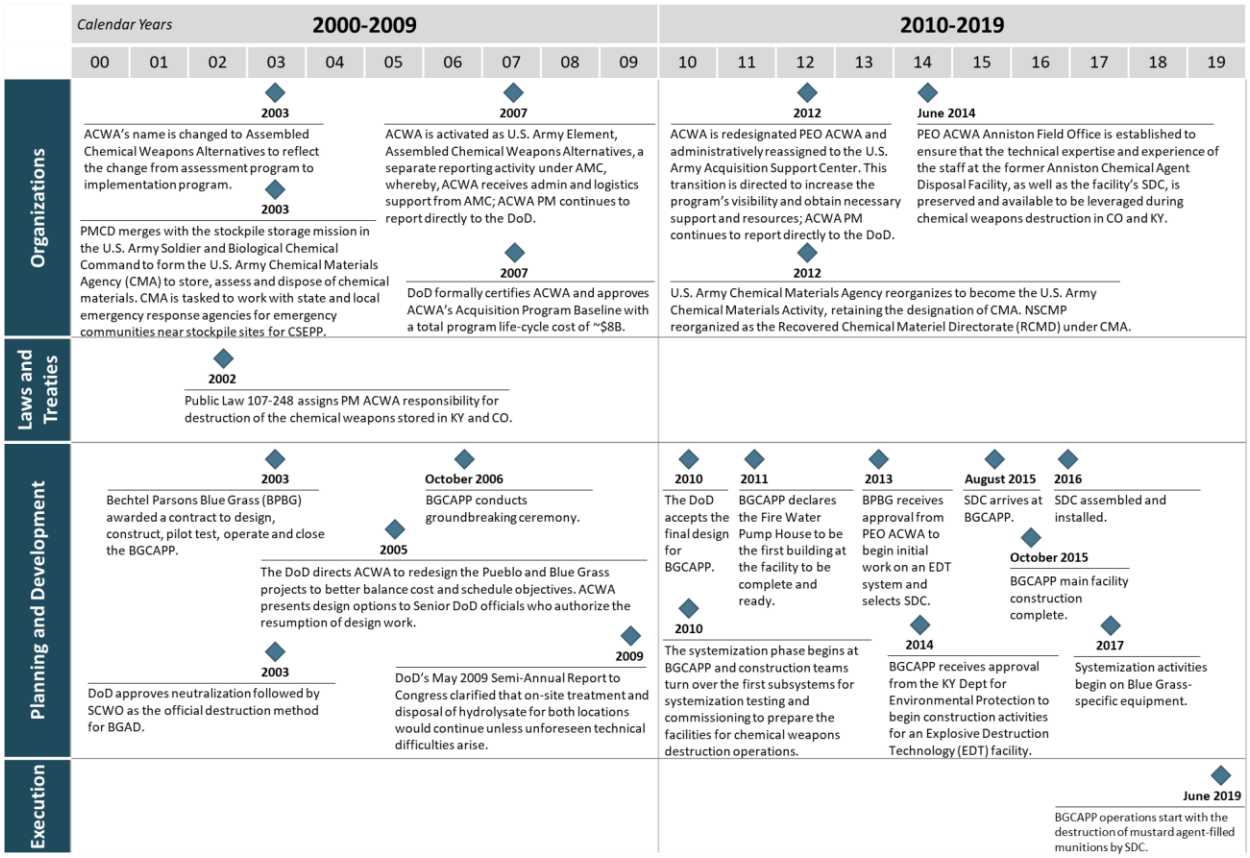

Figure 2: Chemical Munitions Destruction History Timeline 2000-2019. Design planning, construction, and operations begin at the Blue Grass Chemical Agent-destruction site during this period.

Organizational realignments continued throughout this period with PM ACWA redesignated as PEO ACWA and assigned to the U.S. Army Acquisition Support Center (ASC). Additionally, the U.S. Army Chemical Materials Agency reorganized to become the U.S. Army Chemical Materials Activity.[11,12,13]

1.1.3 – 2020-today: BGCAPP Execution of the Mission

Operations to execute the mission of destroying chemical munitions at BGCAPP quickly ramped up in 2020, beginning with the destruction of 8-inch projectiles filled with GB nerve agent (see **Figure 3** on the next page). In 2020, all 8-inch projectiles were destroyed, along with half of the mustard agent in the BGAD stockpile.[13]

By the end of 2021, all 155mm projectiles containing VX and mustard nerve agents had been destroyed, marking the removal of all mustard munitions and projectiles from the stockpile at BGAD. The remaining VX nerve agent was removed from the stockpile with destruction of M55 weapons completed in 2022. As of the writing of this report, BGCAPP's mission to

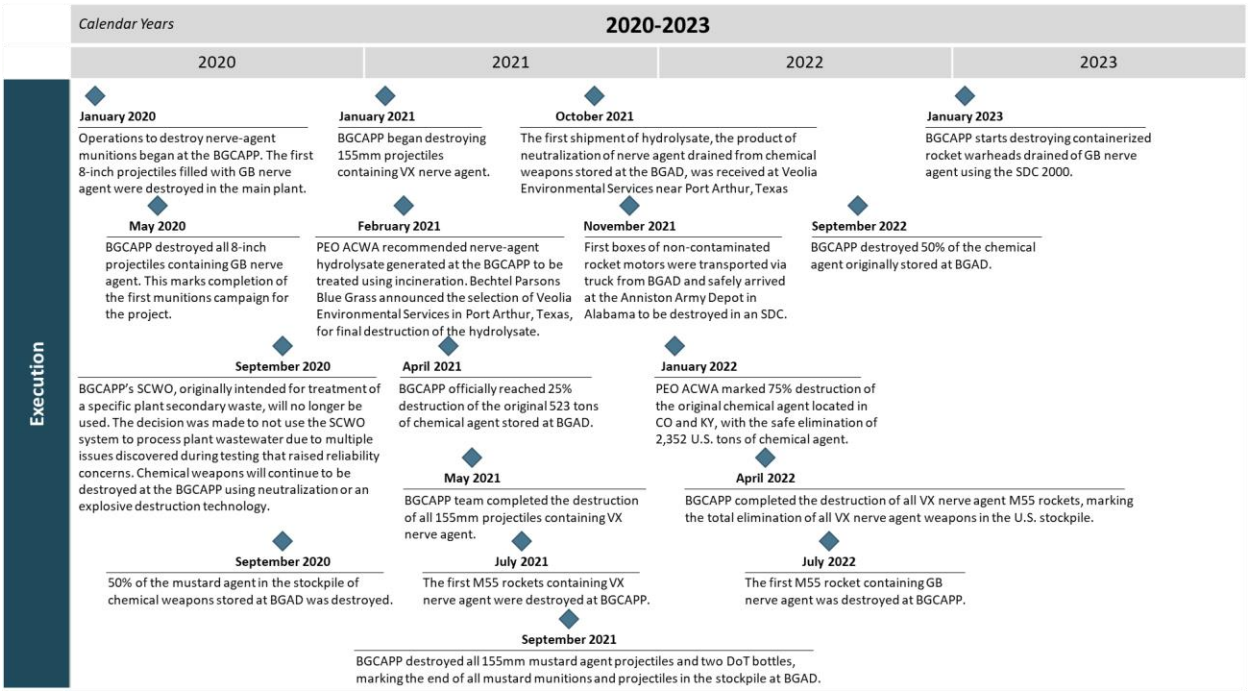

Figure 3: Chemical Munitions Destruction History Timeline 2020-2023. Operations to destroy chemical munitions ramp up, with more than 50% of the chemical agent originally stored at BGAD destroyed by September 2022.

destroy chemical munitions continues with the destruction of GB nerve agent. All processing of the chemical agents at BGCAPP was completed on July 7, 2023. However, use of the Static Detonation Chambers (SDCs) for processing of secondary waste is anticipated to continue until late 2024. The transition plan to complete waste processing operations, and subsequently decommission and dismantle the BGCAPP facility is detailed in *Section 1.4 – Transition Plans and Timelines*.[13]

1.1.4 – Chemical Weapon Destruction Sites

The US has disposed of chemical weapons across at least 11 different disposal sites (see **Figure 4**). Of these destruction sites, nine have completed operations, and only two remain in operation: the Pueblo Chemical Agent-Destruction Pilot Plant (PCAPP) on the U.S. Army Pueblo Chemical Depot in Colorado, and BGCAPP on BGAD in Kentucky, both of which use neutralization as a destruction alternative to incineration. Chemical munitions destruction operations at both PCAPP and BGCAPP were planned for completion by the CWC treaty commitment date of September 30, 2023. PCAPP completed destroying the Pueblo stockpile on June 22, 2023 and BGCAPP completed destroying the Blue Grass stockpile on July 7, 2023.

Status	Destruction Facility	Destruction Site	Location	Technology	Tons Declared	Start of Operations	Completion of Ops
INACTIVE	Chemical Agent Identification Sets Disposal Plant	Rocky Mountain Arsenal	Colorado	Incineration and Neutralization	7,000	1972	1976
INACTIVE	Chemical Agent Munitions Disposal System	Deseret Chemical Depot	Utah	Incineration	91	1979	1990
INACTIVE	Tooele Chemical Agent Disposal Facility	Deseret Chemical Depot	Utah	Incineration	13,361	1989	2012
INACTIVE	The Johnston Atoll Chemical Agent Disposal System	Johnston Atoll	Pacific Ocean	Incineration	705	1990	2000
INACTIVE	Aberdeen Chemical Agent Disposal Facility	Aberdeen Proving Ground	Maryland	Neutralization	1,622	2003	2006
INACTIVE	Anniston Chemical Agent Disposal Facility	Anniston Army Depot	Alabama	Incineration	2,254	2003	2011
INACTIVE	Umatilla Chemical Agent Disposal Facility	Umatilla Chemical Depot	Oregon	Incineration	3,720	2004	2011
INACTIVE	Newport Chemical Agent Disposal Facility	Newport Chemical Depot	Indiana	Neutralization	1,269	2005	2008
INACTIVE	Pine Bluff Chemical Agent Disposal Facility	Pine Bluff Arsenal	Arkansas	Incineration	3,851	2005	2010
ACTIVE	Pueblo Chemical Agent-Destruction Pilot Plant	U.S. Army Pueblo Chemical Depot	Colorado	Neutralization	2,613	2016	Planned by Sept. 30, 2023
ACTIVE	Blue Grass Chemical Agent-Destruction Pilot Plant	Blue Grass Army Depot	Kentucky	Neutralization	523	2020	Planned by Sept. 30, 2023

Figure 4: Summary of the U.S. Chemical Weapon Destruction Complex. BGCAPP is the newest of 11 chemical weapon destruction facilities, nine of which have completed operations.

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1.2 – Blue Grass Organizational Overview

There are many different organizations, governing authorities, lines of coordination, reporting, and accountability involved in the chemical munitions destruction mission at BGAD, which is part of the Army Organic Industrial Base (AOIB). This section provides important context about both the AOIB and the roles and responsibilities of key organizations, including ASA (ALT), JPEO A&A, AMC, and JMC, as they relate to missions, investments, and workload assignments in the AOIB, including BGAD, and to BGCAPP's mission.

Summary information about BGCAPP, BGCA, and BGAD is also provided to orient the reader to each of these three organizations, their role in the chemical destruction mission, and to the site and facilities that are the subject of this study.

1.2.1 – The Army Organic Industrial Base

The U.S. Army relies on an enterprise of manufacturing arsenals, maintenance depots, and ammunition plants, depots, and munitions centers to equip and sustain its warfighters.
Collectively known as the Army Organic Industrial Base, these twenty-three sites across the country are made up of more than 19,000 facilities that manufacture, rebuild, maintain, and store equipment, munitions, and supplies for the Army and the Joint Force. Critical to the success of the AOIB are the more than 32,000 skilled artisans and technicians that work in the AOIB.[14]

The AOIB emanates from Title 10 Authorities of U.S. Code and statutes, 18 of which authorize and direct the Organic Industrial Base (OIB) of the U.S. military. The most significant statutory authorities for the OIB are 10 U.S.C. 2460 which authorizes the departments to perform depot maintenance, as well as 10 U.S.C. 7532, known as the Arsenal Act, which directs the Army use of arsenals for producing supplies at economical costs. A third critical statute is 10 U.S.C.
2464 which defines core workload capability and instructs the services on Congressional reporting requirements.[14]

The purpose of the AOIB is to enable current materiel readiness, maintain surge capacity, and to support future weapon system platforms. From small arms, to explosives, cannon tubes, tanks, and helicopters, the AOIB provides critical materiel and sustainment support, that is essential to Army strategic readiness and enabling national leadership to quickly deploy forces and fully sustain them once deployed.[14]

1.2.2 – Roles and Responsibilities related to the AOIB

The Secretary of the Army prescribes the duties of each Assistant Secretary through *General Order 2020-1* which reflects the duties outlined in 10 U.S.C. 7016. The Secretary of the Army directs that the ASA (ALT) is the single office in the Headquarters, Department of the Army (HQDA) responsible for setting the strategic direction for and supervising policies and programs related to acquisition, logistics, and technology, including the AOIB. The primary AOIB policy published by ASA (ALT) is *Army Regulation (AR) 700-90 Army Industrial Base Process*, which directs that ASA (ALT) establish other policies and goals for the AOIB program, serve as the Army's focal point for the annual DoD report to Congress, and approve or validate determinations and findings of Government-Owned Contractor-Operated (GOCO) facility projects.[14]

Supplementing the Secretary of the Army's General Order 2020-1 is AR 10-87*, Army Commands, Army Service Component Commands, and Direct Reporting Units*, which assigns missions, functions, and command and staff relationships within the HQDA to Army Commands, including U.S. Army Materiel Command (AMC). AR 10-87 establishes authority for AMC to exercise mission command over the AOIB, including all arsenals, depots, and ammunition plants. The Commanding General (CG), AMC commands assigned forces and establishes command and support relationships through subordinate commanders to build and sustain readiness. Inherent in that responsibility is the authority to control installations, own and manage the real estate of the AOIB, manage the depot maintenance system, and oversee execution of operations and customer requirements. The AMC CG also supports execution of the Defense Production Act of 1950.[15]

Day-to-day management of Government Owned-Government Operated (GOGO) facilities in the AOIB is executed by AMC through their Depot, Arsenal, and Plant Commanders who are responsible for security, safety, environmental compliance, energy, and law enforcement.
Government Owned-Contractor Operated (GOCO) facilities in the AOIB are run between ASA (ALT) and AMC with each assigned specific areas of responsibility. In this partnership, ASA (ALT)'s focus is on the directing, resourcing, and tracking of contractor execution while AMC's focus is on installation management functions.[15]

Ammunition management is governed by DODI 5160.68, *Single Manager for Conventional Ammunition (SMCA)*, which assigns the SMCA mission within the DoD to the Secretary of the Army. The SMCA is delegated to ASA (ALT) and then further delegated to JPEO A&A to be the executor responsible for the SMCA mission. The SMCA mission is responsible for acquisition management, production and industrial base management, stockpile management, and distribution management of conventional ammunition. It is the role of the SMCA that allows for much of the AOIB's core ammunition work in support of the Joint Force.[15]

The ASA (ALT) has delegated to the Deputy AMC Commander the Executive Director for Conventional Ammunition (EDCA) role and has designated Joint Munitions Command (JMC) the Field Operating Agency in accordance with the SMCA Charter. The EDCA's primary responsibility is to assess SMCA mission requirements and oversee execution of the SMCA

mission as it relates to Joint Service activities. Additionally, AMC is responsible for providing comprehensive logistics and sustainment support of SMCA field mission operations.[15]

AMC also serves as the implementing command for management and compliance with the Chemical Weapons Convention. In this role for chemical weapons, AMC manages the assessment and destruction of recovered chemical warfare materiel and oversees chemical stockpile emergency preparedness programs. AMC also provides critical support to ASA (ALT) for Core Logistics Analysis (CLA), Core Depot Assessments (CDA), and Depot Source of Repair (DSOR) analysis.[15,16]

Together, these multiple roles illustrate the inseparable relationship between ASA (ALT) and AMC in the effective governance and operation of the AOIB. Defining the core workload ensures the depots have required workforce capacity and facilities to support current operations and surge to support large-scale combat operations. To that end, ASA (ALT), AMC, and Army Futures Command (AFC) collaborate to ensure the AOIB is synchronized in its ability to support signature modernization efforts while maintaining the ability to support current operations and lay dormant underutilized capacity.[16]

1.2.3 – Blue Grass Site Overview

Blue Grass Army Depot (BGAD) is a GOGO facility located outside of Richmond, KY, approximately 35 miles southeast of Lexington, KY, as shown in **Figure 5 (**next page). Two tenant organizations reside on the BGAD installation: Blue Grass Chemical Activity (BGCA), and Blue Grass Chemical Agent-Destruction Pilot Plant (BGCAPP). Although BGAD, BGCA, and BGCAPP are different organizations with different missions and reporting structures, they coordinate and work together to execute the chemical munitions destruction mission.

1.2.3.1 – Blue Grass Army Depot

BGAD covers nearly 15,000 acres with more than 1,200 buildings, 902 igloos (earth covered storage bunkers), 12 above ground magazines, and a total storage capacity of 2.2 million square feet (SF). It also has 176 miles of roadway, 41 miles of railroad, and 21 shipping/receiving pads.[17]

BGAD was established in 1941 and began operations as an ammunition and general supply storage depot. Chemical weapons were first received at Blue Grass in 1944, although most nerve agent weapons arrived in the mid-1960s. In 1964, BGAD merged with the Lexington Signal Depot and became Lexington-Blue Grass Army Depot. The Lexington facility was closed in 1995 under the Base Realignment and Closure Act. In 1999, the Richmond facility was renamed the Blue Grass Army Depot.[18]

Today, BGAD's mission is to provide America's Joint Warfighters reliable, timely, and cost- effective munitions and chemical defense equipment in support of full spectrum Military Operations. To this end, BGAD executes core Army munition depot operations, including

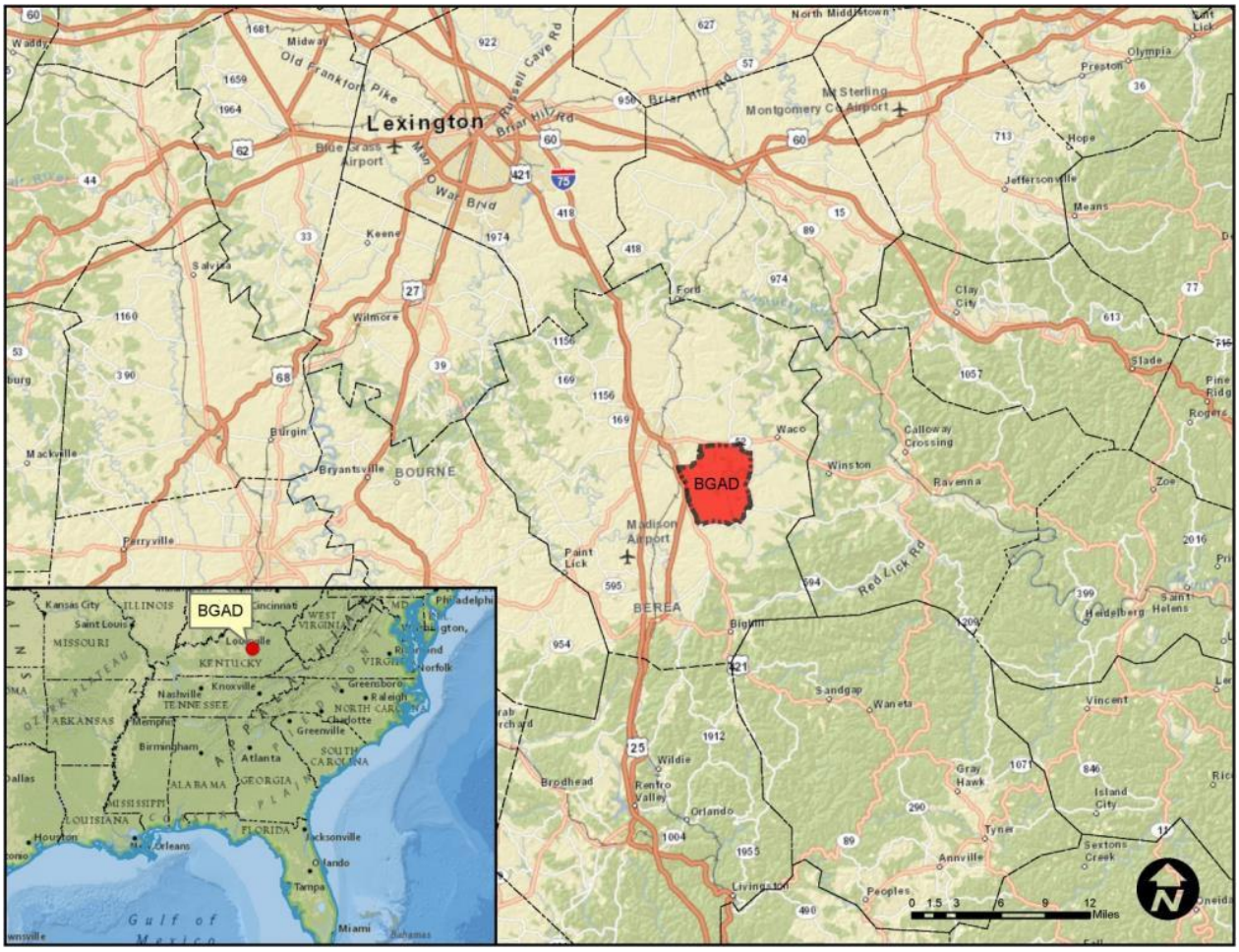

Figure 5: Blue Grass Army Depot Location. BGAD is located in the southeastern United States 35 miles southeast of Lexington, KY.

storage, receipt, issue, inspection, maintenance, and demilitarization of conventional ammunition, and safeguards the chemical weapons stockpile stored at Blue Grass.[19]

The BGAD installation also oversees surveillance, receipt, storage, issue, testing, and minor repair of Individual Chemical Defense Equipment.

As of May 24, 2023, BGAD employs 711 Department of Army civilians, 140 of which directly support the chemical munitions destruction mission at BGCAPP with most providing security over the chemical weapons stockpile.[20]

1.2.3.2 – Blue Grass Chemical Activity

To support the chemical demilitarization mission, Blue Grass Chemical Activity was established as a tenant activity at BGAD. BGCA's mission is to support delivery of chemical

munitions to the Blue Grass Chemical Agent-Destruction Pilot Plant while safely securing, storing, and monitoring the chemical stockpile to protect the workforce, the public, and the environment.[12]

All chemical weapons at BGAD are stored in 49 igloos contained within a 250-acre secure storage area. Designed specifically to protect their contents from external factors such as storms, lightning and other weather-related events, the igloos are equipped with a rear vent and a dual lightning protection system. In addition to a 24/7 guard force, there are a number of other physical and electronic safeguards in place that protect the chemical weapons stockpile.

The current BGCA mission is scheduled to conclude in April 2025. Upon mission completion, all buildings, infrastructure, and real property in use by BGCA will be transitioned to BGAD. While the majority of BGCA's operations, including the storage igloos, are housed within the Chemical Limited Area (CLA), BGCA also occupies buildings in the administrative area of the BGAD site.

As of May 31, 2023, BGCA employs 164 Department of Army civilians classified as permanent, of which 140 of whom will need to be transitioned to other federal roles by November 2026 as the BGCAPP mission ends.[21] The remaining 24 employees have expressed their intent to retire out of their current positions.

1.2.3.3 – Blue Grass Chemical Agent-Destruction Pilot Plant

The Blue Grass Chemical Agent-Destruction Pilot Plant is a purpose-built GOCO facility for the neutralization and destruction of chemical agents and weapons, including mustard, GB- and VX-type. BGCAPP is a tenant on BGAD occupying over 70 acres and is housed adjacent to the igloos holding the chemical weapons stockpile. Groundbreaking and construction of the pilot plant and supporting infrastructure began in 2006.[22] As of May 31, 2023, cumulative construction costs total $2B, including more than $100 million invested in infrastructure and site improvements.[23] The mission at BGCAPP contributes an estimated $200m in annual economic impact to the region.[24]

The facility is the result of the United States' commitment to the safe and environmentally compliant destruction of chemical weapons in accordance with the CWC of 1997. The chemical stockpile at BGAD included over 520 tons of GB and VX nerve agents and mustard agent within projectiles, warheads, and rockets. PEO ACWA is the DoD program responsible for the destruction of chemical weapons in Kentucky and Colorado. PEO ACWA developed an automated chemical agent handling and neutralization plant with two static detonation chambers (SDCs) to provide a destruction alternative to incineration at Blue Grass. The SDC 1200 was used for destruction of mustard agent, while the larger SDC 2000 continues to be used for compromised munitions and drained VX and GB warhead destruction. The primary chemical weapon destruction mission at BGCAPP was completed on July 7, 2023. Secondary waste disposal will continue at BGCAPP until November 2024. Per Public Law 99-145, any building and/or infrastructure used for the destruction of chemical agents and munitions must be cleaned, dismantled, and disposed of in accordance with applicable laws and

regulations.[5] This law impacts the reuse of certain buildings and facilities at BGCAPP, as detailed in *Section 2.1.2 – Buildings and Related Infrastructure Characteristics*.

BGCAPP is a GOCO facility with operations carried out by Bechtel Parsons Blue Grass (BPBG), a joint venture between Bechtel National, Inc. and Parsons Corporation, with government oversight from PEO ACWA. Bechtel National and Parsons are the prime contractors for BGCAPP, and Amentum, Battelle Memorial Institute, and GP Strategies Corporation are subcontractors utilized by the joint venture.[25]

As of May 31, 2023, the BPBG Joint Venture employs 1,467 contractors at the BGCAPP site, while PEO ACWA has 15 Department of Army civilian employees there.[26]

1.2.4 – Blue Grass Organizational Alignment

While BGAD, BGCA, and BGCAPP coordinate to execute the chemical munitions destruction mission, each organization has a separate reporting structure as shown in **Figure 6**. The Blue Grass Army Depot Installation is managed by the BGAD leadership team. BGCAPP and BGCA operate independently with support from the greater BGAD organization and have their own distinct reporting chains of command.

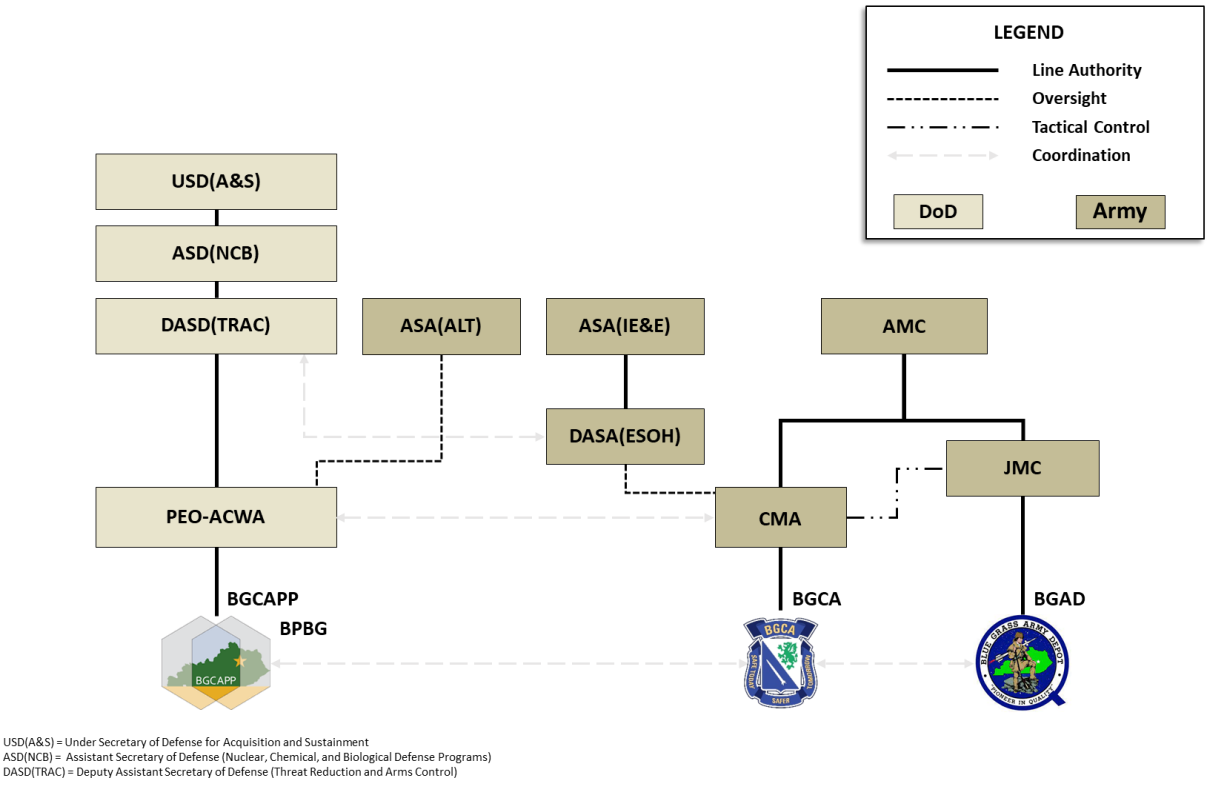

Figure 6: Organizational Alignment for BGCAPP, BGCA, and BGAD. Each organization has a separate reporting structure but coordinates to execute the chemical munitions destruction mission.

BGCAPP is a distinct organization overseen by PEO ACWA. PEO ACWA aligns under the Department of Defense as required by Public Law 105-261, and coordinates with BGCA and BGAD to execute its mission.

BGCA reports to the U.S. Army Chemical Materials Activity (CMA) and aligns under AMC. BGCA coordinates directly with BGCAPP and BGAD in the execution of its mission.

BGAD reports to the Joint Munitions Command (JMC) and aligns under AMC. BGAD coordinates directly with BGCAPP and BGCA to support their mission execution.

1.2.5 – Blue Grass Facility Map

The Blue Grass site is divided into five Area Development Plan districts (ADPs) as shown in **Figure 7**. Within the framework of the DoD's Installation Master Planning process as defined

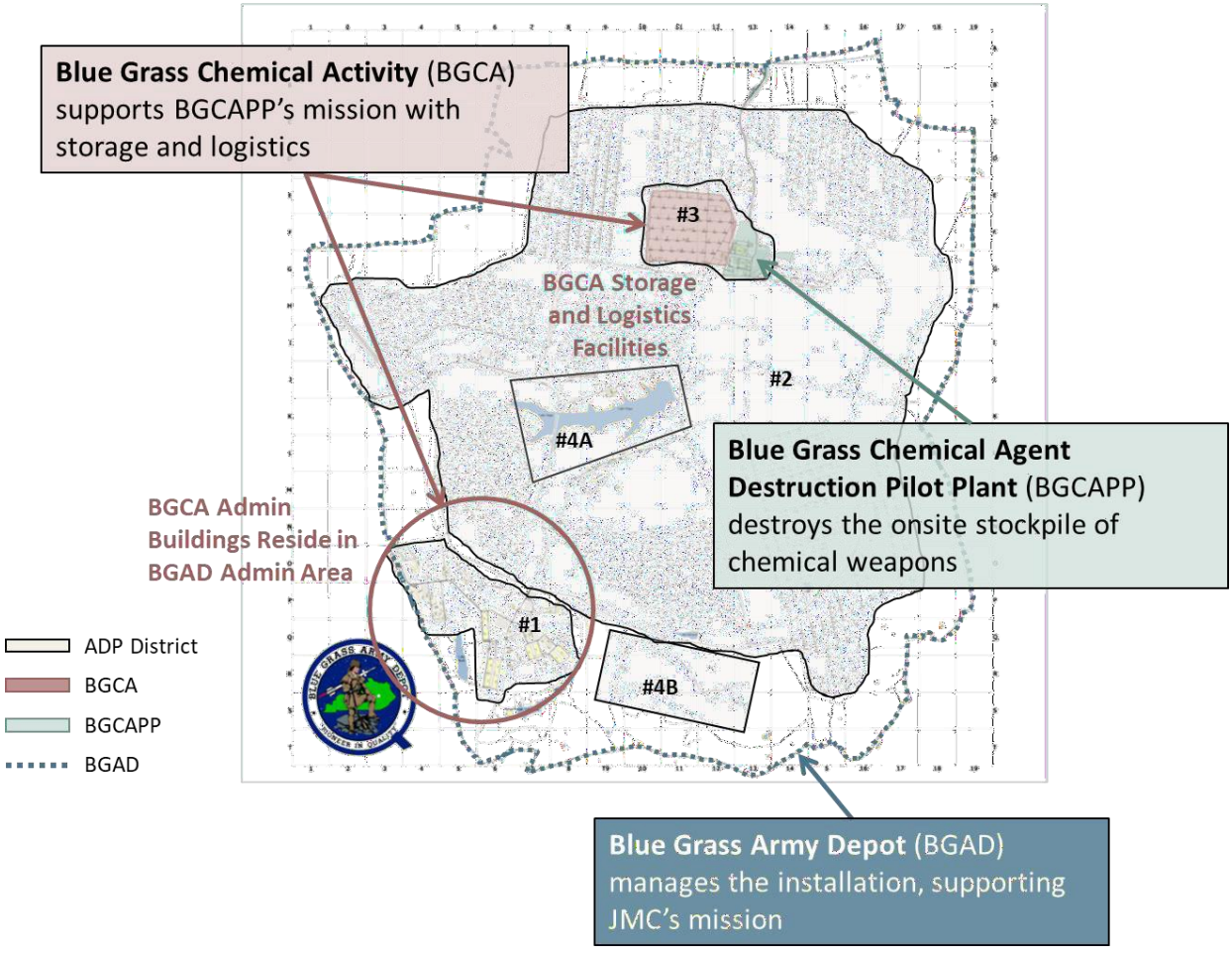

Figure 7: Blue Grass Army Depot Site Map. The depot consists of four Area Development Plan districts (ADPs) with the primary focus of this study being on ADP #3.

in *Unified Facilities Criteria (UFC) 2-100-01*, dated 15 May 2012, the purpose of the ADP is to evaluate a specific area on the installation, referred to as a district, and provide a strategy for responsible future development. The ADP considers both current mission requirements and potential future opportunities to show both short-range and long-range development and supports the comprehensive master plan by addressing and resolving localized planning issues.[27]

On the BGAD site, ADP #1 includes the Administrative District. ADP #2 is the receiving, storage, and shipping district that includes the bulk of BGAD's restricted area. The secure BGCAPP entrance road crosses this district. ADP #3 includes the Chemical Limited Area (CLA) that encompasses the BGCA storage igloos and the BGCAPP site. The CLA storage igloos are located to the west of the BGCAPP site. ADP #4A contains and immediately surrounds Lake Vega. ADP #4B is the detonation area for conventional munitions demilitarization activities.

The primary focus of this feasibility study is on ADP #3 (i.e., the CLA), but also includes facilities and infrastructure from ADP #1, ADP #2, ADP #4A, and ADP #4B.

1.3 – Revenue, Rates, ISSAs, and Expenses

Operations of the Blue Grass Army Depot are funded through the Army Working Capital Fund (AWCF) under statutory authorities of 10 U.S.C 2208. The AWCF is a revolving fund intended to enable the depot to operate as a self-sustaining entity. The AWCF provides working capital to support business-like activities of the depot (e.g., funding payroll, acquiring supplies, funding ongoing depot operations and maintenance requirements, etc.) that generate receipts for goods and services provided. A fundamental premise of the AWCF is that it is to operate on a break-even basis for each site (i.e., revenue received equals the costs of generating the revenue).[28]

Performance of the AWCF is evaluated through two key metrics: Net Operating Result (NOR) and Accumulated Operating Result (AOR). The NOR is the net difference between expenses and funds received during a single fiscal year, and the AOR is the net difference between expenses and funds received since the creation of the fund. To achieve the self-sustaining and break-even goals, rates charged to customers are adjusted annually based on analysis of the NOR and AOR. BGAD's rates are commonly viewed as an indicator of the competitiveness and overall health of the depot (with lower rates indicating a more competitive and viable installation, and higher rates indicating a less competitive and therefore less viable installation). Because the rates are typically established 18-24 months ahead of the year in which they are charged to customers, it is common for the NOR to show a positive or negative outcome while the rate adjustments keep the AOR near zero over time.

When tenant organizations are located on an OIB installation, an Inter-Service Support Agreement (ISSA) is established to lay out the services the installation will provide to the tenant and the amounts the tenant will pay to the installation for the services it provides. The monies received through ISSAs are paired with customer revenues to account for the site's total revenue. Therefore, these funds impact the site's NOR and AOR, and have an influence on the customer rates charged by the site.

A summary of BGAD's 2022 actual and 2023-24 forecasted direct labor hours, costs, and financial performance is shown in **Figure 8** (next page). The following sections provide a breakdown of BGAD's revenues, expenses, labor hours, and ISSAs paid by BGCA and BGCAPP.

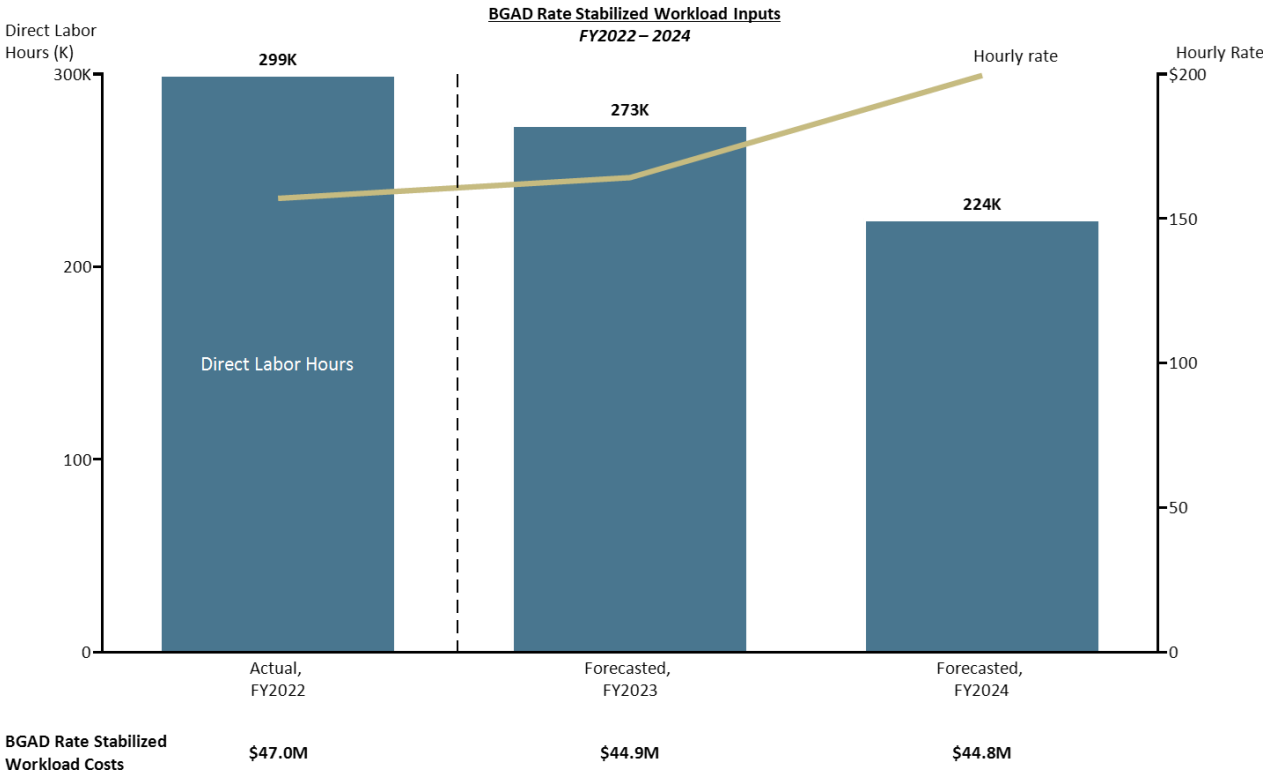

Figure 8: BGAD 2022 Actual and 2023-24 Forecasted Direct Labor Hours, Costs, and Financial Performance. Depot rates are forecasted to increase significantly due to a decrease in labor hours.

1.3.1 – BGAD Revenue and Rates Breakdown

According to the FY2024 Budget Estimate Submission (BES), BGAD total revenue is expected to decline from $135M in FY2022 to $129M in FYs 2023 and 2024, as shown in **Figure 9**. The primary driver of the decline is reduced revenue coming from Army Operations & Maintenance (O&M) funded projects. Direct labor hours (DLHs) (i.e., hours that generate revenue) are expected to decline by nearly 25% from FY2022 to FY2024. The decline in DLHs is primarily due to decline in core capability maintenance workload (e.g., reactive armor tile maintenance, confidence clip, munitions maintenance). It is important to note that BGAD's actual and forecast DLHs do not include any DLHs associated with the chemical munitions destruction mission at BGCAPP. A breakdown of BGAD's rate stabilized workload hours, rates, and costs are shown in **Figure 9**. As BGAD's DLHs decline from 299K in FY2022 to 224K in the FY2024 forecast, the stabilized workload rates are expected to increase by approximately 27%. Per the 2024 BES, this rate increase is required to bring the AOR to zero in future years.

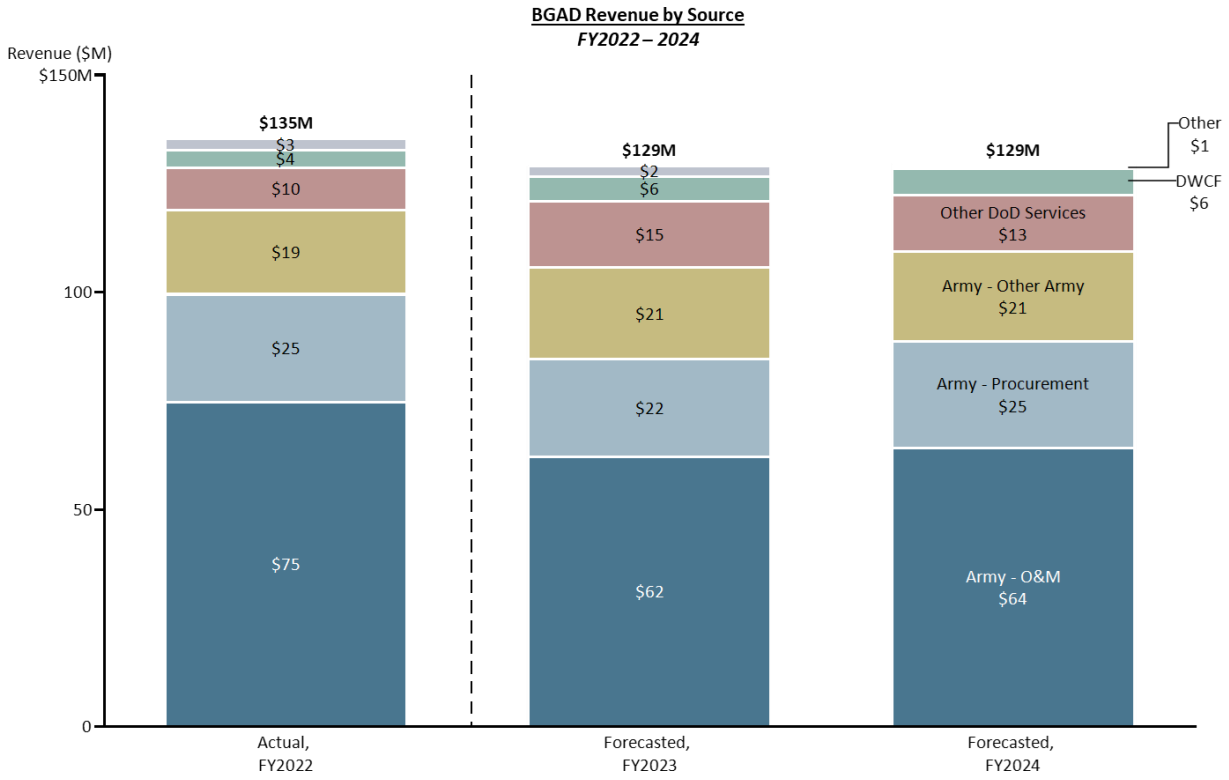

Figure 9: BGAD 2022 Actual and 2023-24 Forecasted Revenues by Source. Revenues are expected to decrease due to reductions in O&M, which are partially offset by increases in Other Army, Other DoD, and DWCF.

1.3.2 – BGAD Expenses Breakdown

Total expenses are expected to decline by approximately 5% from FY2022 to FY2024. The breakdown of these expenses is shown in **Figure 10** (next page). The decline in expenses is primarily driven by reductions in Salaries and Wages (specifically Civilian personnel), Materials & Supplies, and Other Purchases. The reductions in Salaries and Wages during this period are not related to the sunset of BGCAPP mission since none of the 140 BGAD term employees that directly support BGCAPP are planned to be reduced before FY2025.

1.3.3 – BGCA and PEO ACWA ISSAs with BGAD

Captured within the revenue and expenses outlined above are ISSAs between BGAD and its two tenant organizations, BGCA and PEO ACWA, to support operations at the BGCAPP site.

The monies BGAD receives through the ISSAs are intended to balance with the costs associated with delivering the services (e.g., security, environmental support, utilities, etc.) to BGCA and PEO ACWA. ISSAs do offset some overhead costs that would otherwise be carried

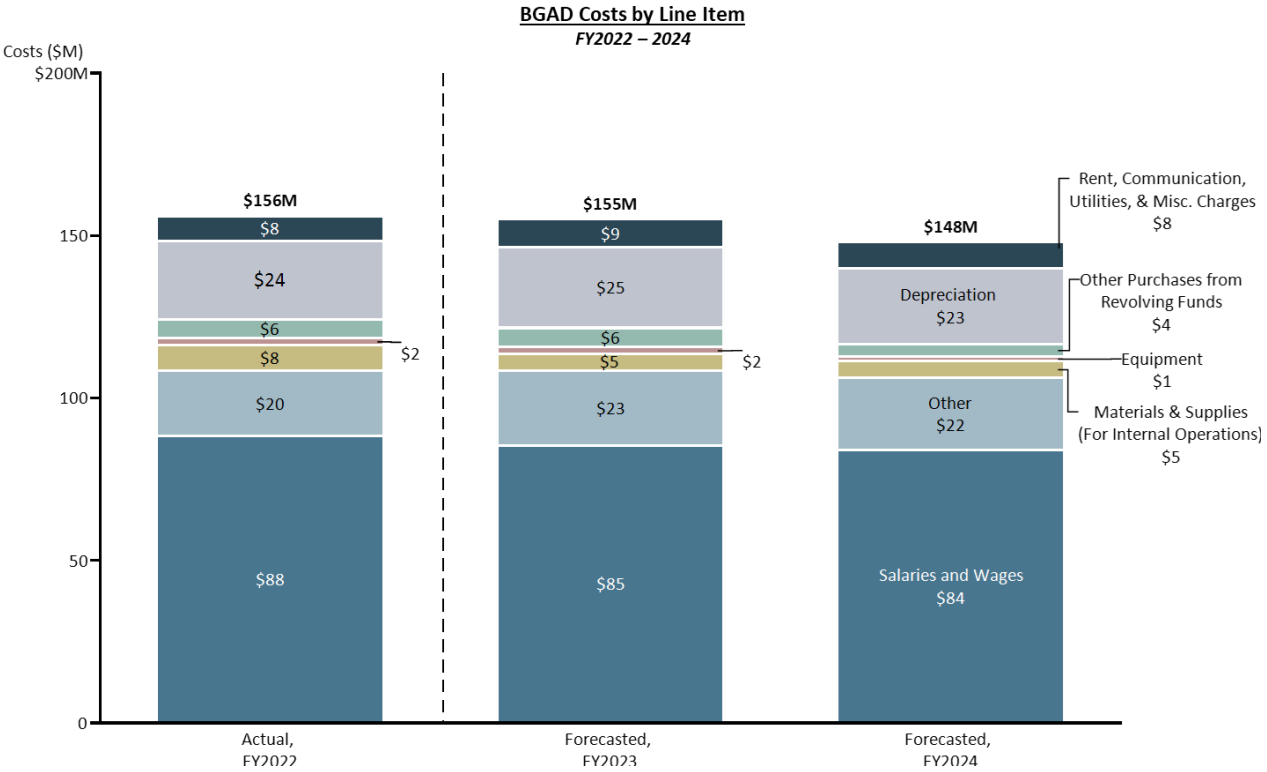

Figure 10: BGAD 2022 Actual and 2023-24 Forecasted Costs by Line Item. Expenses are forecasted to decrease due to minor reductions across all line items, with the exception of Other.

by the depot, which has an impact on rates. In FY2023, PEO ACWA is expected to pay nearly $25M to BGAD through their ISSA while BGCA is expected to pay approximately $9M. The details of the services provided by BGAD under the ISSAs is shown in **Figure 11** (next page).[29]

BGAD resource managers have not yet conducted analysis to evaluate the impact of chemical mission sunset on BGAD's stabilized workload hourly rates and costs. WP&C analyzed the BGCA and PEO ACWA's forecasted FY2023 ISSAs to identify potential costs that BGAD would resume carrying after the chemical munitions destruction mission ends. These costs were identified by comparing ISSA headcount related expenses against the known headcount transition plans and reviewing cost descriptions for maintenance-related activities. For example, BGCA and ACWA pay for ground maintenance related services (i.e., snow removal, mowing). WP&C assumes these services will continue after BGCAPP closure and the associated costs will be therefore incurred by BGAD instead of being reimbursed through an ISSA. From analysis of the ISSAs, WP&C estimates that BGAD will incur approximately $5.7M of additional annual costs once the BGCAPP facility has completed its transition plan (see **Figure 12**).

Since these costs are not "cost reimbursable," they will be included in the calculation to set BGAD's future-year rates. To most accurately forecast the impact on stabilized workload rates in FY2027 and beyond (i.e., after the BGCAPP transition is complete) requires a forecast of the DLHs for those years, which is not currently available. Therefore, to illustrate the potential

Forecasted, FY2023 BGAD ISSA Summary for BGCA and AWCA

USD in millions, forecasted FY2023 BGAD ISSAs		ACWA		BGCA	
	Line Item	**Direct**	**Indirect**	**Direct**	**Indirect**
Regular	Headcount	$12.33	$2.06	$4.51	$2.37
	Maintenance	0.71	0.25	0.85	0.46
	Utilities	3.74	0.05	0.67	0.03
	Supplies, Training, and Other	0.77	0.36	0.10	0.35
	Subtotal	**$17.55**	**$2.72**	**$6.14**	**$3.21**
Cont-ingency	Guards	$4.04	$0.00	$0.00	$0.00
	Miscellaneous	0.33	0.00	0.00	0.00
	Subtotal	**$4.37**	**$0.00**	**$0.00**	**$0.00**
Total		**$21.93**	**$2.72**	**$6.14**	**$3.21**
		$24.65		**$9.35**	
		$34			

Figure 11: Forecasted FY2023 ISSA Payments to BGAD from BGCA and ACWA. In total BGAD receives approximately $34 million annually in ISSAs.

incremental impact on BGAD's rates, FY2024 forecast DLHs and costs were used as the baseline. As shown in **Figure 12**, fiscal year 2024 costs increased from $44.8M to $50.5M with the additional $5.7M in costs no longer covered by the ISSA. This results in a hypothetical BGAD rate increase of 12.7%. If BGAD DLHs continue to decline (as is the trend from FY2022 to FY 2024), the impact of the lost ISSA funds and associated cost shift to BGAD will result in even higher percentage rate increases than what is illustrated in this example.

Ref.	Line Item		Note	Calculation
A	**BASELINE, Rate Stabilized Workload Hours (K)**	224K	Based on forecasted FY2024; Per FY2024 BES	–
B	**BASELINE, Rate Stabilized Workload Costs**	**$44.76M**	Based on forecasted FY2024; Per FY2024 BES	–
C	ADD: Costs not reimbursed by ISSA – ACWA	$4.51M	Based on WP&C Analysis of ACWA's FY2023 ISSA	–
D	ADD: Costs not reimbursed by ISSA – BGCA	$1.19M	Based on WP&C Analysis of BGCA's FY2023 ISSA	–
E	**ADJUSTED, Rate Stabilized Workload Costs**	**$50.46M (+$5.7M)**		[B] + [C] + [D]
F	**BASELINE, Rate Stabilized Workload Hourly Rate**	**$199.56**	Based on forecasted FY2024; Per FY2024 BES	([B] * 1000 / [A])
G	**ADJUSTED, Rate Stabilized Workload Hourly Rate**	**$224.97**	Loss of BGCA and PEO ACWA ISSA results in a 12.7% rate increase	([E] * 1000 / [A])

Figure 12: Estimated Future Rate Stabilized Workload Hourly Rate without ISSAs. BGAD rates could increase from $199.56 to $224.97 (12.7%) assuming nearly $6 million in costs remain.

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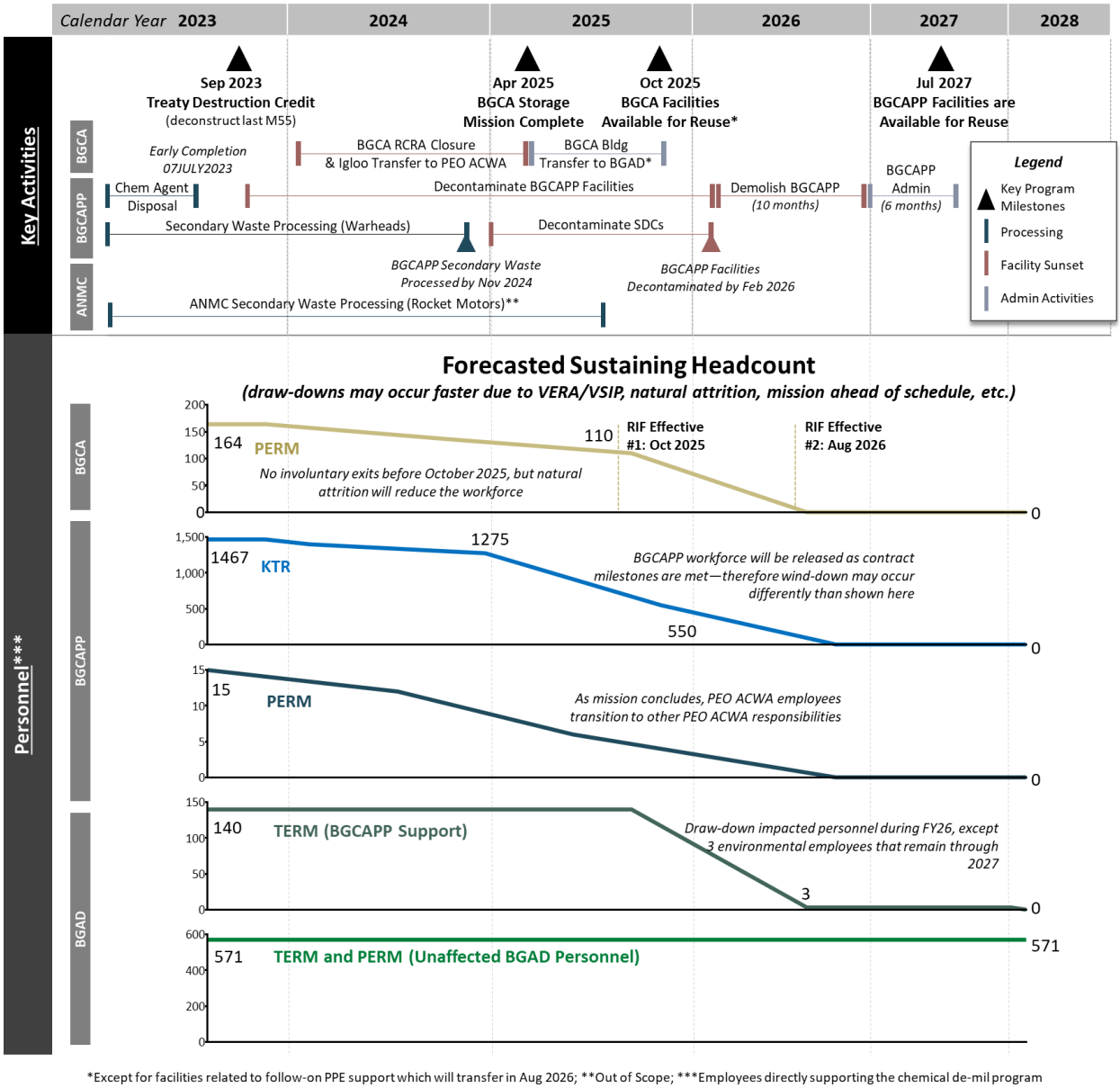
1.4 – Transition Plans and Timelines

The BGCA and BGCAPP organizations begin executing their transition plans related to the chemical munitions destruction mission completion in 2023, and transition activities for all three organizations are expected to be completed before the start of calendar year 2028. An important fact that must be accounted for when considering potential reuse opportunities for the BGCAPP facilities is that workforce will be released from their current mission well ahead of—in some cases several years before—the BGCAPP facilities. The majority of impacted personnel become available in the 2025-2026 timeframe, whereas access to the BGCAPP site for reuse purposes will not be possible until the latter half of 2027 at the earliest. While BGCAPP (BPBG and PEO ACWA), BGCA, and BGAD have developed, and are independently managing their respective transition plans, the transition plans are integrated across the three organizations. A consolidated overview of the BGCAPP, BGCA, and BGAD facility and personnel transition plans is provided in **Figure 13** (next page). Note that the estimated annual employee reductions and forecast headcount numbers provided in **Figure 13** (next page) and discussed throughout this report are based on the current transition plans and may change if the facility transition plan changes.

1.4.1 – Facility Transition Plan

Execution of the facility transition plan begins in late calendar year (CY) 2023 at the BGCAPP site. Chemical agent disposal activities were completed ahead of schedule on July 7, 2023, when destruction of the remaining M55 rockets was completed. When the chemical agent disposal mission ends, decontamination activities for the majority of BGCAPP facilities begins and is expected to continue until early CY 2026. While these decontamination efforts are underway, processing of secondary waste in the BGCAPP Static Detonation Chambers (SDCs) will continue until November 2024. After the secondary waste processing is complete, decontamination of the SDCs will begin and is expected to be completed in early CY 2026.

If no suitable opportunity to reuse or repurpose the BGCAPP facilities is found, demolition of the facilities is expected to begin in early CY 2026 and to be complete by late CY 2026. As of June 2023, PEO ACWA is taking the necessary actions to contract for the demolition of all facilities and infrastructure at the BGCAPP site, except for the horizontal property. While it is anticipated the demolition contract will be in place before any decisions to retain BGCAPP facilities are made, PEO ACWA has stated they can remove any buildings or infrastructure from the demolition schedule at a later date by descoping the demolition contract. The latest possible date to decide to retain any facility on the site depends on the demolition schedule that will be developed by PEO ACWA's demolition contractor. Because the demolition contract



*Except for facilities related to follow-on PPE support which will transfer in Aug 2026; **Out of Scope; ***Employees directly supporting the chemical de-mil program

Figure 13: Facility and Personnel Transition Timeline for BGCA, BGCAPP, and BGAD as the Chemical Munitions Destruction Mission Concludes. 1,786 total employees are expected to be impacted across the three organizations. (Note: PERM = permanent gov't. employees; TERM = gov't employees on a term; KTR = contractors)

has not yet been awarded, the deadlines for decisions to retain any of the BGCAPP facilities cannot be determined at this time. Parties wishing to understand the details of the demolition schedule or wanting to remove facilities from the demolition plan should contact PEO ACWA.

Once decontamination, dismantling, and demolition activities at the BGCAPP site are complete, additional administrative actions related to closing environmental permits are still

required. These administrative actions are expected to be completed by mid-CY 2027. Given this timeline, the earliest possible date the BGCAPP site (and any retained facilities and infrastructure) will be available for reuse is July 2027 as no facilities can be transferred until permits are closed.

The BGCA facility transition plan is currently underway with activities to meet the requirements of the Resource Conservation and Recovery Act (RCRA) for hazardous materials. As BGCA meets the RCRA requirements, it transfers its munitions storage igloos to PEO ACWA on a rolling basis (i.e., when an igloo is no longer required for chemical mission storage and has met RCRA requirements it is transferred to PEO ACWA, vice transferring all igloos at once). BGCA anticipates its storage mission will be fully complete in April 2025, and the related buildings and infrastructure will be transferred back to BGAD for reuse by October 2025.

1.4.2 – Personnel Transition Plan

As of May 2023, there are 1,786 employees working for four primary employers who directly support the chemical munitions destruction mission at BGCAPP. These 1,786 employees are summarized by employer below:[30]

- Bechtel Parsons Blue Grass Joint Venture (1,467 employees): The Bechtel Parsons Blue Grass (BPBG) joint venture was formed between Bechtel National, Inc. and Parsons Corporation with three subcontractors (Amentum, Battelle Memorial Institute, and GP Strategies Corporation). The BPBG employees are contractors to the Government tasked with designing, building, testing, operating, maintaining, monitoring, and closing the BGCAPP.
- PEO ACWA (15 employees): PEO ACWA employees are federal government employees responsible for the destruction of the remaining U.S. chemical weapons stockpile.
- Blue Grass Chemical Activity (164 employees): BGCA workers are federal government employees who are responsible for the safe storage and transportation of chemical weapons to and from the BGCAPP facilities.
- Blue Grass Army Depot (140 employees): BGAD supports the chemical munitions destruction mission with 140 federal government employees that provide security and other support functions to BGCAPP and BGCA. In total, there are 711 employees at BGAD, but only 140 have been identified as directly supporting the chemical munitions destruction mission. The remaining 571 BGAD employees are not expected to be directly impacted by the completion of the chemical munitions destruction mission.

As BGCAPP completes its mission, the number of employees at BGCAPP, BGCA, and BGAD will decline over a multi-year period beginning in late-CY 2023 through mid-CY 2027. Personnel wind-down is expected to occur in the following stages:

- Stage 1 (2023): Starting in October 2023, once the final M55 rockets are destroyed, BGCA will cease Permanent employee hiring, and instead only hire Term employees

on an as-needed basis to fill critical roles related to ongoing support of BGCAPP operations.

- Stage 2 (January 2024 to October 2025): As the mission at BGCAPP completes, BPBG may move employees to new contracts and roles when they are no longer needed at BGCAPP. During Stage 2, BGCA and BGAD plan to maintain their current workforce, but may choose not to replace employes that leave voluntarily, which may result in modest reductions to their workforces during this stage.

NOTE: because BPBG is a private venture, any decisions to offer future employment opportunities to their current workforce are entirely their own. BPBG did not provide any specific details to the study team about their plans or intent to make future employment offers, but they did highlight their current workforce at BGCAPP is highly skilled and those skills align with ongoing needs they have in their business.

- Stage 3 (October 2025 to September 2026): FY2026 is when the largest reduction of federal government employees is expected to occur. During this time, BGAD's workforce supporting the BGCAPP mission will reduce from 140 to three. All remaining BGCA employees are expected to undergo Reduction in Force (RIF) actions during this period. Also, during this period, all remaining contractors and PEO ACWA employees at BGCAPP will wind-down.
- Stage 4 (2027): Approximately 3 federal government employees working for BGAD will remain in 2027 to support the closeout activities related to environmental permits, and the requirement for these employees will end when the permit work is completed.

A high-level summary of workforce-related plans from each of the four primary organizations employing personnel supporting the BGCAPP mission are described below:

- Bechtel Parsons Blue Grass (1,467 contractor employees): Employees and subcontractors of the BPBG joint venture are managed by the joint venture. In general, these employees and subcontractors are highly skilled technical workers. Future work opportunities for these employees are being managed by their current employers. PEO ACWA advised the feasibility study team that BPBG is making external support resources available to its employees to help place them into new positions.
- PEO ACWA (15 employees): PEO ACWA is a sunset organization with no follow-on mission. Employees may transition to other jobs through their own search and/or through the Priority Placement Program.
- Blue Grass Chemical Activity (164 employees): BGCA has the largest group of federal government employees affected by the completion of the chemical munitions destruction mission at BGCAPP. As of June 2023, all current BGCA employees are classified as Permanent employees, and therefore 5 U.S.C 3501-3503 applies. Of the current 164 employees, 24 are planning to retire, and another 10 are considering retirement. Beginning in October 2023, BGCA will no longer hire Permanent employees and will instead only hire Term employees to fill vacancies. BGCA has planned two RIF Effective Dates. The first is 31 October 2025 and the second is in

August 2026. BGCA does not intend for there to be any involuntary exits from the BCGA workforce before the first RIF Effective Date (31 October 2025). Although there will not be any involuntary exits before this time, voluntary attrition and retirement may reduce the size of the BGCA workforce before the first RIF Effective Date. The current attrition rate at BGCA is 7 employees per month, suggesting the number of permanent employees remaining at the first RIF Effective Date could be significantly less than 164.

- Blue Grass Army Depot (140 employees): All 140 BGAD employees that support the chemical munitions destruction mission are classified as Term employees. BGAD expects to remove most of these positions during Stage 3 (October 2025 and September 2026). After FY 2026, three employees on the BGAD environmental staff are expected to remain in their positions to support the closeout of environmental permits (which is expected to be completed by mid-CY 2027). BGAD also expects a small number of Term employees (approximately 10, or less) that are currently performing security functions associated with BGCAPP will transition into similar roles to support other current BGAD missions.

Figure 14 provides a consolidated view of all 1,786 impacted employees and their employment plans following the completion of the chemical munitions destruction mission.

Employees from BGCA and some BPBG employees were asked to complete surveys related to their future work plans following the completion of the chemical weapons destruction

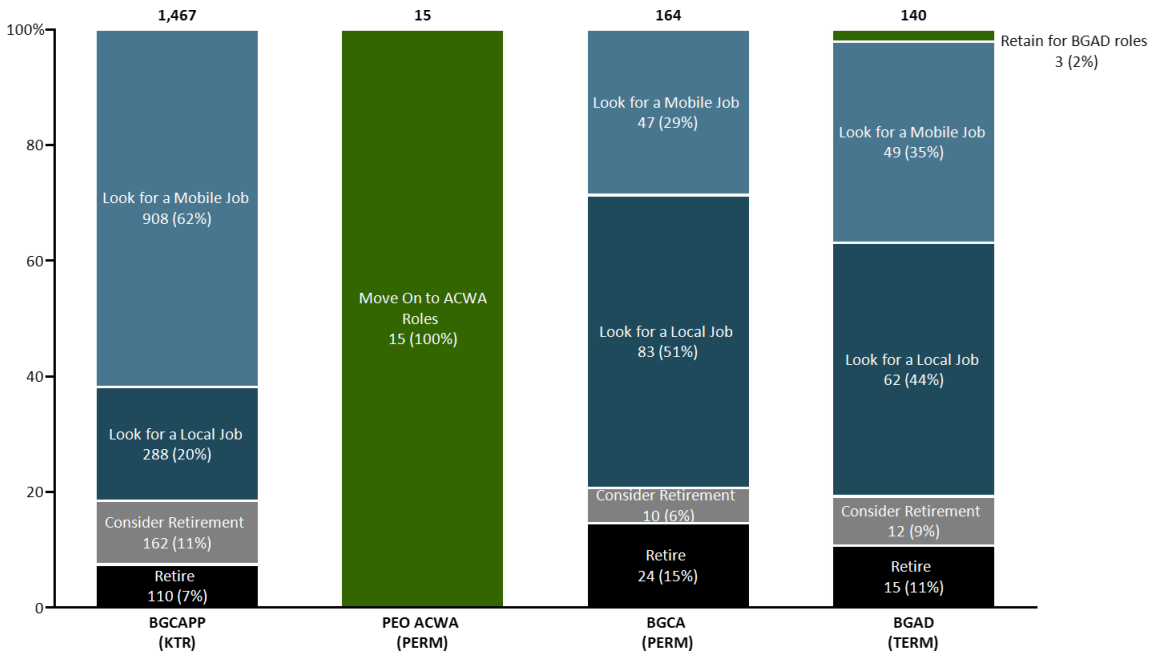


Figure 14: Workforce Related Plans Following the Chemical Munitions Destruction Mission. Most personnel are willing to be mobile to find another position.[31] (Note: BGCA information is accurate as of May 31, 2023; BGCAPP analysis is based on MWM Consulting Planning Survey conducted in fall 2022.)

mission. **Figure 15** illustrates survey responses from BGCA. Within the BGCA workforce, 15% plan to retire, 5% are undecided, and the remaining 80% wish to remain in Federal roles. Of those planning to remain in the workforce, 66% desire local employment. On the other hand, the BGCAPP contractor workforce is much more mobile, with 69% of the workforce surveyed indicating they are willing to relocate, as shown in **Figure 16**.

Of the 1,467 BPBG employees, approximately 110 are expected to retire, 1,196 are expected to seek work when their BPBG contract expires, and the remaining 162 have not communicated their intentions. Most of the BPBG workforce (938 or 69% of the existing workforce) are mobile and willing to move for their next role. Additionally, 58% of BPBG employees are interested in remaining with their current employer.

Considering the high interest to remain with their current employer and the high mobility of this workforce suggests that a majority of the existing BPBG workforce may stay with their current employers but relocate to work at other sites. This leaves an estimated 327 employees who appear likely to look for work in Madison County and the surrounding local area once the BGCAPP mission is completed.

The BGAD workforce has not been surveyed, but assuming similar trends to those from BGCAPP and BGCA, approximately 15 employees may be expected to retire.

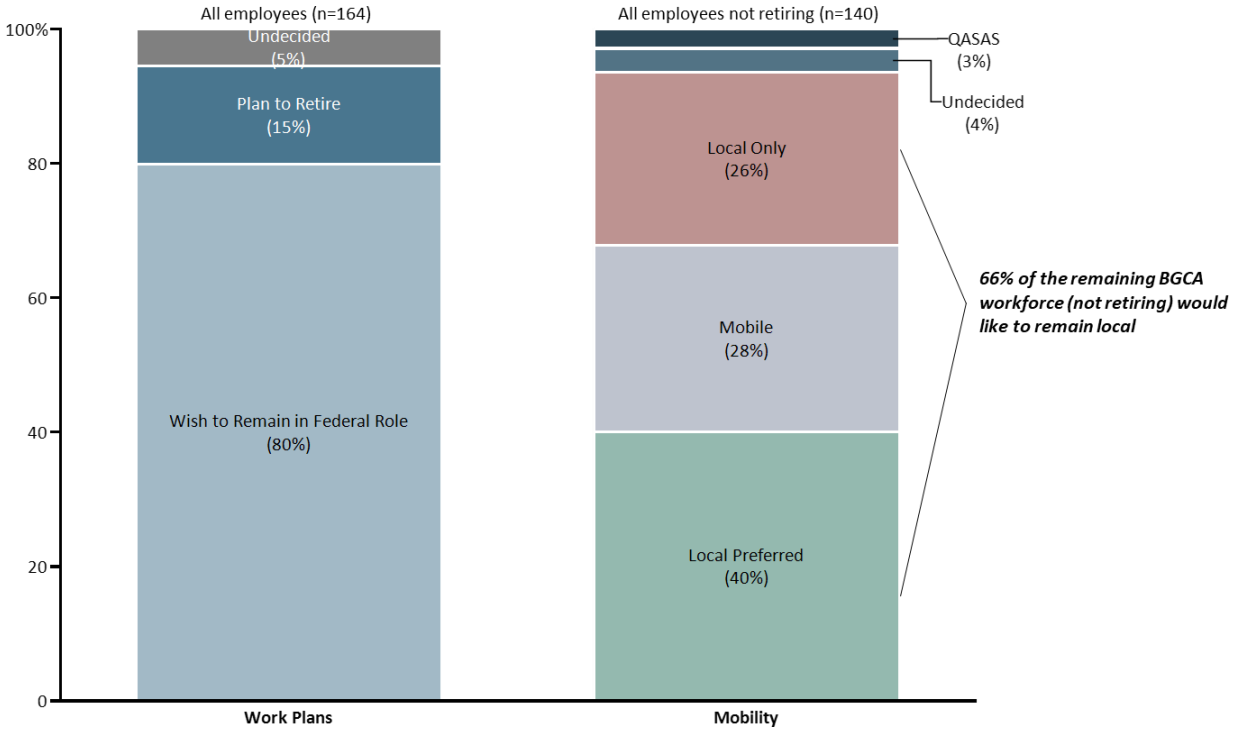


Figure 15: BGCA Workforce Plan Survey Results. Most employees wish to remain in a Federal role, but limited mobility could create challenges for finding placement of these employees.[31]

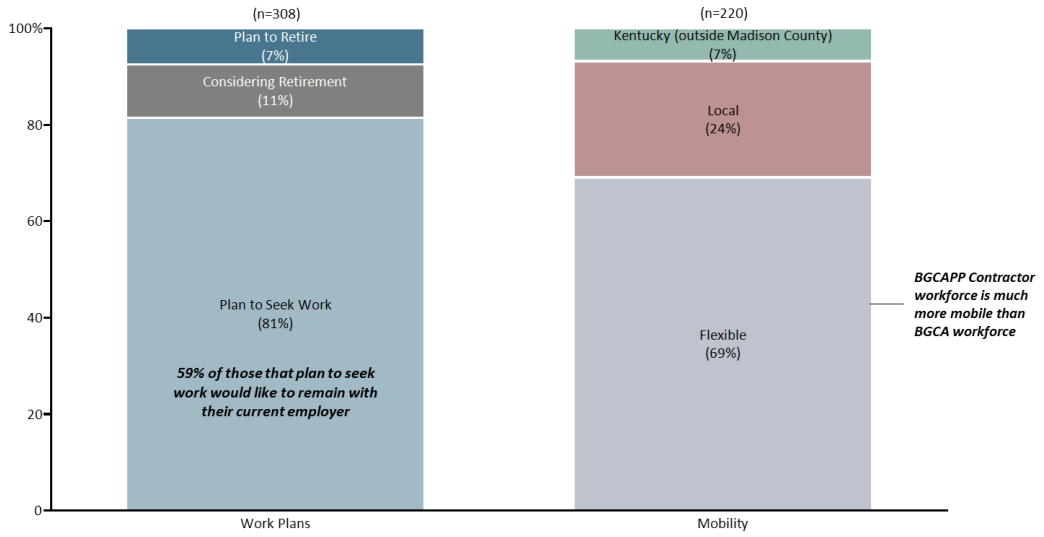


Figure 16: BPBG Workforce Plan Survey Results. 81% of employees plan to seek additional work, but unlike BGCA only 24% are limited by mobility.[36]

The Federal employees supporting BGCAPP from PEO ACWA are expected to move to other missions as the BGCAPP mission ends, and therefore are removed from further consideration in this study. Per JMC, they intend to look for employee placement as part of the "JMC-First" initiative as stated below:

"JMC will create innovative programs to market opportunities to affected civilians in an effort to maintain necessary skillsets to accomplish JMC Mission. We are committed to assisting all permanent civilian employees adversely affected through reduction in force, by reviewing JMC vacancies and collaborating with major subordinate commands to assist in placement of affected employees."

Figure 17 on the next page provides a consolidated view of all 1,786 employees expected to be affected by the end of the chemical munitions destruction mission at BGCAPP. For each group of employees, the number of Permanent, Term, and contractor (KTR) employees is provided along with the roles they currently fill.
Additional details about the skills associated with the affected workforce can be found in *Section 2.4.2 – Current Workforce Capabilities*. **Figure 18** on the next page shows the estimated reductions for these employees by year.

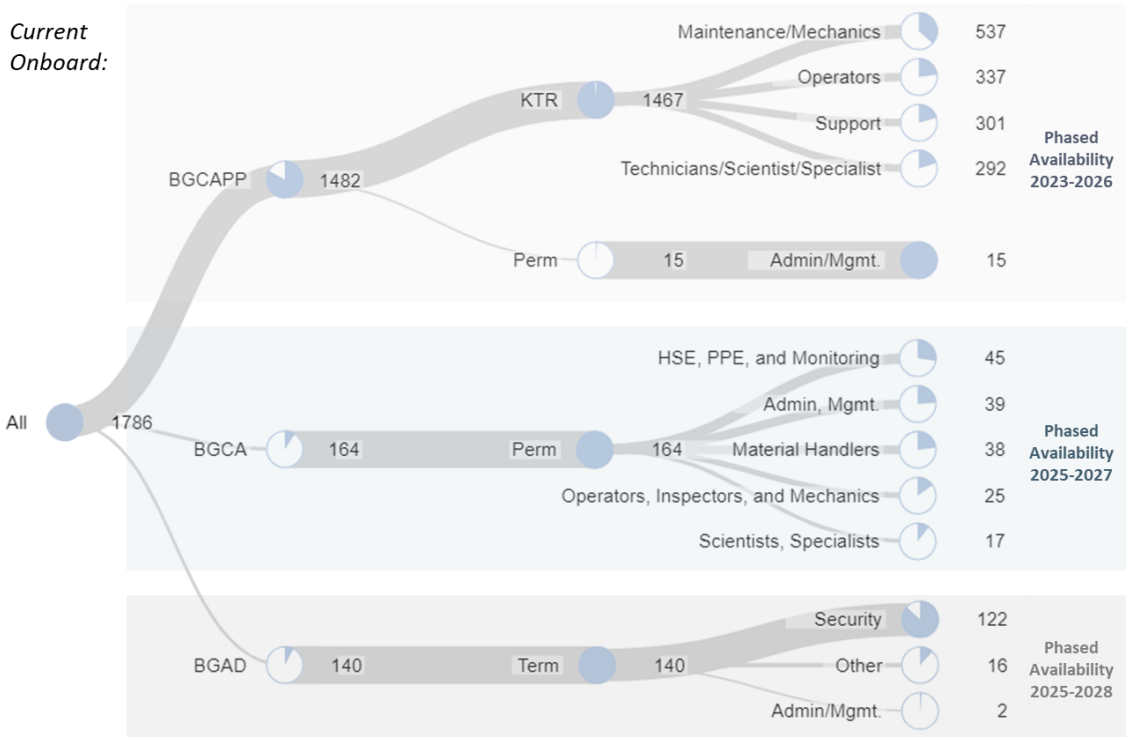


Figure 17: Personnel Breakdown Across Affected Organizations. A large number of skilled employees will become available between 2025-2028.

Estimated Reductions *(draw-downs may occur faster due to VERA/VSIP, natural attrition, mission ahead of schedule, etc.)*							
	Current Staffing	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**
BGCA	164 (PERM) *As of 31MAY23*	**0**	**35 (PERM)**	**46 (PERM)** *Wind-down over FY 2026*	**83 (PERM)** *Wind-down over FY 2026*	**0**	**No additional reductions planned in 2028**
BGCAPP	1,467 (KTR) *As of 31MAY23*	**67 (KTR)**	**125 (KTR)**	**725 (KTR)**	**550 (KTR)**	**0**	
	15 (PERM) *As of 31MAY23*	**0**	**3 (PERM)**	**6 (PERM)**	**6 (PERM)**	**0**	
BGAD	140 (TERM) *As of 11MAY23*	**0**	**0**	**34 (TERM)** *Wind-down over FY 2026*	**103 (TERM)** *Wind-down over FY 2026*	**3 (TERM)** *Environmental Support*	
	571 (Unaffected)* *As of 24MAY23*	**0**	**0**	**0**	**0**	**0**	
	Total	**67**	**163**	**811**	**742**	**3**	**0**

Figure 18: Estimated Personnel Reductions by Year. The majority of personnel reductions will occur between CY2024-CY2026.

Part 2

Site Assessment

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2.1 – Site Assessment Methodology

To assess the BGCAPP facilities and broader BGAD site, the study team evaluated three primary areas: 1) site characteristics, 2) buildings and infrastructure characteristics, and 3) workforce characteristics. Within each of these evaluation areas, assessment criteria were developed and organized into an overall site assessment framework, which is shown in **Figure 19**. The intent of the site assessment is to identify areas of strength and potential areas of concern in each of the three evaluation areas to support decisions regarding reuse of facilities at BGCAPP and on BGAD.

	Assessment Criteria	Evaluation Metric	Potential
Site Characteristics	**Accessibility**	Mileage	• High: Less than 20 miles to infrastructure • Medium: Less than 50 miles to infrastructure • Low: Less than 100 miles to infrastructure • None: More than 100 miles to infrastructure
	Site Risks	National Risk Index	• High: NRI below 50 • Medium: NRI between 50 and 95 • Low: NRI above 95
	Utility Availability	Qualitative	• High: All utilities sufficiently available • Medium: Some utilities insufficient • Low: Most utilities insufficient
	Regulatory Environment	# of Restrictions	• High: Bottom quartile of states • Medium: Middle 50% of states • Low: Top quartile of states
Buildings & Related Infrastructure	**Unique capability**	Qualitative	• High: No • Medium: Yes
	Building footprint	Square Feet	• High (3): Greater Than 15,000 Sq Ft • Medium (2): 5,000 to 15,000 Sq Ft • Low (1): 2,000 to 5,000 Sq Ft • None (0): Below 2,000 Sq Ft
	Sustainment costs	Annual Costs Per Square Foot	• High: Less Than $2.50/Sq Ft • Medium: $2.50 to $5/Sq Ft • Low: $5 to $12/Sq Ft • None: Greater than $12/Sq Ft
	Quality Score	Quality Metric	• High: Greater Than 90 • Medium: 80 to 90 • Low: 60 to 80 • None: Less than 60
	Remaining Planned Lifespan	Useful Life (Years)	• High: Greater than 20 years • Medium: 10 to 20 years • Low: 3 to 10 years • None: Less than 3 years
	Constraints	Arc Impacts CAE Category	• Explosive Arc impacts: [Yes/No] • CAE Category 1: Must be demolished • CAE Category 2: Must be demolished unless agreement obtained • CAE Category 3: Must be decontaminated, but can be reused • CAE Category 4: Available for reuse
Workforce Characteristics	**Headcount**	Headcount	• High: More Than 1,000 available • Medium: 500 to 1,000 available • Low: 100 to 500 available • None: Less than 100 available
	Capability	Qualitative	• High: Many in-demand skillsets • Low: Few in-demand skillsets
	Regional Workforce Supply and Capability	Qualitative	• High: Many in-demand skillsets • Low: Few in-demand skillsets
	Regional Labor Costs	Hourly Costs	• High: BGAD less than median • Low: BGAD above median

Figure 19: Site Assessment Framework. Thirteen criteria were used to evaluate BGCAPP's site characteristics, buildings and related infrastructure, and workforce characteristics.

2.1.1 – Site Characteristics

This first evaluation area considers the characteristics of the overall BGAD site and region, rather than individual facilities or buildings, which are evaluated in the second area. These characteristics are used to inform the evaluation of specific reuse/repurpose opportunities. Specific criteria include:

- **Accessibility.** A quantitative assessment of the depot's access to road, rail, air, and port infrastructure.
- **Risk Index.** A quantitative assessment of the potential for the depot to be impacted by natural disasters, the potential consequences of those disasters, and the community's resilience, as indicated by the National Risk Index.
- **Utility Services**. A qualitative assessment of the utility services (e.g., electricity, water, wastewater, natural gas, security) at BGAD and on the BGCAPP site.
- **Regulatory Environment.** A quantitative assessment of the regulatory environment affecting BGAD and how current regulations might impact potential opportunities.

2.1.2 – Buildings and Related Infrastructure Characteristics

The criteria in this evaluation area were used to evaluate the feasibility of reusing or repurposing individual facilities, buildings, and structures. Several of the criteria are objectively evaluated (e.g., footprint, sustainment costs, condition, and lifespan remaining) and assigned feasibility scores (High, Medium, Low, None) based on their characteristics. The objective criteria are then assigned numerical values and mathematically averaged to determine the feasibility of reusing/repurposing a given facility or structure.

In some cases, constraints or prior decisions dictated the feasibility determination. For example, one such constraint is that buildings that have been exposed to chemical agents are required by law to be destroyed and are therefore not feasible for reuse. Another example is structures already planned for reuse by BGAD and JMC (e.g., the storage igloos in the CLA) were determined highly feasible for reuse because the decision to reuse them had already been made and the study team agreed the decision was in the best interest of meeting AMC and JMC needs. Descriptions for each of the buildings and related infrastructure evaluation criteria are provided below:

- **Unique Capabilities.** A qualitative evaluation of functionality or design characteristics that are highly specialized or provide non-typical features. Examples of unique capabilities include, but are not limited to, a large clear ceiling height, specialized storage or ventilation capabilities, and installation of one-of-a-kind or highly specialized equipment.
- **Footprint.** A quantitative evaluation of the footprint (size and location on the site). This assessment criteria also includes the physical characteristics typically associated with all buildings (e.g., ceiling height, number and size of doors, utility service, etc.).

- **Sustainment Costs.** A quantitative evaluation of the estimated annual sustainment costs for a building or facility.
- **Quality.** A quantitative assessment of the facility's quality and estimated remaining lifespan. The quality determination is based on the results of condition assessments performed by the DoD every 3-5 years. The estimated planned remaining lifespan is based on lifespan planning factors for permanent buildings and modular facilities.
- **Constraints**. A qualitative assessment of legal or regulatory constraints impacting the potential reuse of a facility or building. This assessment considers for each building its Chemical Agent Exposure (CAE) category and any explosive arcs. The CAE category is developed from Federal and Army regulations and historical precedent and represents the potential for each building to be repurposed given its exposure to chemical agent. The explosive arcs evaluation considers how existing arcs at BGAD may be impacted by a reuse/repurpose decision.

Note: Comprehensive explosive arc analysis requires information that was not available to the study team. Therefore, the qualitative assessment of the impact of explosive arcs provided in this study should be considered informational only. These qualitative assessments are not authoritative and should not be used under any circumstances to inform risk determinations or to guide the selection of appropriate safety protocols.

- **Opportunity Potential.** A qualitative assessment of a building or facility's likely suitability to meet the requirement of a defined opportunity.

2.1.3 – Workforce Characteristics

The criteria listed in this evaluation area were used to evaluate the capabilities of the workforce currently supporting the chemical munitions destruction mission, the regional labor pool, and regional labor costs.

- **Headcount.** A quantitative assessment of the personnel who will become available as the chemical munition destruction mission winds down at BGCAPP.
- **Workforce Capabilities.** A qualitative assessment of the capabilities, qualifications, and skillsets of the current workforce supporting BGCAPP the mission and the workforce that will become available as the chemical munition destruction mission winds down.
- **Regional Workforce Supply and Capabilities.** Both a quantitative and qualitative assessment of the regional workforce.
- **Regional Labor Cost.** A quantitative assessment of labor costs in the region.

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2.2 – Site Characteristics

The BGAD site characteristics assessment reveals that the depot offers many attributes to make it an attractive option for adding mission requirements to the depot. Notable positive attributes include accessibility through road and rail infrastructure, low risks from natural disaster, ample industrial utility services, and a relatively permissive state regulatory environment.

2.2.1 – Accessibility

BGAD is centrally located in the southeast United States. It is the closest Army ammunition depot to Forts Liberty, Moore, Campbell, Stewart, and Novosel. BGAD is also relatively close to numerous other bases and installations (see **Figure 20**).[32] Notable among the many accessibility features listed in **Figure 21** (next page) are the site's close proximity to two interstate highways, modern shipping facilities, and the presence of a commercial rail spur.

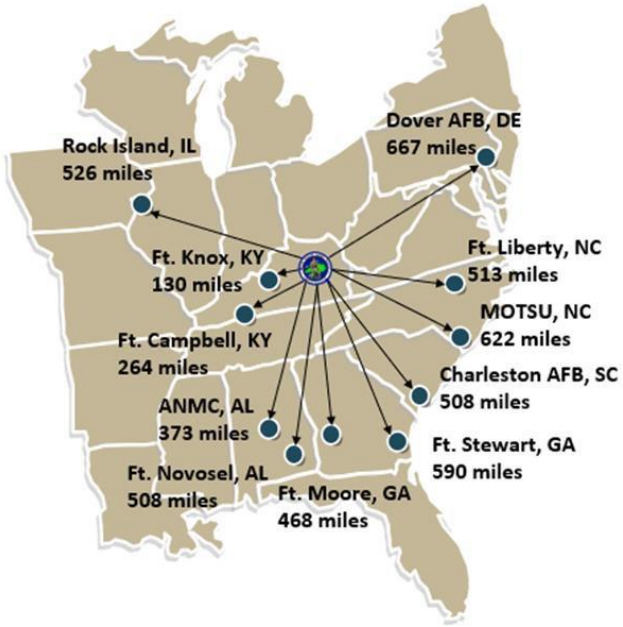

Figure 20: BGAD Proximity to Other Forts and Installations. BGAD is the closest depot to five forts and is centrally located to a large number of other installations.

Category	Strengths	Challenges
Ground Transportation	• 176 miles of roads on site and 21 shipping/receiving pads • Near intersection of I-64 and I-75 • Near regional Highways 25 and 421 • Tri-State Trucking Company is operating nearby with access to ~700 tractors • 41 miles of rail and 17 rail loading docks • 4 locomotives, 59 Army Railcars, and 13 Straddle Carriers • Has CSX rail spur • State-of-the-art shipping facility • 3 holding yards, 2 rail holding yards • 30 loading docks	• Many roads on-site are narrow, winding, or with challenging terrain, making access difficult for large shipments • CSX rail network only covers east of Mississippi River, with less access to West Coast rail infrastructure
Air Transportation	• Located 40 miles from Blue Grass Airport in Lexington for commercial service • Additional commercial services available at Cincinnati and Louisville airports • 3 cargo delivery hubs in Kentucky including DHL and Amazon Air in Hebron (Cincinnati) and UPS in Louisville	• Nearest airport (Blue Grass Airport) is only third largest in the state and has passenger volume of approximately 13% of Cincinnati and 29% of Louisville
Water Transportation	• Over 1,000 miles of commercially navigable waterways • 11 active or developing public riverports in the state	• Nearest river port is the Port of Louisville more than 120 miles from the Depot • Depot is more than 500 miles from the nearest coast and 2,000+ miles from West Coast ports • Depot located West of the Eastern Continental Divide, so water transport only efficient if shipping via Gulf of Mexico
Location	• Closest Depot to FedEx (Memphis) and UPS (Louisville) World Hubs • Close proximity to a large number of military bases including Forts Liberty, Moore, Campbell, Stewart, and Novosel • Many established industries nearby with a strong supplier base • Low costs in the region	• Security and restricted nature of the Depot could create challenges for commercial operation • Explosive storage and associated Arcs may impact feasibility of certain industries and operations • Industries may find locations closer to Cincinnati or Louisville to be more accessible • Relatively small population within commuting distance

Figure 21: BGAD Accessibility Strengths and Challenges. The site has many strengths related to accessibility of ground transportation, air transportation, and location, but challenges could impact specific opportunities.

2.2.2 – Site Risks

The Federal Emergency Management Agency (FEMA) has established a National Risk Index that was used to evaluate risks and resiliency for BGAD. The National Risk Index establishes that the BGAD area and local community are assessed as relatively low risk (see **Figure 22)**. The National Risk Index integrates the expected annual losses due to natural hazards, the region's

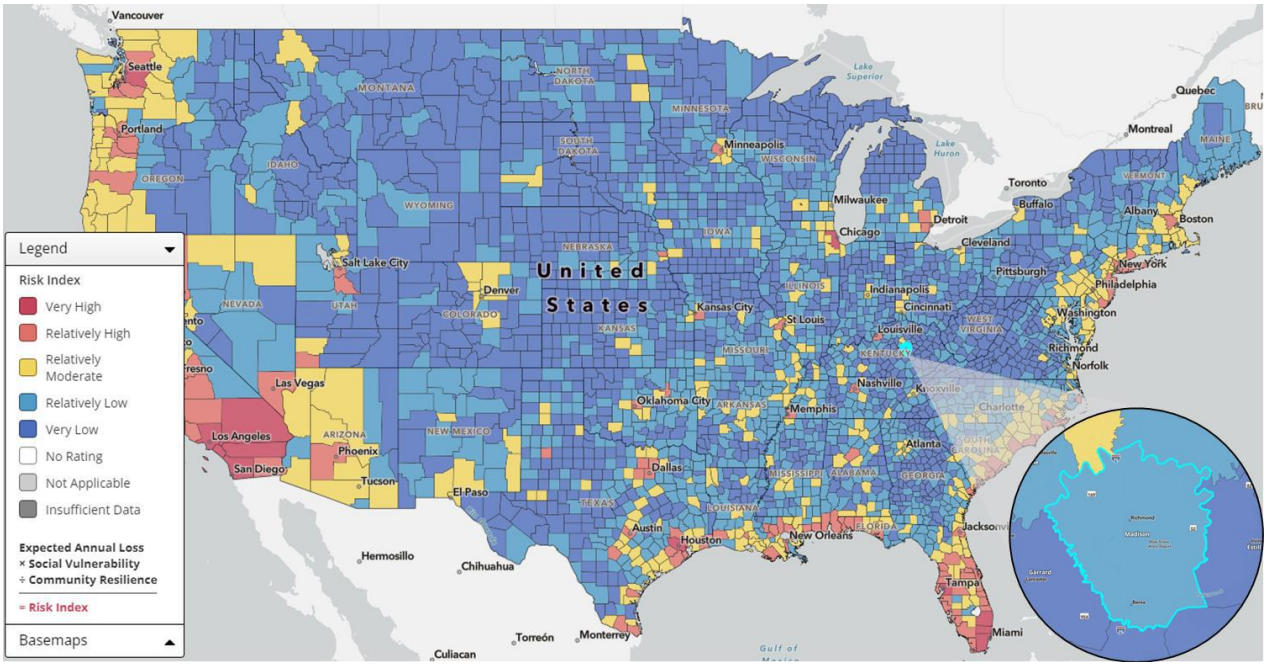

Figure 22: National Risk Index Highlighting Madison County. BGAD and the surrounding Madison County face relatively low risks when compared against other communities.

social vulnerability (e.g., susceptibility to negative events), and the community's resilience (e.g., their ability to prepare for, adapt to, and recover from disruptions).

2.2.2.1 – Expected Annual Loss

Expected losses due to natural hazards for Madison County, KY are in-line with the rest of the non-coastal areas of the southeastern United States (see **Figure 23** on next page, which provides estimates of the annual losses the area can expect based on hazard type). The most likely causes of loss are lightning and landslides, yet the total expected losses in Madison County due to those risks are well under $1M per year. Because the site has low susceptibility to losses, yet good accessibility, it is an attractive location for investment in developing industrial facilities.

2.2.2.2 – Social Vulnerability

Social Vulnerability is the susceptibility of social groups to the adverse impacts of natural hazards, including disproportionate death, injury, loss, or disruption of livelihood. Social Vulnerability is measured using the Social Vulnerability Index (SVI) that is published by the Centers for Disease Control (CDC). Madison County, KY has relatively moderate social vulnerability (see **Figure 24** on the next page).

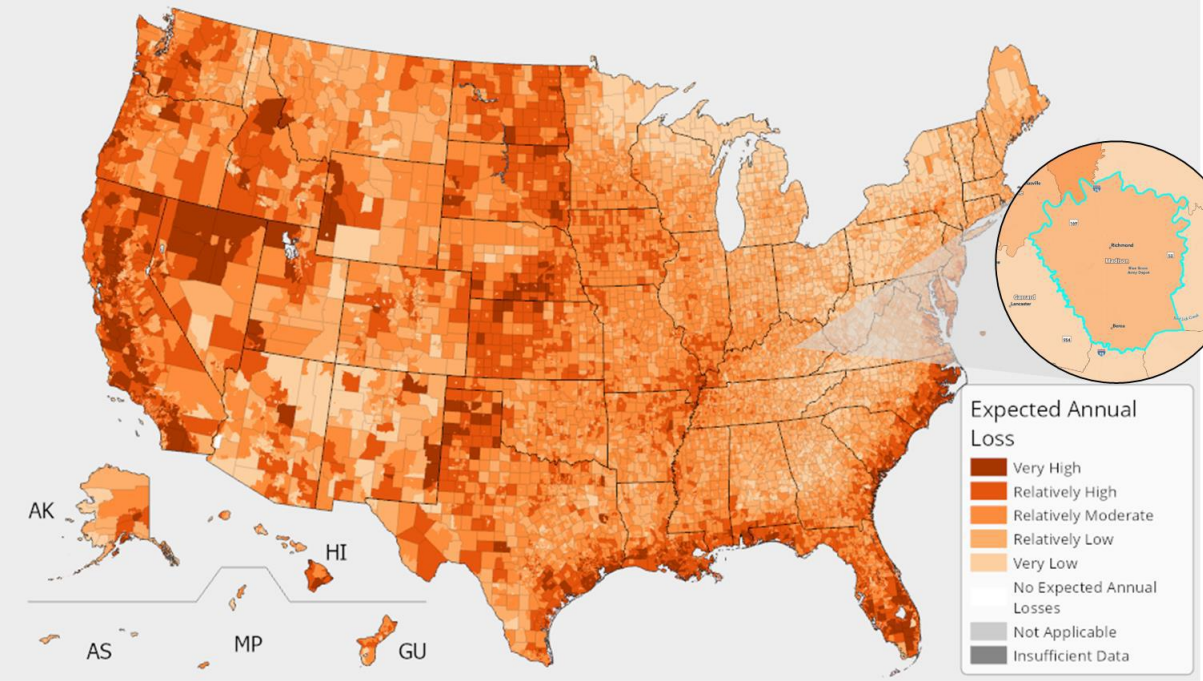

Figure 23: Expected Annual Loss. BGAD and the surrounding Madison County face expected annual losses of less than $1M per year, which is relatively low compared to other communities.

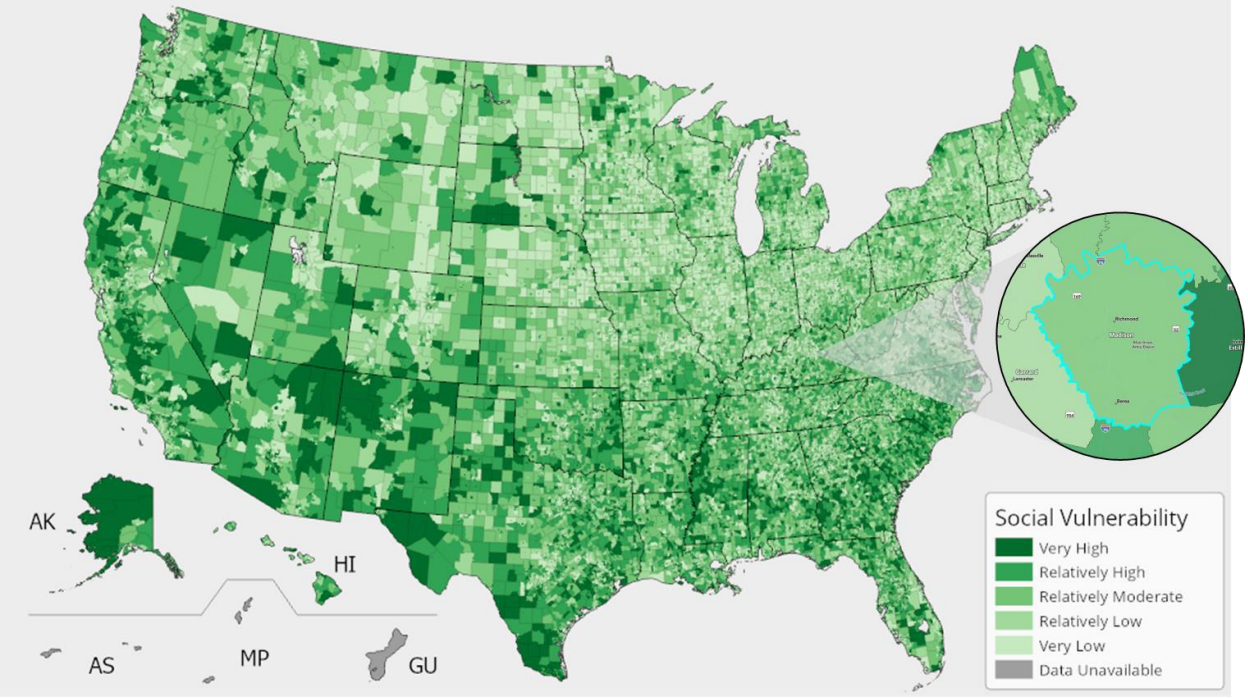

Figure 24: Social Vulnerability. BGAD and the surrounding Madison County are moderately vulnerable to risks.

2.2.2.3 – Community Resilience

Community Resilience is the ability of a community to prepare for anticipated natural hazards, adapt to changing conditions, and withstand and recover rapidly from disruptions. The northern and northeastern U.S. tend to have very high Community Resilience, whereas the southern and western U.S. tend to have low to relatively low resilience (see **Figure 25**). Madison County falls in between with a relatively moderate Community Resilience score.

2.2.3 – Utility Availability

Availability of utilities including electricity, water, gas, wastewater, natural gas, and telecommunications are important for industrial operations. Greenfield sites require the development of such infrastructure and often require very large investments to meet the facility requirements. In the case of BGCAPP, more than $100M[33] was invested in infrastructure that is available to be repurposed, which significantly enhances the attractiveness of the site for those considering other locations that do not already have robust utility services already installed.

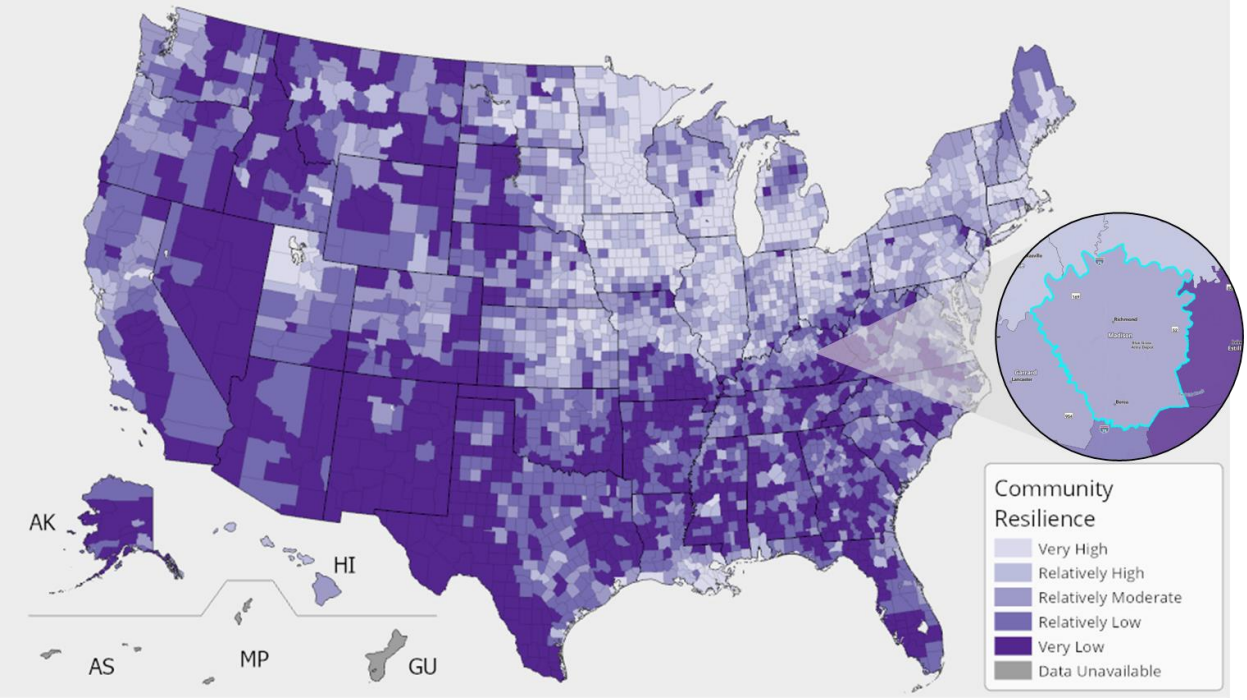

Figure 25: Community Resilience. BGAD and the surrounding Madison County have relatively moderate resilience.

2.2.3.1 – Electrical Service[34]

The BGCAPP site offers robust electrical service, provided by a 138 kV line from Kentucky Utilities interface point to a 33 MVA redundant substation that supplies two 12.47 kV busses at the site. Additional details about the electrical service include:

- A system of utility power centers (UPCs) distributes the 12.47 kV power throughout the site
- The current annual cost to maintain the 138/12.47kV substation is $65,500 per year (which includes two liquid-filled 33 MVA transformers, two 138kV SF6 breakers, a battery bank, associated relay, neutral grounding resistors, and medium voltage cables from transformers to UPC switchgear)
- Three 3.3 MW standby diesel generators (SDGs) are installed at BGCAPP; one diesel generator provides enough power to meet BGAD requirements
- Two 500 kW generators and one 150 kW generator are also installed at BGCAPP
- The substation and SDGs are currently slated for destruction with the rest of the BGCAPP facility; should the substation or SDGs be retained for reuse/repurpose sustainment support will need to be added to the current agreement with BGAD's electric privatization contractor
- 2022 average electricity usage at BGCAPP was 4,000,000 kWh/month
- The 2022 maximum electricity usage for a single month was 4,700,000 kWh

2.2.3.2 – Water Service[34]

Water is provided to the BGCAPP site by BGAD's water treatment plant (WTP). The plant is permitted by the Kentucky Department for Environmental Protection (KDEP) to process up to 720,000 gallons per day (GPD). While the facility is near its technical limitations, if membrane cartridges are added and KDEP approval for increased processing is received, the facility could increase its capacity to 1,000,000 GPD.

At normal pool elevation, BGAD's Lake Vega has 425,500,000 gallons of raw water available to supply the Water Treatment Plant (WTP). The total lake capacity is 573,612,000 gallons. Based on current usage and evaporation rates, Lake Vega can provide approximately 700 days of water supply to the site. During the 2007 drought, the raw water in Lake Vega drew down to a historical low of 91,444,000 gallons.

BGCAPP water usage in 2023 has varied between 43,065 and 116,093 gallons per day (GPD), leaving substantial spare capacity. In the event of a disruption to the WTP, BGCAPP has a backup 6" supply line that ties into the Madison County Utilities District. For severe drought contingency, a portable trailer mounted pump can be brought in and connected to a "tee" that was installed on the raw water line at the Lake Vega dam to continue withdrawals from Lake Vega or be used in the event of raw water pump failure.

2.2.3.3 – Wastewater Treatment[34]

BGCAPP has on-site wastewater treatment service provided by a lift station located on the south end of the site. This station is equipped with two 110 gallon per minute (GPM) pumps configured for alternating use. BGCAPP pumps an average of 28,710 GPD to the BGAD wastewater treatment plant. BGCAPP's maximum wastewater flow to the treatment plant in CY 2022 was 54,390 GPD. The BGAD wastewater treatment plant capacity is 200,000 GPD, and typical inflows to the treatment plant vary between 40,000 and 120,000 GPD.

2.2.3.4 – Natural Gas[34]

The BGCAPP site has an 8" high pressure natural gas line that can supply up to 10,000 MCF per day to the facility. The maximum monthly natural gas consumption for BGCAPP in CY2023 was 31,000 MCF (thousand cubic feet), while the average monthly natural gas consumption was approximately 12,000 MCFs.

2.2.3.5 – Telecommunications[34]

Robust communications infrastructure exists at BGCAPP; however, much of this infrastructure and original cabling runs from a communications structure west of the site (Commo Hut 80) to a communications room in the Personnel Support Building at BGCAPP, which is planned for demolition. A new cable hut or structure at the location of the existing room could be built to preserve the existing branch lines. Currently, telephone/network switching equipment resides in Commo Hut 80 and can service any potential future tenants. There are a total of 144 strands of single-mode fiber running to Commo Hut 80 along with several hundred copper pairs. There is a direct path from the demarcation point for any private circuits that may be desired at the facility. There are sufficient gateways and cards at the site to support a mix of up to 768 digital/analog lines and additional gateways can be added if needed.

2.2.4 – Regulatory Environment

This section looks at the number, type, and complexity of restrictions at the state-level, as well as the explosive arc regulations and impacts at the site-level. A highly restrictive regulatory environment would likely be viewed negatively by opportunities that might otherwise be a good fit for repurposing the available facilities at BGAD.

2.2.4.1 – State-wide Regulations

According to the Mercatus Center at George Mason University, Kentucky ranks number 23 of 44 states in terms of the number of regulations present in the state, based on available 2020 data (data does not exist for all 50 states). This ranking means that 22 states have more restrictive environments when it comes to state-level regulations. In 2018, Kentucky was ranked 12 of 46, so the trend is that Kentucky is becoming less restrictive relative to other

states. It should be noted that this evaluation does not consider the content of the regulations, only the number of state-level regulations. While the number of restrictions does not necessarily have a 1:1 relationship with the impacts of those restrictions, the opinion of the study team is that more restrictions are likely to drive a more challenging regulatory environment. The number of restrictions and the relative rankings for each state is provided in *Appendix A.5 – State-by-State Regulatory Restriction*.[35]

Analyzing the available data for industry-specific state regulatory restrictions reveals that Kentucky generally has fewer restrictions as shown in **Figure 26**.[36] Notably, Kentucky has fewer regulations than most of its neighbors for industrial activities such as Waste Management and Remediation and Chemicals.

Figure 26: Industry Relevant Restriction by State. Kentucky has lower restrictions for potentially relevant industries such as chemical manufacturing or waste management and remediation services.

Kentucky Department of Environmental Protection (KDEP) oversees air quality, water quality, and waste management permits for BGAD. Details about these permits, application fees, timelines, etc. are provided in *Appendix A.6 – Permitting and Regulatory Procedures*.

2.2.4.2 – Explosive Arc Impacts

Defense Explosives Safety Regulation (DESR) 6055.09 establishes explosives safety standards for the Department of Defense. This regulation is published through the DoD Explosives Safety Board under the authority of the DoD Directive 6055.09E.[37]

If any portion of the BGCAPP site is reutilized for DoD ammunition and explosives operations, or in a BGAD location that could be impacted by existing ammunition and explosives operations, an analysis of the explosive arcs and impacts must be completed. The cited regulations may limit the feasibility of opportunities in specific locations across the depot due to the impacts on new or existing operations. For example, a new non-explosive, contractor-led operation in the restricted area would likely have a negative impact on existing storage operations. To fully evaluate the arc impacts of any new operations, design of the new operation must be at least 35% mature before the analysis can begin.

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2.3 – Buildings and Related Infrastructure

This section contains the site assessment for individual buildings and related infrastructure at the BGCAPP, BGCA, and BGAD sites. The intent of the site assessment includes determining the feasibility of reusing/repurposing existing buildings and infrastructure and to inform demolition/retention decisions for the facilities being used by BGCAPP and BGCA. This assessment does not consider greenfield or brownfield development of new buildings or infrastructure on the BGAD, BGCA, or BGCAPP sites. Summary details for all evaluated facilities are shown in **Figure 27** (next page). In total, 94 primary facilities were assessed.

Key facility metrics used in this evaluation are building size, remaining lifespan, and annual sustainment costs. Building sizes across BGAD (including the facilities used by BGCA and BGCAPP) vary greatly. The average footprint is 21,190 square feet (SF), but the standard deviation is 29,950 SF.

Remaining building lifespans vary greatly across BGAD. The average estimated remaining lifespan is 40.5 years, and the standard deviation is 31 years. Average annual sustainment costs are $4.22 per square foot, with a standard deviation of $2.32.

2.3.1 – BGCAPP Buildings and Infrastructure

There are 199 unique structures located within the BGCAPP site, all of which are serviced by a dedicated, secure entry point and access road. These structures include facilities that have directly processed chemical agents, support facilities, access control facilities, static detonation chambers, storage tanks, utilities, canopies, gates, roads, etc. The existing BGCAPP site and facilities are impacted by explosive arcs, which must be considered when evaluating a potential opportunity for the site.

All facilities at the BGCAPP site, except horizontal property, are slated for demolition beginning in CY 2026. Many of these facilities are secondary or tertiary buildings, structures, or pieces of infrastructure (e.g., canopies, pads, transformers, smoking shelters, etc.) that support the primary facilities. The site assessment framework described in *Section 3.1 – Opportunity Evaluation Methodology* has been applied to only the BGCAPP primary facilities as they account for the majority of the site's capabilities that would be repurposed and the majority of the costs to develop the facility.

Facility No.	Building Description	Unique Capabilities	Footprint	Annual Sustainment Costs per Sq Ft	Quality Score	Construction Date	Est. Planned Remaining Life	Category	Other Constraints
17750	Munitions Demilitarization Building (MDB)	Chemical Agent Destruction	86,530 SF	$5.37	DNA	July 2015	69 years	1	Subject to regulation
17760	Control Support Building	None	19,648 SF	$3.80	DNA	July 2015	69 years	1	Subject to regulation
17730	MDB Filter Area	None	1 EA	DNA	DNA	DNA	DNA	1	Subject to regulation
17870	Lab Building	Chemistry Lab	5,066 SF	$11.60	100	July 2015	4 years	4	None
25130	Personnel Support Building	None	23,200 SF	$4.31	100	July 2015	4 years	4	None
17810	Personnel and Medical Building	None	9,502 SF	$4.09	100	July 2015	4 years	4	None
25131	Outside Operations Support Facility	None	3,530 SF	$10.47	100	October 2016	5 years	4	None
17780	Utility Building	None	25,200 SF	$4.68	DNA	July 2015	69 years	4	None
17740	Container Handling Building	None	22,318 SF	$2.17	DNA	July 2015	69 years	3	None
25160	Maintenance Building	None	11,860 SF	$9.70	100	July 2015	69 years	4	None
25210	Substation	Electrical Supply	138 kV	$4.88	100	July 2015	69 years	4	None
17790	Supercritical Water Oxidation Building	Equipment for Subcritical Water Oxidation	25,600 SF	$5.37	DNA	October 2016	70 years	4	None
17460	SDC 2000 and Enclosure	Static Detonation Chamber	DNA	DNA	DNA	DNA	DNA	2	Subject to regulations
25122	SDC 1200 and Enclosure	Static Detonation Chamber	DNA	DNA	DNA	DNA	DNA	2	Subject to regulations
17847	Hydrolysate Storage Area	Liquid Storage	DNA	DNA	DNA	DNA	DNA	4	None
F101-F706	Storage Igloos (x49)	None	2,411 SF	$2.92	84	September 1942	0 years	4	Explosive arcs at BGCAPP
31930	Admin/Lab	None	2,871 SF	$6.25	53	September 2009	66 years	4	None
31940	Laundry Facility	None	5,474 SF	$0.63	42	June 2009	66 years	4	None
31950	Chem Ops Storage	None	3,200 SF	$2.17	100	November 2010	67 years	4	None
31960	PPE Storage	None	3,500 SF	$4.30	99	March 2011	68 years	4	None
31980	PPE Storage	None	4,320 SF	$2.73	99	November 2010	67 years	4	None
31990	RTAP Maintenance Building	None	4,376 SF	$2.17	99	July 2011	68 years	4	None
1146	Chemical Operations Building	None	7,492 SF	$4.30	95	October 1943	0 years	4	None
1147	Mask Fitting	None	10,440 SF	N/A	90	December 2005	63 years	4	None
S-7	Risk Management	None	4,316 SF	$4.30	97	July 1943	0 years	4	Explosive arcs in admin area
S-8	BGCA Command HQ	None	16,579 SF	$1.19	97	July 1943	0 years	4	Explosive arcs in admin area
S-16	BGCA Assembly & Training	None	12,000 SF	$3.23	97	July 1943	0 years	4	Explosive arcs in admin area
S-18	Emergency Operations Center (EOC)	None	3,744 SF	$5.86	92	July 1993	50 years	4	Explosive arcs in admin area
S-43	BGCA Project Office	None	4,000 SF	$4.30	93	November 2003	60 years	4	Explosive arcs in admin area
53	Change House	None	891 SF	$6.63	78	August 2005	62 years	4	Explosive arcs in admin area
S-56	Treaty	None	5,000 SF	$5.86	96	October 1994	51 years	4	Explosive arcs in admin area
59	Storage Garage	None	4,000 SF	$2.17	99	July 2002	59 years	4	Explosive arcs in admin area
60	CSEPP Storage	None	800 SF	$2.17	99	October 2008	65 years	4	Explosive arcs in admin area
50690	Logistics	None	3,600 SF	$4.30	99	June 2012	69 years	4	Explosive arcs in admin area
51660	Surety	None	3,200 SF	$4.30	98	May 2008	65 years	4	Explosive arcs in admin area
202	Storage Building	None	90,000 SF	$2.94	98	October 1943	0 years	4	None
203	Storage Building	None	90,000 SF	$2.93	98	October 1943	0 years	4	None
216	Storage Building	None	91,866 SF	$2.17	95	October 1943	0 years	4	Inside Admin Area
217	Storage Building	None	91,866 SF	$2.17	93	July 1943	0 years	4	Inside Admin Area
280	Detonation Chamber	Large detonation chamber	3,500 SF	$6.06	69	2000	DNA	4	None
60440	Maintenance Operation Building	None	4,713 SF	$2.17	93	2012	DNA	4	None
211	Chemical Defense Equipment	None	91,000 SF	$2.41	87	1943	0 years	4	Inside Admin Area
215	30mm Can Refurbishment	Refurbishment facility	18,000 SF	$4.72	63	1943	0 years	4	Inside Admin Area
232	Multitemperature Refrigerator Container System	None	28,600 SF	$3.20	46	1991	32 years	4	Inside Admin Area
233	Large Paint Booth	Paint capability	17,000 SF	$4.30	86	1990	33 years	4	Inside Admin Area
229	APS-1b Location	None	18,393 SF	$3.66	46	1991	DNA	4	Inside Admin Area
		Average	***21,190 SF***	***$4.22***	***88.7***		***40.5 years***		
		Standard Deviation	***29,950 SF***	***$2.32***	***17.1***		***31 years***		

Figure 27: Summary Characteristics of Evaluated Facilities. Across the three organizations, 94 buildings were evaluated for feasibility and costs. (Note: DNA = data not available)

To differentiate between primary and secondary/tertiary facilities, the study team used BGCAPP's existing Work Breakdown Structure (WBS) which serves to group together structures that support and surround the primary facilities. For example, WBS-10 includes the Super Critical Water Oxidation (SCWO) Process Building, and all the facilities that surround and support the SCWO Process Building. In total, WBS-10 has six facilities, as shown in **Figure 28**, below.

While the site analysis was conducted on the primary facility in each WBS, the fact that the secondary/tertiary facilities exist to support the primary facility enables us to apply the results of the analysis to all facilities in the WBS. In other words, the non-primary facilities in each WBS have the same potential for reuse/repurpose as the primary facility in the WBS. For example, if the analysis determined that the Munitions Demilitarization Building (WBS-07, Facility No. 17750) is not feasible for reuse/repurpose, then all other associated facilities in WBS-07 are also not feasible for reuse or repurpose.

A full list of the 199 structures on the BGCAPP site is provided in *Appendix A.8 – Full List of Depot Structures*. **Figure 29** on the next page provides an overhead image of the 15 primary facilities at the BGCAPP site that were analyzed using the site assessment framework, and summary details for each of these facilities are provided in **Figure 30**, on page 51.

Applying the Buildings and Related Infrastructure assessment framework to the primary BGCAPP facilities shown in **Figure 28** resulted in four categories: 1) facilities with high feasibility for reuse, 2) facilities with limited feasibility for reuse, 3) facilities with low feasibility for reuse, and 4) facilities not feasible for reuse.

Facility No.	Description	Unit of Measure
17790	SCWO Process Building	25,600 Square Feet
PD159	Pads	621 Square Yards
PCB13	Pollutant Catch Basin	4,608 Gallons
17791	Tank Truck Load/Unload Facility	2 Outloads
PCB14	Pollutant Catch Basin	236,192 Gallons
OH019	Overhead Protection	2,592 Square Feet

Figure 28: Example Work Breakdown Structure. Each WBS includes a primary facility along with additional secondary/tertiary facilities or components.

Figure 29: Primary BGCAPP Facilities Evaluated. These 15 facilities are the primary BGCAPP buildings and drive reuse decisions for secondary/tertiary facilities and equipment.

2.3.1.1 – BGCAPP Facilities with High Feasibility for Reuse

Facilities with high feasibility for reuse tend to have a combination of multiple favorable factors such as good quality condition, long remaining lifespans, low sustainment costs, and general characteristics that make them suitable for multiple industrial applications. Facilities with these favorable factors should be considered for retention and future reuse or repurposing.

Three facilities in this category—the Utility Building (Fac. No. 17780, WBS-13), Container Handling Building (Fac. No. 17740, WBS-06), and Maintenance Building (Fac. No 25160, WBS-

Facility No.	Building Description	Unique Capabilities	Footprint	Sustainment Costs/Square Foot	Quality Score	Other Notes
17750	Munitions Demilitarization Building (MDB)	Yes	High	Low	DNA	By law, must be demolished
17760	Control Support Building	No	High	Medium	DNA	Integrated into MDB and must be demolished
17730	MDB Filter Area	No	DNA	DNA	DNA	By law, must be demolished
17870	Lab Building	No	Medium	Low	High	
25130	Personnel Support Building	No	High	Medium	High	
17810	Personnel and Medical Building	No	Medium	Medium	High	
25131	Outside Operations Support Facility	No	Low	Low	High	
17780	Utility Building	No	High	Medium	DNA	
17740	Container Handling Building	No	High	High	DNA	
25160	Maintenance Building	No	Medium	Low	High	
25210	Substation	Yes	DNA	DNA	High	
17790	Supercritical Water Oxidation Building	Yes	High	Low	DNA	Unique capability
17460	SDC 2000 and Enclosure	Yes	DNA	DNA	DNA	Unique capability
25122	SDC 1200 and Enclosure	Yes	DNA	DNA	DNA	Unique capability
17847	Hydrolysate Storage Area	Yes	DNA	DNA	DNA	Unique capability

Figure 30: BGCAPP Facility Evaluation. Given chemical agent exposure, the MDB and MDB Filter Area must be demolished, while the Control Support Building is structurally dependent on the MDB.

20)—all can be repurposed for a wide range of uses. The Utility and Container Handling buildings are large, permanent structures with footprints that exceed 20,000 SF each, while the Maintenance building has a moderate size footprint of 11,860 SF. All three have characteristics and features common in modern industrial buildings such as high ceilings, fire rated construction, climate-controlled environments, etc. None are impacted by constraining CAE categories. The Utility and Maintenance buildings are CAE Category 4. The Container Handling Building is a CAE Category 3 building that had chemical munitions present in the facility but was not exposed to chemical agents. The annual sustainment cost for the Maintenance Building exceeds the BGAD average sustainment cost by 130%, and the Utility Building exceeds the average by 11%. The Container Handling Building annual sustainment cost is 49% lower than the BGAD average.

The Substation (Fac. No.25210, WBS-04) provides electricity to the BGCAPP site. This infrastructure is in good condition with a Quality Score of 100. The Substation is fed power through Kentucky Utilities transmission lines on the north side of BGAD. There is switchgear in place to allow the Substation to be fed from BGAD distribution lines in the event of a disruption to the northern feed from Kentucky Utilities (however, the Substation cannot be used to provide power back to BGAD unless the switchgear is upgraded). The Substation can support any existing facilities at BGCAPP that would be retained as well as new construction facilities that might be added in the future. An important consideration in any reuse decision for the Substation is that the current power service agreement for the Substation is between PEO ACWA and Kentucky Utilities. If the Substation is retained, BGAD will have to update their service agreement with Kentucky Utilities to bring the Substation onto their service scope.

Repurposing these four high feasibility facilities could result in cost avoidance of $46.9M compared to replacement construction costs (*Appendix A.10 – Replacement Construction Costs*).

2.3.1.2 – BGCAPP Facilities with Limited Feasibility for Reuse

Facilities in this category should only be considered for reuse if opportunities are identified that will make use of the specific capabilities inherent in the facility. Without a specific, identified opportunity the benefit of retaining these facilities is limited. Demolishing them increases the availability of open space and optionality to find other opportunities to use the site without having to work around these facilities. Additionally, if these facilities are retained without a clear opportunity to reuse them, the Army will assume full liability for the future sustainment and demolition costs of the facility knowing they may not generate revenue for the depot.

Two facilities—the Personnel Support Building (Fac. No. 25130, WBS-17) and the Personnel and Medical Building (Fac. No. 17810, WBS-40) are modular buildings that will have approximately 4 years of expected lifespan left when the BGCAPP site is turned over to BGAD. These facilities offer benefits that give them some potential for reuse in specific circumstances (e.g., for use as construction support/admin buildings). Both facilities are in good condition with quality scores of 100. Annual sustainment costs for both buildings are in- line with BGAD's average annual sustainment costs. Additionally, the facilities have 23,200 SF and 9,501 SF footprints. Their lower sustainment costs (compared to the other modular buildings) and larger footprints make them relatively more attractive for repurposing than the other modular facilities at BGCAPP. Although they are more attractive, they should be retained only if the value they provide exceeds the costs of sustainment and subsequent demolition.

The Lab Building (Fac. No. 17870, WBS-23) is a medium-size modular facility with a footprint of 5,066 SF. It was built in 2015 and has an annual sustainment cost per square foot that is 175% higher than the BGAD average. If retained, this facility is expected to have approximately four years of useful life remaining when BGCAPP completes its transition. Like the other two modular buildings in this category, the Lab Building may be suitable for a short- duration requirement. Given its higher sustainment cost and smaller footprint than the other two modular buildings in this category, this facility is likely a less attractive option to reuse unless the specialized capabilities of a lab are needed.

Four other facilities in this category—the SCWO Process Building (Fac. No. 17790, WBS-10), the SDC 1200 and Surrounding Enclosure (Fac. No. 25122, WBS-70), the SDC 2000 and Surrounding Enclosure (Fac. No. 17460, WBS-70), and Hydrolysate Storage Area (Fac. No. 17847)—are highly specialized facilities built to meet specific technical requirements related to the destruction of chemical agents and weapons. They have unique capabilities and characteristics that make them unsuitable for general purpose uses. If opportunities exist that require these specific capabilities, then they should be considered for reuse.

The SCWO Process Building is a large, permanent building in good condition and is not subject to any environmental or legal constraints. This facility houses equipment that is capable of processing hazardous waste through supercritical water oxidation. The SCWO process has been proven suitable for treatment of biosolids and wastewater sludge, organic chemical waste, pesticides, and per- and polyfluoroalkyl substances (PFAS) wastes. Although the facility was meant for processing chemical agent at BGCAPP, it was never put into service and is therefore unproven. It is assumed the facility would be functional if operated and managed by a group with the necessary technical knowledge and capabilities to do so. Per PEO ACWA, reuse of the SCWO at the current BGCAPP site would be challenging due to permitting requirements. Due to the extensive specialization of this facility to accommodate the SCWO process, it is unsuitable for conversion to other uses, but it could potentially be relocated or sold if an interested party were to be found.

The SDCs are heated, armored vessels built to destroy chemical agents and munitions by heating them to a temperature above their auto-ignition temperature, resulting in the safe detonation or deflagration of the munitions. The SDC 1200 is capable of destroying up to 6.63 pounds of net explosive weight per shot, while the SDC 2000 has a 17.6 pound capacity per shot.[38] Since both were used to destroy chemical agent, they are CAE Category 2 facilities. haBefore they can be reused, they require thorough decontamination and a reuse agreement signed by the Governor of Kentucky and the Secretary of the Army. The Quality Score and sustainment costs for SDC facilities could not be determined due to insufficient information. The SDCs are highly integrated into their building enclosures, which will result in the buildings being destroyed if the SDC is dismantled or relocated to another facility.

The Hydrolysate Storage Area includes five large storage tanks with a total storage capacity of 672,875 gallons designed for the storage of hydrolysate. Due to operational issues during testing, these tanks are not currently being used as part of the BGCAPP operation. These tanks are considered CAE Category 4. While the Hydrolysate Storage Area likely has limited utility for most industrial operations, it could be repurposed in tandem with the SCWO facility.

Repurposing four of these seven limited feasibility facilities could result in cost avoidance of $42.1M compared to replacement construction costs as shown in *Appendix A.10 – Replacement Construction Costs* (replacement costs were unavailable for the SCWO, SDCs, and Hydrolysate Storage Area).

2.3.1.3 – BGCAPP Facility with Low Feasibility for Reuse

The Outside Operations Support Facility (Fac. No. 25131, WBS-70) is a small modular building with a 3,530 SF footprint. Although the building is in good condition (quality score of 100), sustainment costs for modular facilities near the end of their expected lifespan increase significantly when compared to the sustainment costs earlier in the lifespan. The building is expected to have only approximately five years of life remaining when the BGCAPP transition is complete, and the annual sustainment cost per square foot for this facility is already 150% higher than the average cost for BGAD.

Repurposing this low feasibility facility could result in cost avoidance of $1.4M compared to replacement construction costs (*Appendix A.10 – Replacement Construction Costs*).

2.3.1.4 – BGCAPP Facilities Not Feasible for Reuse

Facilities in this category cannot be reused because they are impacted by legal or safety constraints that prevent them from being reused or repurposed and must be demolished.

Two of the three facilities in this category—the Munitions Demilitarization Building (Fac. No. 17750, WBS-07) and MDB Filter Area (Fac. No. 17730, WBS-07)—are not feasible for reuse because they are CAE Category 1 facilities have come into direct contact with chemical agent hazardous waste from the chemical agent destruction process. Per Public Law 99-145, these facilities are required to be cleaned, dismantled, and disposed of.

The Control Support Building (Fac. No. 17760, WBS-06) is a facility that supports destruction of chemical agent in the Munitions Demilitarization Building. Although the Control Support Building did not come into direct contact with chemical agents, it is structurally integrated with the MDB and will be destroyed when the MDB is demolished.

2.3.2 – BGCA in the Chemical Limited Area

Within the Chemical Limited Area, BGCA occupies 230 acres (see **Figure 31**). This site is situated west of BGCAPP and is fully enclosed by a double security fence. The site is accessible through multiple access roads on BGAD but has no direct access to public roads or highways. The site is encumbered by explosive arcs, and therefore its best reuse purpose is for explosives storage.

There are a total of 76 structures in the CLA used by BGCA. The primary structures are 49 earth covered igloos. The igloos are organized into groups of 6-8 for local planning and management purposes. **Figure 32** summarizes the site assessment results for the igloos.

Each of the 49 igloos in the CLA have a footprint of 2,411 SF and are used for storage of chemical munitions. The annual sustainment costs per square foot for the igloos are 31% lower than average for the depot, and the quality score for all igloos is 84. The igloos were built in 1942 and have passed their expected lifespan of 80 years. To enable continued use, BGAD has invested in upgrading the igloos with new waterproof roof membranes and improved door configurations. As BGCA completes its mission, and the igloos meet the RCRA requirements, they will be initially transferred to PEO ACWA before ultimately reverting back to BGAD. All igloos will support future BGAD and JMC storage requirements. While the age of the igloos would normally indicate a low feasibility for reuse, because BGAD is investing in extending their lifespan, the study team assesses they have high feasibility for reuse.

All remaining BGCA facilities in the CLA are smaller buildings and infrastructure that support the storage mission. Unlike the buildings and infrastructure within BGCAPP, this BGCA infrastructure is not slated for demolition. Therefore, these smaller buildings and

Figure 31: Map of the Chemical Limited Area. The BGCA igloos are located in the Chemical Limited Area west of the BGCAPP site.

Facility No.	Building Description	Unique Capabilities	Footprint	Sustainment Costs/Square Foot	Quality Score	Est. Planned Remaining Lifespan	Other Notes
F101-F106	Storage Igloos	None	Low	Medium	Medium	None – life extended through maintenance	Needed for BGAD Mission
F201-F207	Storage Igloos	None	Low	Medium	Medium	None – life extended through maintenance	Needed for BGAD Mission
F301-F306	Storage Igloos	None	Low	Medium	Medium	None – life extended through maintenance	Needed for BGAD Mission
F401-F408	Storage Igloos	None	Low	Medium	Medium	None – life extended through maintenance	Needed for BGAD Mission
F501-F508	Storage Igloos	None	Low	Medium	Medium	None – life extended through maintenance	Needed for BGAD Mission
F601-F608	Storage Igloos	None	Low	Medium	Medium	None – life extended through maintenance	Needed for BGAD Mission
F701-F706	Storage Igloos	None	Low	Medium	Medium	None – life extended through maintenance	Needed for BGAD Mission

Figure 32: BGCA Evaluation in the Chemical Limited Area. Igloos all have similar characteristics including footprints, sustainment costs, quality, and remaining lifespan, leaving little to differentiate among them.

infrastructure are available for reuse to provide continued support to BGAD's conventional munitions storage mission.

2.3.3 – BGCA in the Restricted Area

Outside of the CLA, but still inside the BGAD Restricted Area, BGCA has 19 additional structures, of which 8 are primary structures that were assessed. The remaining 11 structures are secondary/tertiary facilities (e.g., aide station, command post, smoking shelter, etc.). The Restricted Area has controlled access that is managed by the BGAD security team. These BGCA facilities are located south of the CLA, towards the geographic center of the depot (see **Figure 33**). Many of these facilities are impacted by explosive arcs, which must be considered when making reuse decisions for these facilities.

Of these 19 facilities in the Restricted Area assigned to BGCA, 15 will be transferred to BGAD by October 2025. The four remaining structures will support BGCAPP transition and will be available no later than August 2026. Applying the Buildings and Related Infrastructure assessment framework to the 8 primary BGCA facilities returned three categories of results (see **Figure 34**): 1) facilities with high feasibility for reuse, 2) facilities with limited feasibility for reuse, and 3) facilities with low feasibility for reuse.

2.3.3.1 – BGCA Restricted Area Facilities with High Feasibility for Reuse

The Mask Fitting Building (Fac. No. 1147) is a mid-size facility (10,440 sq ft) in good condition with a quality score of 90. The facility has 63 years of estimated useful life remaining and is planned to revert to BGAD no later than August 2026. Annual sustainment costs were not available for this building. The facility has no unique capabilities but is suitable for general industrial purposes and has a high feasibility for reuse.

2.3.3.2 – BGCA Restricted Area Facilities with Limited Feasibility for Reuse

Facilities in this category have very narrow reuse applications and other facilities exist at the depot that are better suited to a broader set of applications. Nevertheless, if an opportunity is identified that very closely matches the capabilities of these facilities they should be considered for that purpose.

The two PPE Facilities (Fac. Nos. 31980 and 31960) are small storage facilities that are currently used to store personal protective equipment. They are expected to revert to BGAD in 2026. The facilities are in good condition and have approximately 67 years of useful life remaining. Annual sustainment costs per square foot for Fac. No. 31960 are in-line with the depot average, and the sustainment costs for Fac. No. 31980 are 35% below the depot average. These two facilities have small footprints (4,380 and 3,500 SF, respectively). While their condition, remaining life, and sustainment costs indicate they are feasible for reuse, their relatively small footprints limit their reuse potential.

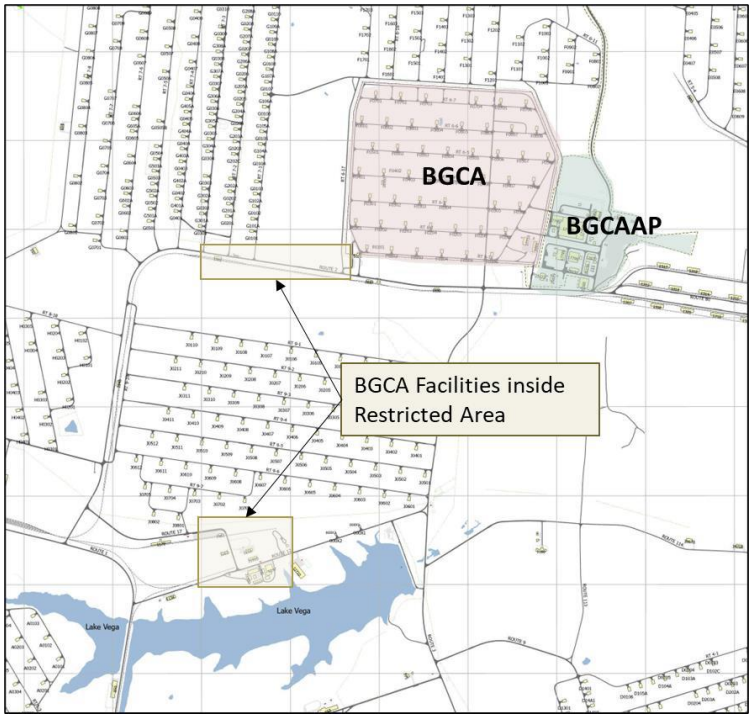

Figure 33: Map of BGCA Facilities in the Restricted Area. Nineteen BGCA owned facilities are present in the restricted area, but only eight are primary structures assessed for this study.

Facility No.	Building Description	Unique Capabilities	Footprint	Sustainment Costs per Sq Ft.	Quality Score	Est. Planned Remaining Life	Other Notes
31930	Admin/Lab	Lab	Low	Low	None	High	None
31940	Laundry Facility	None	Medium	High	None	High	Unavailable until August 2026
31950	Chem Ops Storage	None	Low	High	High	Low	None
31960	PPE Storage	None	Low	Medium	High	High	Unavailable until August 2026
31980	PPE Storage	None	Low	Medium	High	High	Unavailable until August 2026
31990	RTAP Maintenance Building	None	Low	Low	High	High	None
1146	Chemical Operations Building	None	Medium	Medium	High	High	None
1147	Mask Fitting	None	Medium	DNA	High	High	None

Figure 34: BGCA Evaluation in the Restricted Area. The majority of primary facilities have long estimated remaining life and high quality scores, but generally small footprints.

The Chem Ops Storage Building (Fac. No. 31950) is a small facility (3,200 SF). It has no unique capabilities and is currently used as a storage space. It has a quality score of 100 and an estimated 67 years of useful life remaining. The RTAP Maintenance Building (Fac. No. 31990) is a small maintenance facility (4,376 sq ft) with a quality score of 99 and 68 years of useful life remaining. The annual sustainment cost per square foot for both buildings is 49% below the BGAD average. However, the relatively small footprints for these buildings limit their reuse potential.

2.3.3.3 – BGCA Restricted Area Facilities with Low Feasibility for Reuse

The Chemical Operations Facility (Fac. No. 1146) is a midsized office building with blast walls that reverts to BGAD by October 2025. The facility is in good condition and has annual sustainment costs that are in line with the depot average. However, the facility was built in 1943 and is at the end of its expected useful life, which gives it a low reuse potential (especially for any requirement that will exist for more than a couple of years).

The Lab Building (Fac. No. 31930) is a small concrete block building that currently houses a chemistry lab. It reverts to BGAD by October 2025. The building has 66 years of useful life remaining but is in poor condition. As of June 2023, the facility has a quality score of 53. The building's annual sustainment costs per square foot are 48% higher than BGAD's average annual sustainment cost. Given the lab's poor condition and high sustainment costs, it is not attractive for reuse unless a requirement for the capabilities of a laboratory needs to be met.

The Laundry Facility (Fac. No. 31940) reverts to BGAD no later than August 2026. It has 66 years of estimated useful life remaining and has a moderate-size footprint (5,474 SF).
Although the annual sustainment costs per square foot for this building are 85% below the depot average, the building's quality score of 42 is the lowest of any building evaluated by the study team. The low quality score indicates investment is needed before the building would likely be suitable to support other missions. All reuse decisions for this building should evaluate the potential revenue generated by the opportunity versus the investment required to improve the building's quality score.

2.3.4 – BGCA in the Administrative Area

In addition to its facilities in the Chemical Limited and Restricted Areas, BGCA also occupies 11 buildings in the BGAD Administrative Area. These buildings transfer from BGCA to BGAD no later than October 2025.

Applying the Buildings and Related Infrastructure assessment framework to the BGCA facilities shown in **Figure 35** returned only two categories of results: 1) facilities with limited feasibility for reuse and 2) facilities with low feasibility for reuse.

Facility No.	Building Description	Unique Capabilities	Footprint	Sustainment Costs per Sq Ft.	Quality Score	Est. Planned Remaining Life
S-7	Risk Management	None	Low	Medium	High	None
S-8	BGCA Command HQ	None	High	High	High	None
S-16	BGCA Assembly & Training	None	Low	Medium	High	None
S-18	Emergency Operations Center (EOC)	None	Low	Low	High	High
S-43	BGCA Project Office	None	Low	Medium	High	High
53	Change House	None	None	Low	Low	High
S-56	Treaty	None	Medium	Low	High	High
59	Storage Garage	None	Low	High	High	High
60	CSEPP Storage	None	None	High	High	High
50690	Logistics	None	Low	Medium	High	High
51660	Surety	None	Low	Medium	High	High

Figure 35: BGCA Evaluation in the Administrative Area. These facilities have wide variety of footprints, estimated remaining life, and sustainment costs, but their administrative nature limits reuse feasibility.

2.3.4.1 – BGCA Administrative Area Facilities with Limited Feasibility for Reuse

Most of the facilities in this category are likely only feasible to reuse for administrative-type activities. These facilities are in good condition but are configured for non-industrial types of use. Converting these facilities for industrial uses would require significant modifications and investment, which is likely impractical because there are many other available facilities at BGAD already configured for industrial use. There are seven BGCA facilities inside the Administrative Area that fall into this category. They all revert to BGAD in October 2025.

The CSEPP Storage Building (Fac. No. 60), the Logistics Building (Fac. No. 50690), the Surety Building (Fac. No. 51660), the Treaty Building (Fac. No. S-56), the BGCA Project Office (Fac. No. S-43), and the Emergency Operations Center (Fac. No. S-18) are all facilities with small to mid- sized footprints (less than 5,000 SF), are in good condition, and have at least 50 years of expected life remaining. The annual sustainment costs per square foot are 49% below the BGAD average for the CSEPP Storage Building, are in-line with the BGAD average for the Logistics Building and BCGA Project office, and 39% above average for the Emergency Operations Center. The relatively small size of these buildings and their configuration for administrative uses limits the reuse potential for these facilities.

The BGCA Command Headquarters (Fac. No. S-8) has a large footprint (16,579 SF) and annual sustainment costs per square foot that are 72% below the BGAD average, but the building has passed its expected lifespan.

The Storage Garage (Fac. No. 59) is a storage and maintenance facility with a 4,000 SF footprint. The facility is in good condition with a quality score of 99 and has 59 years of estimated life remaining. Annual sustainment costs per square foot are 49% below the BGAD average. Unlike the other facilities in this section, the Storage Garage is configured for industrial-type use, but the small footprint limits its reuse potential.

2.3.4.2 – BGCA Administrative Area Facilities with Low Feasibility for Reuse

The BGCA Assembly and Training Building (Fac. No. S-16) is a mid-size facility (12,000 SF) and the Risk Management Building (Fac. No. S-7) is a small facility (4,316 SF). Both buildings are in good condition. The annual sustainment cost for the Assembly and Training Building is 23% below the BGAD average, and the Risk Management Building is in-line with the BGAD average. Both buildings were built in 1943 and are at the end of their expected useful life.

The Change House (Fac. No. 53) is a small building (891 SF) that is currently used as a place for employees to change their clothes. The facility's annual sustainment costs are 57% above the BGAD average and the building is in poor condition with a quality score of 78. Although the building has approximately 62 years of expected life remaining, its poor quality, high sustainment costs, and small footprint make it poorly suited for reuse.

2.3.5 – BGAD Buildings and Infrastructure

While the majority of BGAD facilities are out of scope for this feasibility study, there are 11 buildings with potential to support new missions at the depot. Seven of these facilities are in the BGAD Administrative Area and four of them are in the Restricted Area. Seven of these facilities are currently used for storage by BGAD, but they could be repurposed for other uses provided the items being stored could be moved to a different facility. All 11 of these buildings have limited feasibility for reuse (see **Figure 36**).

2.3.5.1 – BGAD Facilities with Limited Feasibility for Reuse

The facilities in this category all have constraints that limit their reuse potential. Additionally, some of these facilities are supporting ongoing missions that would need to be completed or relocated before they could be repurposed.

Four storage buildings (Fac. Nos. 202, 203, 216, and 217) are large facilities with footprints of 90,000 to 91,866 SF each. These four buildings are in the Administrative Area, and facilities 202 and 203 are enclosed by a secure fence and equipped with a guard station for secure access. Although these buildings were built in 1943 and have exceeded their expected lifespans, they still have high quality scores and annual sustainment costs per square foot that are 31% to 49% below the average sustainment cost for BGAD. These buildings are currently serving other missions that would have to be relocated if the buildings are repurposed. These buildings are only feasible to reuse if the value realized through the new use covers the costs to relocate the ongoing mission to other available facilities on site.

Facility No.	Building Description	Unique Capabilities	Footprint	Sustainment Costs per Sq Ft.	Quality Score	Est. Planned Remaining Life	Other Notes
202	Storage Building	None	High	Medium	High	None	None
203	Storage Building	None	High	Medium	High	None	None
216	Storage Building	None	High	High	High	None	Inside Admin Area
217	Storage Building	None	High	High	High	None	Inside Admin Area
280	Detonation Chamber	Large detonation chamber	Low	Low	Low	DNA	None
60440	Maintenance Operation Building	None	Low	High	High	DNA	None
229	APS-1b Location	None	High	Medium	Low	DNA	Inside Admin Area
232	Multitemperature Refrigerator Container System	None	High	Medium	Low	DNA	Inside Admin Area
233	Large Paint Booth	Paint capability	High	Medium	Medium	DNA	Inside Admin Area
211	Chemical Defense Equipment	None	High	High	Medium	DNA	Inside Admin Area
215	30mm Can Refurbishment	Refurbishment facility	High	Medium	Low	DNA	Inside Admin Area

Figure 36: BGAD Evaluation. All BGAD facilities have limited feasibility for reuse due to estimated lifespans, existing operations, and unique capabilities.

The Multitemperature Refrigerator Container System (Fac. No. 232) and the APS-1b Location (Fac. No. 229) are both large facilities. The APS-1b facility has a footprint of 18,393 SF and the Refrigerator Container System facility is 28,600 SF; annual sustainment costs per square foot for the APS-1b are 13% below BGAD average, and the Refrigerator Container System facility is 24% below average. Their sizes make them attractive for industrial use, but they are both in poor condition with quality scores below 50. Both facilities were built in 1991 and have an expected remaining useful life of 48 years. The facilities may be attractive for many types of opportunities, but the poor condition is likely to constrain reuse potential.

The Chemical Defense Equipment Building (Fac. No. 211) is a 91,000 SF facility and is currently used to execute a logistics and storage mission. If the facility were repurposed to support another mission at BGAD, its current mission would need to be relocated elsewhere. The facility has annual sustainment costs per square foot that are 43% below the average BGAD cost despite the facility's age. This building was built in 1943 and is at the end of its expected lifespan, which likely limits its potential for reuse.

The Large Paint Booth (Fac. No. 233) and 30mm Can Refurbishment Facility (Fac. No. 215) provide specialized painting capabilities to the depot. The Large Paint Booth and 30mm Can Refurbishment Facility are in the Administrative Area, and the Detonation Chamber is in the Restricted Area. The Large Paint Booth can be used for painting large equipment (e.g., helicopters, vehicles, mobile structures, etc.)

and has an annual sustainment cost per square foot that is in-line with the BGAD average. The 30mm Can Refurbishment Facility has an overhead conveyer system and paint drying booth installed in the building. The annual sustainment costs per square foot are 12% higher than the BGAD average and this facility is currently supporting the refurbishment mission. These are both industrial-scale painting facilities and their reuse potential is most likely limited to painting or similar missions.

The Controlled Detonation Chamber (Fac. No. 280) is a steel reinforced chamber that provides an alternative to Open Burn and Open Detonation (OB and OD) disposal for conventional munitions. The Controlled Detonation Chamber (CDC) has a maximum net explosive weight limit of approximately 40 pounds per shot, but this capacity is shared with a donor explosive, thereby making the net explosive weight of the disposal target less than half of the rated capacity. To date, the cost to dispose of conventional munitions in the CDC has not been thoroughly studied by the JMC DEMIL Directorate. Previous studies involving the CDC have led to unintended damage to equipment during testing.[39] Although in-depth cost analysis was not readily available, given the small net explosive weight limits and known technical limitations, the Controlled Detonation Chamber is unlikely to be a cost-effective alternative to OB and OD.

The Potential Maintenance Operation Building (Fac. No. 60440) is a small (4,713 SF) facility in good condition located in the Restricted Area. It has 69 years of estimated life remaining and its annual sustainment costs per square foot are 49% below the BGAD average. When the facility was built in 2012 it was intended to be used to process liquid hazardous materials, so it has a specialized floor and an underground bladder system to contain spills. The floor and bladder system do not limit the facility's use for general industrial purposes, but the small footprint does limit the types of opportunities this building is suitable to support.

2.4 – Workforce Characteristics

This section provides an assessment of the workforce and its feasibility to support future missions at BGAD. Whether the future missions are executed at the BGCAPP site or at other BGAD facilities does not have any impact on the analysis in this section. This analysis covers personnel that are currently performing work related to the chemical munitions destruction mission and the workforce in the broader Blue Grass region.

2.4.1 – Workforce Supporting the Chemical Munitions Destruction Mission

As of May 2023, there are 1,786 employees who directly support the ongoing chemical munitions destruction mission. These personnel are employed by four different employers:

- **Bechtel Parsons Blue Grass (1,467 employees):** Bechtel Parsons Blue Grass (BPBG) is a joint venture made up of two contractors (Bechtel National, Inc. and Parsons Corporation) and three subcontractors (Amentum, Battelle Memorial Institute, and GP Strategies Corporation). Employees at BPBG are private contractors to the Government tasked with designing, building, testing, operating, maintaining, monitoring, and closing the BGCAPP.
- **PEO ACWA (15 employees):** PEO ACWA employees are federal government employees responsible for the management of BGCAPP and the destruction of the remaining U.S. chemical weapons stockpile at BGAD.
- **Blue Grass Chemical Activity (164 employees):** BGCA employees are federal government employees who are responsible for the safe storage and transportation of chemical munitions to and from the BGCAPP facilities.
- **Blue Grass Army Depot (140 employees):** BGAD supports the chemical munitions destruction mission with 140 federal government employees that provide security and other support functions to BGCAPP and BGCA. In total, BGAD has 711 employees, but only 140 of them have been identified as directly supporting the chemical munitions destruction mission. The remaining 571 BGAD employees are not expected to be directly impacted by the completion of the chemical munitions disposal mission.

2.4.2 – Chemical Mission Workforce Characteristics

The majority of the personnel affected by the completion of the chemical munitions destruction mission are BPBG joint venture contractors. The BPBG joint venture team includes the workforce and capabilities summarized in **Figure 37**. The BPBG workforce is highly mobile, with 69% indicating they are willing to relocate for future employment, and 24% indicating they intend to stay in the local area. The current workforce supporting the BGCAPP mission is skilled, specialized, and technical. Employees from Amentum completed a survey administered in fall 2022 to gather information about their current qualifications and competency. The results of this survey are shown in **Figure 38**.

The second largest group of affected employees are the 164 federal permanent employees at BGCA. Of these 164 employees, 24 have indicated they plan to retire from their current positions. Of the 140 BGCA employees who have expressed interest in remaining in Federal jobs, 66% say their preference is to remain in the local area. Ten BGCA employees are eligible for early retirement or separation incentive pay through the Voluntary Early Retirement Authority (VERA) or the Voluntary Separation Incentive Pay (VSIP) Authority.

Employer	Role	Workforce	Primary Responsibilities	Key Positions
Bechtel National, Inc.	Prime Contractor	301 employees (~20% of BPBG workforce)	Admin and support roles for the site, including construction	Schedulers, Estimators, Quality Personnel, Procurement, Facilities Management, Office Management
Parsons Corporation	Prime Contractor	337 employees (~25% of BPBG workforce)	Plant Operations	Chemical Operators
Amentum	Subcontractor	537 employees (~35% of the BPBG workforce)	Support plant operations	Maintenance Technicians, Mechanics, Engineers, etc.
Battelle Memorial Institute	Subcontractor	239 employees (~15% of the BPBG workforce)	Plant monitoring (including emissions, etc.)	Technicians (monitoring, instrument, environmental, etc.), Chemists, Lab Programmers, and Statisticians
GP Strategies	Subcontractor	53 employees (~5% of the BPBG workforce)	Technical and other training	Technical trainers
Total BPBG JV Workforce:		***1,467 employees***		

Figure 37: BGCAPP Joint Venture Contractor Workforce Breakdown. The joint venture is comprised of five contractors with different primary responsibilities, but all workforces include highly skilled personnel.

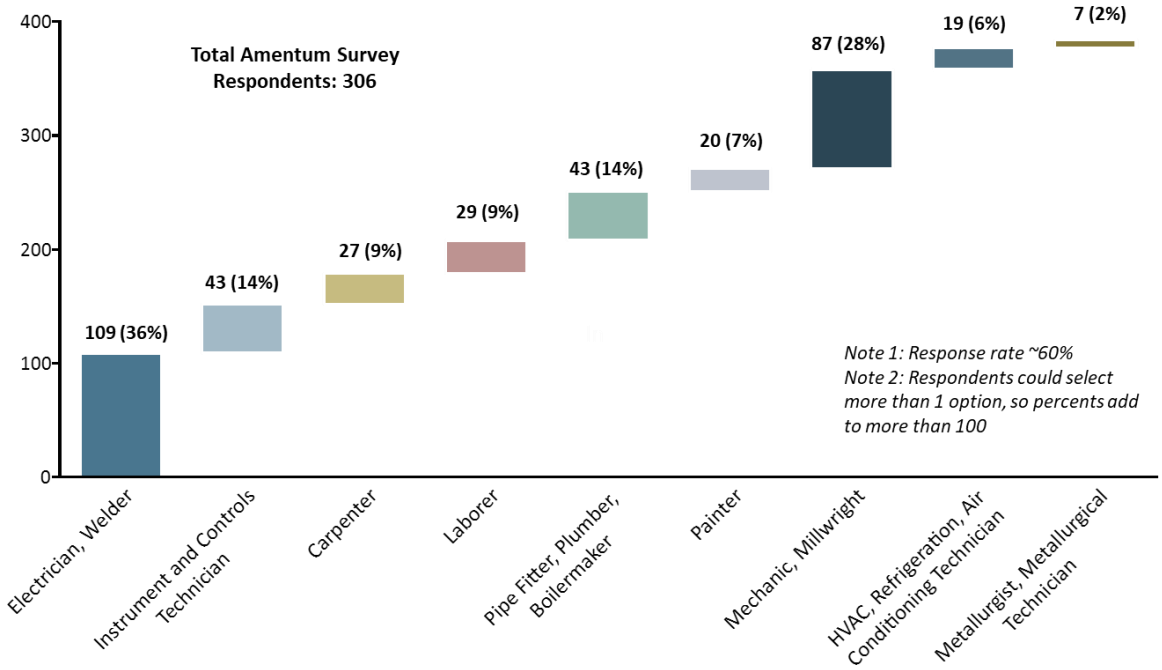

Figure 38: Amentum Qualifications Survey. Amentum workforce has a wide range of in-demand qualifications including electricians, welders, mechanics, and more.

Of the 140 BGCA employees not planning to retire, current role assignments break down as:

- 33 employees (24%) perform administrative or management duties
- 35 employees (25%) support Health, Safety, and Environmental (HSE) and monitoring systems
- 34 employees (24%) are toxic material handlers and/or explosives inspectors
- 21 employees (15%) are technicians or mechanics
- 17 employees (12%) are physical scientists and quality, chemical, or equipment specialists

All of BGAD's 140 workers directly supporting the chemical munitions destruction mission are classified as term employees. Their current role assignments break down as:

- 115 employees (82%) are security guards
- 11 employees (8%) support fire response
- 3 employees (2%) work in environmental permitting and support
- 3 employees (2%) are part of the Security Response Team (SRT), which BGAD plans to retain
- 2 employees (1%) perform administrative or training duties

- 2 employees (1%) support badging
- 1 employee (1%) is a property account officer

The remaining 4 employees support physical security, intrusion detection, and resource management on a part-time basis accounting for 3.2 Full Time Equivalent (FTE) employees.

2.4.3 – Regional Workforce Characteristics

To assess the ability of the local area to support potential future missions at BGAD, the study team assessed the workforce availability, capability, and labor costs in the region.

2.4.3.1 – Regional Workforce Availability

According to the Kentucky Center for Statistics, the April 2023 unemployment rate in Madison County was 2.9%, whereas the adjacent counties had unemployment rates ranging from 2.6% to 4.4% (see **Figure 39**). The U.S. national unemployment rate for April 2023 was 3.1%.[40] The relatively low unemployment rate in and around BGAD suggests a tight local labor market. Despite this being the case, nearby counties to the east of BGAD have higher unemployment rates (Estill County – 4.0%, Jackson County – 4.4%, Rockcastle County – 3.7%).[40]

The five largest employers in Madison County are the Madison County School System, Eastern Kentucky University, BGCAPP, Hitachi Automotive Systems Americas, and Hyster-Yale Group as shown in **Figure 40**. The previously cited employee numbers reflect the most current BGAD, BGCA, and BPBG employee data as of the writing of this report, while the numbers in **Figure 40** are from a previous study at a different time-period.

The Bluegrass Region is located in the central part of Kentucky. It is bounded by Cynthiana County to the north, Stanford County to the south, Winchester County to the east, and Lawrenceburg County to the west as shown in **Figure 41** on page 69. Across this wider Bluegrass Region, the largest employers are within the manufacturing, government, education, and healthcare sectors. Eight of the 10 largest employers in the region are in Fayette County. Other large employers in the region competing for a similar workforce include Toyota Kentucky, Amazon.com, Lockheed Martin, and Hitachi Automotive (see **Figure 42** on page 70). Manufacturing accounts for more than 30,000 jobs in the region. Other relevant industries for the depot workforce include logistics, distribution, and warehousing (8,000+), admin/headquarters (4,000+), and engineering services (2,000+) as shown in **Figure 42**.[41] Recall from *Section 1.4.2 – Personnel Transition Plan*, that the majority of the workforce impacted by completion of the chemical munitions destruction mission at BGCAPP will be released from their current positions well ahead of the BGCAPP site becoming available for reuse. Significant hiring competition for these workers from the regional manufacturing, logistics, distribution, and warehousing companies may affect labor availability to support future missions that reuse the BGCAPP site several years from now.

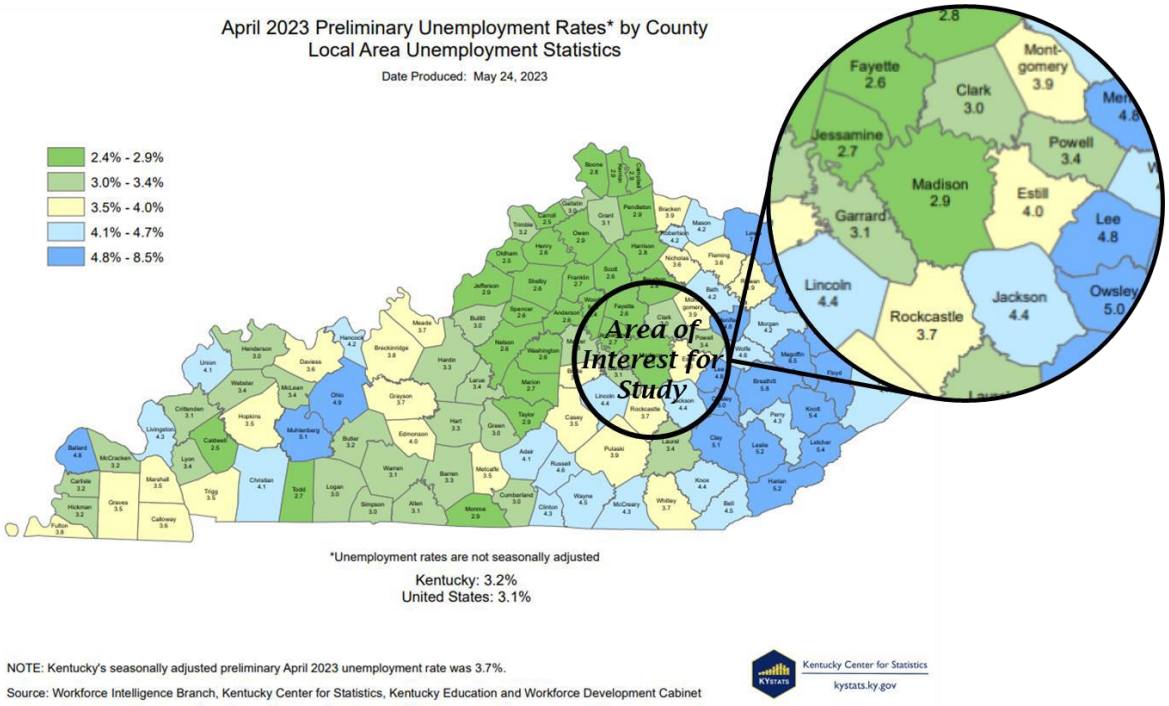

Figure 39: Regional Unemployment Rates. Madison County has a lower unemployment rate than the National average or regional average, increasing competition for a highly-skilled workforce.[40]

Employer	Industry	Employees
Madison County School System	Education	2,000
Eastern Kentucky University	Education	1,800
Blue Grass Chemical Agent-Destruction Plant	Engineering Services	1,200
Hitachi Automotive Systems Americas Inc	Manufacturing	1,100
Hyster-Yale Group Inc	Manufacturing	760
Blue Grass Army Depot	Military	600
EnerSys	Manufacturing	520
Sherwin-Williams Company	Distribution & Warehousing	360
Quanex Building Products (aka Mikron)	Manufacturing	233
Kokoku Rubber Inc	Wholesale Trade	218
Qualex Machining	Industrial Services	175
AGC Glass Co NA	Manufacturing	168
KI (USA) Corporation	Manufacturing	165
Richmond Auto Parts Technology Inc	Manufacturing	143
Novelis Corporation	Manufacturing	141
Lectrodryer LLC	Unknown	119
Conduent	Outsourcing	112
B & H Tool Works Inc	Unknown	100

Figure 40: Largest Employers in Madison County. BGCAPP is the third largest employer in the county, behind only Madison County School System and Eastern Kentucky University. (Note: the employee numbers shown for BGCAPP and BGAD in this figure do not match the numbers presented previously in this study because they come from a different source and were taken from a different time-period)

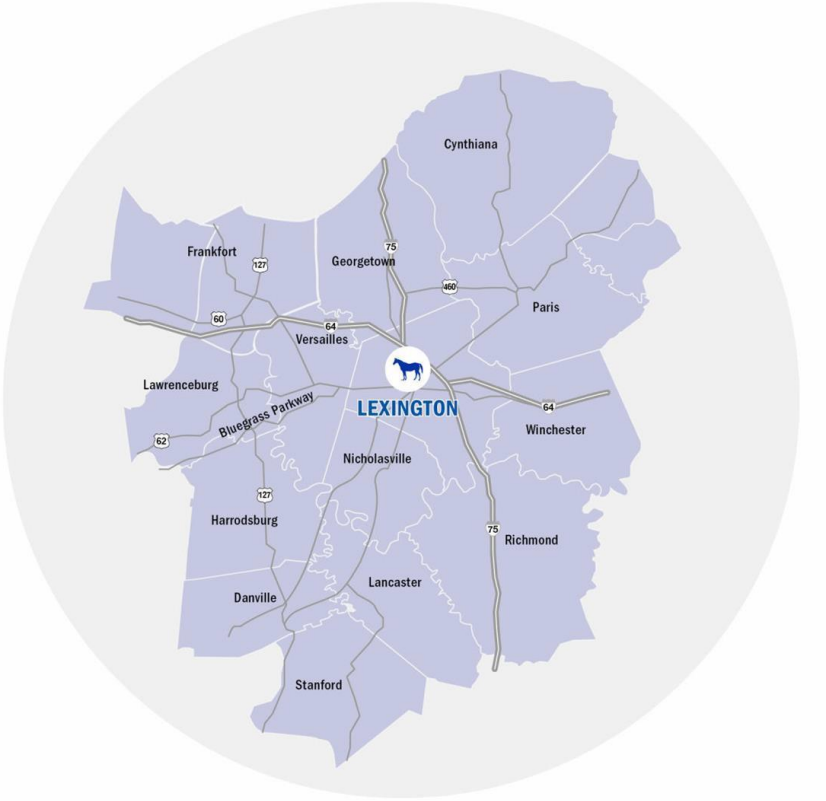

Figure 41: Overview of the Blue Grass Region. Seventeen counties are included in the Blue Grass Region, with Fayette County (Lexington) being centrally located in the region.

2.4.3.2 – Regional Workforce Capability

The Bluegrass Region includes multiple universities and industrial employers, and it is likely that a skilled workforce will continue to be developed and retained in the region. According to the Commerce Lexington Economic Development Division, the top programs with the most graduates in the wider Bluegrass Region during the 2019-2020 school year were:[42]

- Health Professions and Related Programs (3,524 total graduates)
- Business, Management, Marketing, and Related Support Services (2,402 total graduates)
- Education (1,585 total graduates)
- Liberal Arts and Sciences, General Studies, and Humanities (1,393 total graduates)
- Psychology (831 total graduates)

Company	County	Industry	Employees
University of Kentucky	Fayette	Education	25,574
Kentucky State Government Employees	Franklin	Government	11,210
Toyota Kentucky	Scott	Manufacturing	9,712
Amazon.com	Fayette	Distribution	5,034
Fayette County Public Schools	Fayette	Education	5,710
Baptist Health	Fayette	Healthcare	3,108
Lexington-Fayette Urban County Government	Fayette	Government	2,775
CHI Saint Joseph Health	Fayette	Healthcare	2,029
Conduent	Fayette	Outsourcing	2,250
Veterans Medical Center	Fayette	Healthcare	2,000
Madison County School System	Madison	Education	2,000
Eastern Kentucky University	Madison	Education	1,800
Lockheed Martin	Fayette	Manufacturing	1,600
Jessamine County Schools	Jessamine	Education	1,500
Lexmark International Inc	Fayette	World HQ	1,300
Scott County Public Schools	Scott	Education	1,372
Blue Grass Chemical Agent-Destruction Plant	Madison	Engineering Services	1,200
Hitachi Automotive Systems Americas Inc	Madison	Manufacturing	1,100
Franklin County School System	Franklin	Education	1,100
UPS	Fayette	Transportation & Warehousing	829

Figure 42: Largest Employers in the Blue Grass Region. Several major employers compete for a similar talent pool including Toyota, Amazon, Lockheed Martin, Hitachi Automotive, and more.

Degree programs that are relevant to potential future missions at BGAD, and the number of graduates from the 2019-2020 school year in each of those programs (including Associates, Bachelors, Masters, and PhD programs) were as follows:[42]

- Engineering (630 total graduates from the University of Kentucky)
- Engineering Technologies and Engineering-Related Fields (332 total graduates from Eastern Kentucky University, Morehead State University, and Bluegrass Community and Technical College)
- Physical Sciences (273 total graduates from the University of Kentucky, Eastern Kentucky University, Centre College, Morehead State University, Berea College, Georgetown College, Transylvania University, Kentucky State University, and Asbury University)
- Mechanic and Repair Technologies/Technicians (72 total graduates from Bluegrass Community and Technical College and Maysville Community and Technical College)

- Transportation and Materials Moving (21 total graduates from Eastern Kentucky University)
- Precision Production (17 total graduates from Bluegrass Community and Technical College and Maysville Community and Technical College)
- Construction Trades (8 total graduates from Bluegrass Community and Technical College)

However, due to the competition from related industries that require similar skillsets and limited numbers of local graduates in many of these programs, the labor market will likely remain tight for the skilled labor that is suitable for the future missions at BGAD. While this indicates it may be challenging to find workers for future missions at BGAD once the current chemical workforce winds down, it also suggests that the highly skilled BPBG workforce will be able to quickly find new jobs locally if they wish to do so.

2.4.3.3 – Regional Labor Costs

According to the Bureau of Labor Statistics, as of the first quarter of 2022, the average weekly wage in Madison County, Kentucky was $852, compared to an average of $1,038 across Kentucky and $1,374 nationally over the same period.[43] Wages have been increasing in Madison County, but they have grown at a slower rate than across Kentucky and the US as a whole. From 2021 to 2022, the average weekly wage increased 5.4% in Madison County, compared to 7.6% increases for Kentucky and 6.6% nationally. This suggests that labor costs in Madison County are lower than they are across Kentucky and the U.S., and that Madison County will continue to have a relatively low cost of labor in the coming years.[43]

The cost of living index in Madison County is 90.3 which is 9.7% lower than the U.S. average.[44] Madison County has a similar cost of living to the state of Kentucky as a whole. The BPBG Joint Venture and BGCA were able to hire and retain a skilled workforce by paying wages above the Madison County average. Similarly, future missions at BGAD that can pay wages above the Madison County average can expect to attract significant interest from the local workforce and may overcome the tight labor market discussed in the prior section (however, given the limited ability Federal employers have to pay wages above market rates, this strategy may better fit reuse opportunities for GOCO facilities or opportunities that leverage public-private partnerships).

2.5 – Site Assessment Summary

Site Assessment Methodology enabled the study team to identify strengths and areas of concerns in all three of the site assessment evaluation areas (site characteristics, buildings and related infrastructure, and workforce). Below is a summary of the more important findings from the site assessment. These findings will be used to inform the opportunity evaluation in *Part 3 – Opportunity Evaluation*.

2.5.1 – Site Characteristics

BGAD's site characteristics are favorable to continue executing missions that contribute to Army readiness and DoD requirements.

- The depot is centrally located in the southeastern United States and has good access to rail and road transportation networks. It is centrally proximate to numerous military installations. The largest airport within 50 miles is in Lexington.
- Madison County, KY has a low overall Risk Index as determined by FEMA. Expected annual losses due to natural disasters are very low. The county has moderate social vulnerability and moderate resilience.
- The utility services available at BGAD are robust. Over $100 million was invested in establishing the utility services, enhanced security, and access infrastructure for the BGCAPP site. This existing infrastructure is likely to be very attractive to any industrial development project that could avoid these costs by repurposing the BGCAPP infrastructure.
- The regulatory environment in Kentucky is neutral when compared against other states—about half the states have a more restrictive environment and about half less restrictive. Kentucky's regulatory environment for industries conducting similar work to that in the AOIB appears to be less restrictive than that found in other states in the region.

However, all opportunities considered for BGAD must consider the impacts on the depot's explosive arcs. While estimates of the impact to arcs can be developed to help evaluate opportunities, a full impact assessment cannot start until the opportunity design is at least 35% complete.

2.5.2 – Buildings and Related Infrastructure

In total, 91 facilities have some feasibility for reuse across the Blue Grass site (BGCAPP, BGCA, and BGAD). Fifty-four have a high feasibility to be reused/repurposed for a wide range of industrial type uses. This includes the 49 igloos in the CLA and the Utility Building, Container Handling Building, Maintenance Building, and Substation on the BGCAPP site, and the Mask Fitting Building in the Restricted Area (see **Figure 43**). All together, these 54 facilities represent nearly 200,000 sq. ft. of space with a high feasibility for reuse.

There are another 31 facilities with limited feasibility for reuse. Some of these facilities have limited reuse potential due to their highly specialized nature or limited remaining lifespan (e.g., SCWO Process Building, the SDCs, and modular buildings). Another six facilities have low feasibility for reuse, mostly because of the condition, years or remaining life, sustainment costs, and small size of the buildings. A summary of all facilities is provided in **Figure 43**.

2.5.3 – Workforce Characteristics

A large, highly skilled workforce supports the chemical munitions destruction mission. The current workforce and facility transition timelines result in the workforce being released from the chemical mission well ahead—years ahead in some cases—of when the BGCAPP site will be available for reuse. The labor market in Madison County is tight, with unemployment running below regional and national levels. The cost of labor and recent inflation rates in the Blue Grass region are below regional and national levels. There is region-wide competition between BGAD and private industry for labor. Local universities and technical schools are producing graduates with skills that align with the needs of BGAD.

Site	Building/Facility	Potential Type	Expected Availability
Buildings and Facilities with High Feasibility for Reuse/Repurpose			
BGCAPP	Container Handling Building (17740)	Industrial Production or Storage	July 2027
	Utility Building (17780)	Industrial Production or Storage	July 2027
	Maintenance Building (25160)	Industrial Production or Storage	July 2027
	138 KV Substation (25210)	Any	July 2027
BGCA – Restricted	Mask Fitting Building (1147)	Industrial Production or Storage	August 2026
BGCA – CLA	Storage Igloos (Multiple facility numbers, 49 igloos)	Munitions Storage	2025-2027
Buildings and Facilities with Limited Feasibility for Reuse/Repurpose			
BGCAPP	Supercritical Water Oxidation Process Building (17790)	Specialized Use Only—SCWO Process	July 2027
	Personnel Support Building (25130)	Short term use—e.g., construction mgmt. office	July 2027
	Personnel and Medical Building (17810)	Short term use—e.g., construction mgmt. office	July 2027
	SDC 1200 and Enclosure (25122)	Specialized Use Only—SDC DEMIL	July 2027
	SDC 2000 and Enclosure (17460)	Specialized Use Only—SDC DEMIL	July 2027
	Hydrolysate Storage Area (31980)	Specialized Use Only—Large-scale liquid storage	July 2027
	Chemistry Lab (17870)	Industrial or Administrative	July 2027
BGCA – Restricted	PPE Storage Building (31980)	Industrial Production or Storage	August 2026
	PPE Storage Building (31960)	Industrial Production or Storage	August 2026
	Chem Ops Storage Building (31950)	Industrial Production or Storage	October 2025
	RTAP Maintenance Building (31990)	Industrial Production or Storage	October 2025
BGCA – Admin	CSEPP Storage (60)	Industrial Production or Storage	October 2026
	Logistics Building (50690)	Administrative	October 2025
	Surety Building (51660)	Administrative	October 2025
	BGCA Command HQ (S-8)	Administrative	October 2025
	Treaty Building (S-56)	Administrative	October 2025
	Storage Garage (59)	Industrial Production or Storage	October 2025
	BGCA Project Office (S-43)	Administrative	October 2025
	Emergency Operations Center (S-18)	Administrative	October 2025
	Risk Management (S-7)	Administrative	October 2025
BGAD	Chemical Defense Equipment (211)	Industrial Production or Storage	Immediate
	Storage Building (202)	Industrial Production or Storage	Immediate
	Storage Building (203)	Industrial Production or Storage	Immediate
	Storage Building (216)	Industrial Production or Storage	Immediate
	Storage Building (217)	Industrial Production or Storage	Immediate
	Multitemperature Refrigerator Container System (232)	Industrial Production or Storage	Immediate
	APS-1b Location (229)	Industrial Production or Storage	Immediate
	Detonation Chamber (280)	Specialized Use Only—Detonation	Immediate
	Maintenance Operation Building (60440)	Industrial Production or Storage	Immediate
	Large Paint Booth (233)	Specialized Use Only—Industrial Painting	Immediate
	30mm Can Refurbishment (215)	Specialized	Immediate
Buildings and Facilities with Low Feasibility for Reuse/Repurpose			
BGCAPP	Outside Operations Support Facility (25131)	Short Term Use	July 2027
BGCA - Restricted	Chemical Operations (1146)	Industrial Production or Storage	October 2025
	Lab Building (31930)	Industrial or Administrative	October 2025
	Laundry Facility (31940)	Industrial Production or Storage	October 2025
BGCA - Admin	BGCA Assembly and Training (S-16)	Administrative	October 2026
	Change House (53)	Administrative	October 2026
Buildings and Facilities Not Feasible for Reuse/Repurpose			
BGCAPP	Munitions Demilitarization Building Filter Area (17730)	Specialized	Unavailable
	Control and Support Building (17760)	Industrial Production or Storage	Unavailable
	Munition Demilitarization Building (17750)	Industrial Production or Storage	Unavailable

Figure 43: Summary of Facility Feasibility Across the Site. Excluding igloos and the substation, four buildings offer high feasibility for reuse, but given availability timelines facilities with limited feasibility may need to be considered for near-term opportunities.

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Part 3

Opportunity Evaluation

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3.1 – Opportunity Evaluation Methodology

The study team used a multi-attribute utility, decision analysis methodology to evaluate reuse opportunities identified during this study. Using a decision analysis methodology allowed the team to quantitatively assess a mix of both objective and subjective factors in evaluating the opportunities; and using multi-attribute utility analysis specifically, allowed the team to balance across multiple different objectives (such as financial impact to BGAD and readiness impact to the Army).

However, given that the availability of information for each opportunity varied greatly, the team took a two-step approach in evaluating the opportunities. First, for all the known opportunities, the team evaluated the suitability of each opportunity along two dimensions: 1) readiness impact of the opportunity to the Army, DoD, and/or Nation; and 2) the feasibility of executing the opportunity at BGAD.

In the second step, for opportunities where sufficient information was available, the team analyzed the practical implications of the opportunity for BGAD along three dimensions: 1) timeframe to develop and operationalize the opportunity, 2) the financial impact of the opportunity on BGAD, and 3) the economic impact on the local community.

This two-step process was necessary to allow consideration of all potential opportunities and to not eliminate an otherwise potentially viable and attractive opportunity for lack of currently available information. In both steps, and for each dimension, the team developed evaluation criteria, scoring criteria, and weighting factors, and organized them into an opportunity evaluation framework, shown in **Figure 44** on the following page.

3.1.1 – Suitability of the Opportunity

Step one of the opportunity evaluation framework assesses whether an opportunity is aligned with the mission of the OIB (i.e. the suitability of the opportunity for BGAD), and whether BGAD can reasonably be expected to meet the opportunity's requirements (i.e., BGAD's suitability for the opportunity).

The **readiness impact** dimension evaluates the opportunity to determine if it is aligned with the intent and purpose of the OIB and the degree to which it could impact military readiness. Specific criteria are:

Area	Evaluation Criteria	Scoring	Weight
Readiness Impact	Importance of Opportunity	• **None** (0 points) – No contribution to military readiness • **Low** (1 point) – Limited contribution to military readiness • **Medium** (2 points) – Contributes to military readiness in an area where there is relatively low risk • **High** (3 points) – Contributes to military readiness in an area where there is moderate or high risk	10%
	Alignment with OIB Strategy	• **None** (0 points) – Does not align with OIB Strategy • **Low** (1 point) – Limited alignment with OIB Strategy (e.g., impacts an area of relatively low risk or focus) • **Medium** (2 points) – Moderate contribution to OIB Strategy (e.g., adds depth to capabilities where there is current concern or unmitigated risk) • **High** (3 points) – Significant contribution to OIB Strategy (e.g., significantly reduces risk in an area of concern or adds a new, high impact capability to the OIB)	10%
	Alleviates a Single Point Failure Risk	• **Yes** (3 points) • **No** (0 points)	10%
	Addresses a Strategic Risk	• **Yes** (3 points) • **No** (0 points)	10%
	Interservice Benefits	• Ranked by number of additional services benefited • **Top third** of opportunities (3 points), **middle third** (2 points), **bottom third** (0 points)	10%
Feasibility	Infrastructure Fit	• **None** (0 points) – Opportunity will not use any existing infrastructure or buildings • **Low** (1 point) – Opportunity will use existing infrastructure but will not use existing buildings • **Medium** (2 points) – Opportunity will reuse existing buildings but will not use existing infrastructure • **High** (3 points) – Opportunity will reuse both existing infrastructure and buildings	15%
	Workforce Fit	• **None** (0 points) – Little overlap between of required capabilities and workforce skills • **Low** (1 point) – Opportunity does not require a skilled workforce • **Medium** (2 points) – Opportunity requires skillsets that are relatively common (e.g., equipment operation, welding, plumbing, etc.) • **High** (3 points) – Opportunity requires specialized skillsets that are prevalent among the impacted workforce (e.g., hazardous material or explosives handling, automated process support, etc.)	15%
	Opportunity Development Stage	• **Hypothetical** (1 point) – Opportunity is a proposed solution to an identified problem but little work has been done beyond the initial idea • **Soft** (2 points) – Initial requirements to support the opportunity have been identified but limited information on investment required, estimated revenue, and timeframe is available • **Defined** (3 points) – Details about the required investments, revenue potential, and development and operational lifespan of the opportunity are available	5%
	Impact on Other BGAD Missions	• **Negative** (-3 points) – Opportunity curtails or activities that support current mission (e.g., munitions storage eliminated is certain area due to changes in explosive arcs) • **Neutral** (1 point) – Opportunity brings new revenue to the depot but does not increase DLHs (e.g., ISSAs or P3 monies) • **Positive** (3 points) – Opportunity brings workload to the depot that increases DLHs	15%
Timeframe	Startup Timeline	• **Short** (2 points) – Three years or less until activities begin • **Medium** (3 points) – Four to six years until activities begin • **Long** (1 point) – Seven or more years until activities begin	10%
	Longevity	• **Short** (1 point) – Less than five years operational runtime • **Medium** (2 points) – Five to fifteen years of operational runtime • **Long** (3 points) – More than fifteen years of operational runtime	20%
Return on Investment	Revenue Potential	• Ranked by dollar amount • **Top third** of opportunities (3 points), **middle third** (2 points), **bottom third** (0 points), **Unknown** (0 points)	25%
	Return on Investment	• Ranked by Net Present Value • **Top third** of opportunities (3 points), **middle third** (2 points), **bottom third** (0 points), **Unknown** (0 points)	15%
Local Economic Impact	Number of Positions Created	• Ranked by number of positions • **Top third** of opportunities (3 points), **middle third** (2 points), **bottom third** (0 points)	15%
	Regional Economic Impact	• Ranked by dollar amount • **Top third** of opportunities (3 points), **middle third** (2 points), **bottom third** (0 points), **Unknown** (0 points)	15%

Figure 44: Opportunity Evaluation Framework. All opportunities were evaluated for Readiness Impact and Feasibility, while defined opportunities were also evaluated for Timeframe, ROI, and Local Economic Impact.

- *Importance of opportunity* **–** assessment of the strategic importance of the opportunity to JMC, AMC, the Army, and the Nation
- *Alignment with OIB strategy* – assessment of the opportunity's fit with the OIB strategy
- *Alleviates a single point failure risk* – assessment of whether the opportunity alleviates known single point of failures in the OIB (e.g., an important capability that has no redundancy)
- *Addresses a strategic risk* – assessment of whether the opportunity addresses a known area of strategic risk (the risk could be to a capability, the Army, the DoD or the Nation)
- *Interservice benefits* **–** assessment of whether the opportunity provides benefits to other DoD services

The **feasibility** dimension evaluates the feasibility of the opportunity's requirements to be met by BGAD. Specific criteria are:

- *Infrastructure fit* **–** assessment of the adaptability of existing BGAD buildings and infrastructure to support the opportunity
- *Workforce fit* **–** assessment of the opportunity's workforce skill requirements with those of the workforce impacted by sunset of the chemical munitions destruction mission
- *Opportunity development stage* **–** assessment of the degree to which the opportunity is developed
- *Impact on other BGAD missions* **–** assessment of the opportunity's impact on existing missions at BGAD

3.1.2 – Practical Implication of the Opportunity on BGAD

Step two of the evaluation was only completed for those opportunities considered viable for BGAD (as deemed in Step 1) and where there was sufficient information available at the time of the study to assign scores in each category.

The **timeline** dimension considers the expected timeframe to execute the opportunity. This includes both the time until meaningful activities supporting the opportunity are underway at BGAD and the expected mission runtime (i.e., longevity of the mission). Specific criteria are:

- *Startup Timeline* **–** assessment of the time required until construction to support the new opportunity begins, or until operational activities begin, for opportunities that are repurposing existing facilities (Note: projects with a timeline compatible with the BGCAPP decommissioning schedule are the most attractive and scored accordingly— i.e., a 4- to 6-year timeline is scored the highest)
- *Longevity* **–** assessment of the projected operational runtime of the opportunity

The **depot financial impact** dimension includes two criteria: the annual expected revenue potential for the opportunity and its expected return on investment:

- *Revenue Potential* **–** assessment of the estimated annual revenue expected to be generated through the opportunity
- *Return on Investment (ROI)* **–** assessment of the estimated return on investment, using a net present value (NPV) calculation and a discount rate of 10%

The **local economic impact** dimension has two criteria: the impact on the size of the BGAD workforce and the estimated regional economic impact the opportunity may have on the Blue Grass region:

- *Number of Positions Created* **–** assessment of the number of positions created by the opportunity
- *Regional Economic Impact* **–** assessment of the estimated annual regional economic impact, in dollars; estimated by multiplying the sum of expected annual employee compensation and expected contractor expenditures by the Kentucky Cabinet for Economic Development's General Economic Multiplier

The following section includes the analysis results from applying the opportunity evaluation framework (including dimensions and criteria presented above) to each opportunity known at the time of the study.

3.2 – Evaluation of Opportunities

The study team identified 14 opportunities for reuse of facilities at Blue Grass as of the time of writing this report. Most of these opportunities were identified through discussions with leaders and some through industry analysis and targeted outreach to industry by the team. The team analyzed and scored these 14 opportunities using the opportunity evaluation framework and the results are presented in this section.

The study team conducted over 35 working sessions and interviews with leaders from ASA(ALT), AMC, JMC, and BGAD to identify opportunities that may be suitable to reuse or repurpose Blue Grass facilities (see *Appendix A.2 – Organizations Engaged* for a listing of the organizations engaged during these sessions). The output of the sessions was a list of government and commercial organizations for the study team to follow up with to validate their requirements and confirm their interest in considering BGAD to fulfill their needs.

The team also developed and sent a Survey of Interest to 48 recipients across the Army, ASA(ALT), and other DoD organizations (see *Appendix A.2 – Organizations Engaged* for a list of organizations that received the survey and the questions asked in the survey as shown in *Appendix A.4 – Survey of Interest*). The team received 16 responses to the survey, 14 of which indicated no interest and 2 of which indicated initial interest. The team was unable to proceed to the opportunity evaluation stage for either of these responses; one of the two responses was incomplete (it lacked identifying information for the respondent and efforts by the team to identify the respondent, including IP address tracing and following up with all parties, were unsuccessful) and the other respondent (PMA-201 from the U.S. Navy for “general purpose bomb production and storage, energetics development, propulsion development, and weapons storage”) did not respond in time with additional details necessary for the team to evaluate the opportunity. Both of these opportunities were handed off to the JMC Business Development team for further follow-up.

Additionally, the JMC Business Development team has planned multiple Industry Days to generate interest for repurposing the BGCAPP site and other BGAD facilities, with government and industry attendees hosted on separate days. Much of the information from the site assessment portion of this feasibility study is expected to serve as an input to the industry days (all attendees will be provided detailed information about available facilities and BGCAPP’s transition timeline and given a tour of the BGAD facilities). As the industry days will be conducted after the drafting of this report, it is intended that additional opportunities identified through the industry days will be evaluated by the JMC Business Development team.

3.2.1 – Identified Opportunities

The 14 opportunities evaluated in this study to repurpose BGCAPP and other BGAD buildings and infrastructure on the BGAD site are described below. These opportunities are scored in *Section 3.2.2 – Opportunity Scoring and Prioritization* and the most promising opportunities are addressed further in *Section 4.1 – Business Case Evaluation of the Most Promising Opportunities*. The 14 opportunities identified are:

1) **Centralized Security Monitoring Center.** The Army has an active effort underway to develop centers to monitor the security and facility status of multiple installations from a single location. These centers monitor intrusion detection alerts and trouble alarms and coordinate the appropriate response with local security, police, and fire departments. This opportunity is to evaluate the development and operation of a centralized monitoring center at BGAD. *(This opportunity was sourced from the JMC Protection Division.)*

2) **Centralized Support for Prepositioned Vessel Mission Reset.** Prepositioned vessels that provide strategic storage of munitions periodically return to port so their cargo can be reset. During the reset, all containers are removed from the vessel, the contents (i.e., munitions) are replaced, and the new munitions are reloaded onto the vessel. The reset port terminals have limited space to accommodate the swap-out of munitions in the storage containers. The opportunity is to establish at BGAD the capability to receive, reset, and ship back to the port terminal the munitions containers for the prepositioned vessels. *(This opportunity was sourced from the JMC Transportation Division.)*

3) **Conventional Munitions Demilitarization Center of Excellence.** Environmental regulations are becoming stricter in some states and in some cases constraining JMC's capacity to dispose of conventional munitions. Typical reasons to dispose of munitions include: the munitions are obsolete and no longer used, expiration of the munition's useful life, and damage to the munition. Additionally, as maintenance is performed on munitions, it is common that explosive components (e.g., primers and propellants) are removed and replaced and the old explosive components require disposal. Storing munitions and explosive components that should be disposed of constrains JMC's capacity to store serviceable munitions. The opportunity to be evaluated is to expand the conventional munitions disposal mission at BGAD and make BGAD a conventional munitions demilitarization center of excellence (COE). *(Multiple parties from BGAD, JMC, AMC, and the Blue Grass community raised this opportunity with the study team.)*

4) **Conventional Munitions Demilitarization using the BGCAPP SDCs.** BGAD currently uses open burn and open detonation technology to dispose of conventional munitions. There is pressure to tighten regulations and permits related to OB and OD due to concerns over the potential for contamination of air, soil, and groundwater by the process. The SDCs which were used to dispose of chemical munitions at the BGCAPP facility are proven to mitigate these contamination

concerns. The opportunity to be evaluated is to repurpose the SDCs for conventional munitions disposal at BGAD. *(This opportunity was sourced from BGAD.)*

5) **Data Centers.** Data centers have become an essential component of modern technology applications. Concern about storing data in centers located outside of the U.S. are also growing. The demand for U.S. data centers is expected to grow by 10% per year until 2030.[45] This opportunity is to evaluate installing data centers at BGAD to potentially serve commercial and government data center needs. *(Multiple parties from BGAD, JMC, and AMC raised this opportunity with the study team.)*

6) **Electric Vehicle Battery Production, Storage, Maintenance, and/or Recycling.** The DoD has mandated the conversion of non-combat vehicles to electric power by 2035.[46] Additionally, consumers are rapidly adopting electric vehicles for private use.[47] To support the transition away from fossil fuel powered vehicles, domestic capacity to produce, store, maintain, and recycle electric vehicle batteries will need to keep pace with demand. This opportunity is to evaluate establishing the capability to support electric vehicle batteries at BGAD. *(This opportunity was sourced from the AMC Supply Chain Management Directorate.)*

7) **Hazardous Waste Processing with SCWO Facility.** The Supercritical Water Oxidation (SCWO) facility at the BGCAPP site is one of only six full-scale SCWO plants operating worldwide, and the first industrial-scale facility to combine two technologies: neutralization and SCWO.[48] SCWO technology has been in development for over four decades. SCWO is believed to have capabilities for processing certain types of hazardous waste, including PFAS, which is a "forever chemical" that has been used extensively in products ranging from clothing to fire-fighting agents. Human health effects from exposure to PFAS are unknown, though laboratory studies on large amounts of PFAS exposure to animals has shown effects on reproduction, growth, immune system, and liver function.[49] Laws and regulations restricting PFAS use are becoming increasingly common.[50] This opportunity is to evaluate repurposing the BGCAPP SCWO facility to process hazardous waste. *(This opportunity was sourced from the BGAD and PEO ACWA teams along with additional commercial outreach from the WP&C project team.)*

8) **Management of Non-Munition Military Items Returning from Overseas.** It is common for significant quantities of military equipment and supplies to flow from forward-deployed locations back to the U.S. At present, a significant amount of equipment is being returned to the U.S. from the European theater, but the materiel is not being evaluated before it is shipped to determine a disposition status (e.g., reuse, repair, dispose) and path (e.g., where the materiel should be sent for disposition). The opportunity to be evaluated is to establish a centralized facility at BGAD to receive, process and make disposition determinations, and ship to the appropriate OIB facility for further processing. *(This opportunity was sourced from the U.S. Army Sustainment Command – Supply Chain Operations.)*

9) **Production of Ammunition Containers.** Production of small and medium caliber ammunition is increasing. These munitions require specialized packaging that is

suitable for storage, transportation, and issue in the field, and replenishment of the ammunition container stocks is required to keep pace with production of the ammunition. The opportunity to be evaluated is to establish a production facility for ammunition containers at BGAD. *(This opportunity was sourced from the JMC Facilities Readiness team.)*

10) **Production of Critical Chemicals.** The DoD has ongoing efforts to onshore the production of chemicals critical to the manufacture of munitions and other products. In December 2022, the Defense Production Act (DPA) Title III Office, through the Air Force Research Laboratory released a Funding Opportunity Announcement with the objective to establish domestic suppliers of critical chemicals that are essential to national defense. Approximately $200 million in DPA Title III funding is expected to be awarded in FY2023, and an additional $200 million is expected to be awarded in future fiscal years. While progress has been made with onshoring, approximately 30[51] critical chemicals remain without sufficient domestic production capability. The opportunity to be evaluated is to establish a critical chemical production facility at BGAD. *(This opportunity was sourced from JMC Facilities Readiness and the Office of the Undersecretary of Defense Acquisition and Sustainment.)*

11) **Production of Metal Components for 155mm Artillery Munitions.** With the end of the Cold War and the multi-decade engagement in regional conflict with terrorists and non-state actors, operational battle plans have shifted emphasis away from munitions traditionally associated with large-scale land wars (e.g., aimed mortar, artillery, and tank munitions) to precision-guided weapons (e.g., laser, inertial navigation system, and satellite guided munitions). The ongoing conflict between Russia and Ukraine has shown the demand for mortar, artillery, and tank munitions in even localized land battles may be significantly higher than war planners have accounted for. While the U.S. had a significant stockpile of artillery munitions at the start of the RUS/UKR conflict, the production capacity of the defense industrial base to sustain the stockpile has proven inadequate. To enable a dramatic increase in artillery munitions production three lines producing metal components needed for 155mm artillery rounds have been contracted, and an additional line is also planned. The location for where the fourth line will be sited has not yet been determined. The opportunity to be evaluated is to relocate the contracted production lines for 155mm metal parts at BGAD or position the fourth line there. *(This opportunity was sourced from JMC.)*

12) **Production of Metal Shipping Containers.** JMC uses 20-foot metal shipping containers for transporting munitions. Due to the sensitive nature of munitions, shipping containers must meet stringent quality conditions to provide the necessary physical and environmental protection needed during global transportation of the munitions. Further, access to a sufficient stockpile of shipping containers is essential to maintaining readiness across the DoD. Currently, 96% of dry cargo containers and 100% of refrigerated containers are produced in China, and it is not possible to say how many of the remaining 4% of dry cargo containers are produced domestically.[52] Although there are several domestic companies that bring shipping

containers to market in the U.S., the study team was only able to identify one company that is producing shipping containers domestically. Very limited domestic production and the extreme concentration of global shipping container manufacturing in China is a strategic risk to large-scale deployment of U.S. forces and continued operation of domestic supply chains. The opportunity to be evaluated is to establish a metal shipping container production facility at BGAD. *(This opportunity was sourced from the WP&C project team.)*

13) **R&D Lab for Advanced Manufacturing Processes.** Advanced manufacturing processes are ubiquitous in commercial industry and becoming more prevalent in the OIB. The use of automation in the OIB is likely to continue to grow. A research and development lab focused on OIB processes could allow for new processes and capabilities to be developed, tested, and piloted in a controlled environment before they are moved into the OIB facilities. In addition to minimizing potential disruptions to other OIB operations while new processes and capabilities are developed, the lab could be used as a facility to train the OIB workforce. This opportunity is to evaluate developing an R&D lab for advanced manufacturing processes at BGAD. *(This opportunity was sourced from a private industry team that contacted WP&C to provide input for this study.)*

14) **Security Guard Academy.** At present, the installations in the AOIB are responsible for conducting the training of their security forces. While the requirements and standards for training are established, how the training is delivered is determined locally. The opportunity to be evaluated is to establish a Security Guard Academy at BGAD and make it the primary training institution for security forces that protect the AOIB. *(This opportunity was sourced from JMC and BGAD.)*

3.2.2 – Opportunity Scoring and Prioritization

The opportunities described in *Section 3.2.2 – Opportunity Scoring and Prioritization* were evaluated using the two-step methodology and framework described in *Section 3.1 – Opportunity Evaluation Methodology.* The results of the analysis are provided below. Because most of the opportunities evaluated are still at the hypothetical phase with limited information available, stage two analysis was completed on only three opportunities (#1, #11, and #14). Despite the lack of information available, the analysis revealed several promising opportunities that warrant further investigation. The results of the two-step analysis are presented first, and then additional details about each of the opportunities are provided. As specific requirements for each of these opportunities are further defined, an evaluation of environmental constraints should be completed and certain permits may be necessary as outlined in *Appendix A.6*.

3.2.2.1 – Opportunity Analysis Step One

Two dimensions are evaluated in step one: 1) readiness impact, and 2) feasibility. The purpose of this step in the analysis is to: 1) evaluate the suitability of each opportunity for BGAD (i.e., the degree to

which it aligns with BGAD's mission and the OIB's strategy, whether it addresses single point failure risks in the OIB or broader strategic risks, and whether the opportunity will yield interservice benefits), and 2) to evaluate the suitability of BGAD for each opportunity (i.e., the ability to repurpose existing buildings, infrastructure, and/or workforce to support the opportunity, the degree that the opportunity has been developed, and whether the opportunity impacts existing missions already at BGAD).

The results of the analysis are shown in **Figure 45**. The maximum possible score in each dimension (readiness impact and feasibility) is 1.5, and scores in either dimension that are 1.0 or higher are classified as "high" and scores in either dimension that are below 1.0 are classified as "low." This gives four possible combinations of readiness impact and feasibility (see **Figure 46**):

High Readiness Impact / High Feasibility

Three of the 14 identified opportunities are found to have both a high readiness impact and high feasibility for BGAD. All of these are production missions that were deemed to have both strategic importance and fit well with BGAD. These are:

- Production of Critical Chemicals (Opportunity #10)
- Production of Metal Shipping Containers (Opportunity #12)
- Production of Metal Components for 155mm Artillery Munitions (Opportunity #11) High

Readiness Impact / Low Feasibility

There were no opportunities in this quadrant.

Index	Opportunity	Readiness Impact	Feasibility	Combined Score
12	Production of Metal Shipping Containers	2.8	2.6	**2.7**
10	Production of Critical Chemicals	3.0	2.4	**2.7**
11	Production of Metal Components for 155mm Artillery Munitions	2.4	2.0	**2.2**
9	Production of Ammunition Containers	1.0	2.6	**1.8**
2	Centralized Support for Prepositioned Vessel Mission Reset	1.2	2.2	**1.7**
14	Security Guard Academy	0.6	2.8	**1.7**
13	R&D Lab for Advanced Manufacturing Process	1.0	2.2	**1.6**
1	Centralized Security Monitoring Center	0.4	2.2	**1.3**
8	Management of Non-Munition Military Items Returning from Overseas	0.6	1.4	**1.0**
6	Electric Vehicle Battery Production, Storage, Maintenance, and/or Recycling	0.4	1.6	**1.0**
4	Conventional Munitions Demilitarization using the BGCAPP SDCs	0.8	1.0	**0.9**
3	Conventional Munitions Demilitarization Center of Excellence	1.0	0.4	**0.7**
5	Data Centers	0.2	0.8	**0.5**
7	Hazardous Waste Processing with SCWO Facility	0.2	0.2	**0.2**

Figure 45: Opportunity Analysis Step One Scoring. After step one, eight of 14 opportunities have a favorable combined score for feasibility and readiness impact.

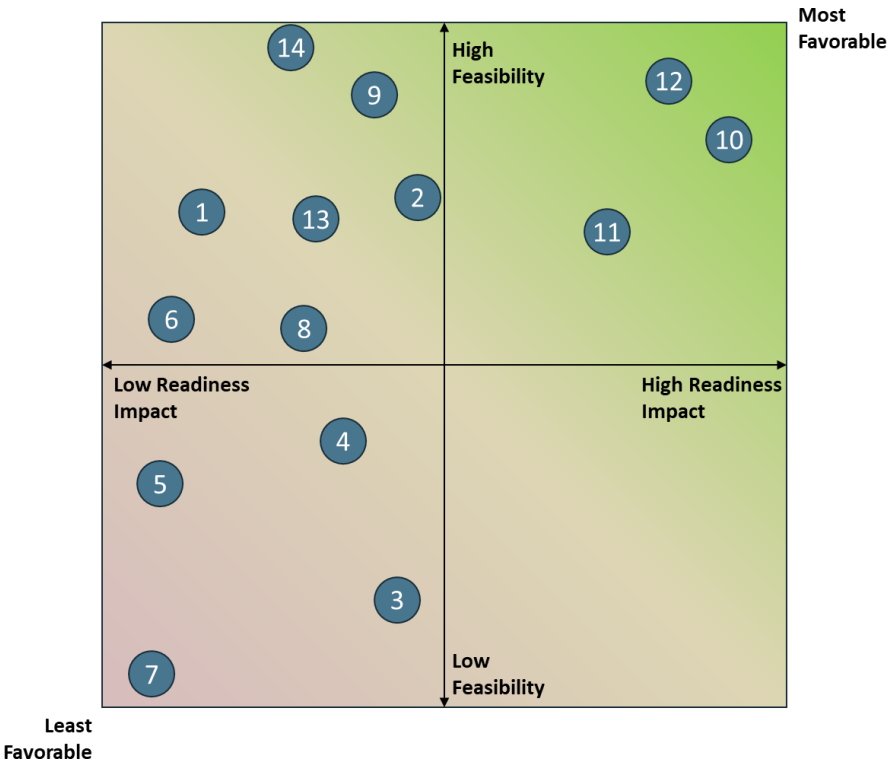

Figure 46: Step One Favorability. Four opportunities have low feasibility and a low impact on readiness, while three opportunities offer both high feasibility and a high readiness impact; seven others have mixed results. (Note: The numbers in the figure correspond to opportunity index numbers.)

Low Readiness Impact / High Feasibility

Five opportunities are deemed feasible for BGAD, but to have lesser readiness impact. These opportunities may have positive impacts on BGAD rates, help retain the workforce, and contribute to the economic health of the local community but have lesser alignment with the OIB mission or criticality to Army and/or Joint Force readiness. These opportunities may still be appropriate and warrant further explorations and evaluation, but care should be taken to ensure that they are not distracting from other missions or opportunities that more clearly align with Army/Joint Force readiness and the mission of the OIB. These five opportunities are:

- Security Guard Academy (Opportunity #14)
- Centralized Security Monitoring Center (Opportunity #1)
- Production of Ammunition Containers (Opportunity #9)
- Centralized Support for Prepositioned Vessel Mission Reset (Opportunity #2)
- R&D Lab for Advanced Manufacturing Processes (Opportunity #13)

Low Readiness Impact / Low Feasibility

Six opportunities scored low for both readiness impact and feasibility. These are:

- Management of Non-Munition Military Items Returning from Overseas (Opportunity #8)
- Conventional Munitions Demilitarization with the BGCAPP SDCs (Opportunity #4)
- Electric Vehicle Battery Production, Storage, Maintenance, and/or Recycling (Opportunity #6)
- Conventional Munitions Demilitarization Center of Excellence (Opportunity #3)
- Data Centers (Opportunity #5)
- Hazardous Waste Processing with SCWO Facility (Opportunity #7)

3.2.2.2 – Opportunity Analysis Step Two

In step two, for applicable opportunities, the team analyzed the practical implications by evaluating three dimensions: 1) the expected timeline to execute the opportunity, 2) the potential financial impact on BGAD, and 3) the local economic impact the opportunity may have. Because detailed information about revenue, jobs, and facility requirements are required to complete this analysis step, only the following three opportunities were sufficiently defined to be evaluated in Step 2 (see **Figure 47)**.

- Centralized Security Monitoring Center (Opportunity #1)
- Production of Metal Components for 155mm Artillery Munitions (Opportunity #11)
- Security Guard Academy (Opportunity #14)

The Centralized Monitoring Center and the 155mm Metal Parts Production opportunities are being considered for multiple sites. BGAD and JMC have submitted proposals for these two opportunities, respectively. Neither JMC, AMC, nor BGAD are the decision authorities

Index	Opportunity	Timeframe (weight 30%)	Return on Investment (weight 40%)	Economic Impact (weight 30%)	Weighted Scores
1	**Centralized Security Monitoring Center**	3.0	3.0	3.0	**3.0**
11	**Production of Metal Components for 155mm Artillery Munitions**	2.0	2.5	2.0	**2.2**
14	**Security Guard Academy**	2.0	1.0	1.0	**1.5**

Figure 47: Opportunity Analysis Step Two Scoring. Centralized monitoring center scoring improves significantly upon completing step two of the analysis given timeframe, large ROI, and large economic impact.

regarding where these opportunities are placed, and the study team did not have access to the selection criteria that will underpin the decisions for where those opportunities will ultimately be located. Together, these two opportunities have the potential to provide over $70 million in annual revenue to BGAD and $35 million in annual economic impact on the region depending on how they are executed (ISSAs with contractors vs. Government employees). They are forecast to create over 210 jobs, which is approximately 12% of the jobs expected to be impacted by the completion of the chemical munitions destruction mission at BGAD.

In contrast to the Centralized Monitoring Stations and 155mm Metal Parts Production opportunities, Security Guard training is already up and running at BGAD. The capability to perform this mission was created organically at BGAD for negligible cost. While the revenue potential, regional economic impact, and number of jobs created by this opportunity is small, there is further opportunity to expand the scope of its mission, which will be discussed further in *Part 4 – Study Outcomes*.

One item to note is the relatively small number of jobs that are forecasted to be created by the three opportunities evaluated in step 2. Replacing a significant portion of the jobs impacted by the completion of the chemical munitions destruction mission will likely require multiple new missions being assigned to BGAD.

3.2.3 – Overall Evaluation of the Opportunities

Figure 48 summarizes the combined scores of Step 1 and Step 2 of the opportunity analysis. Notwithstanding the large differences in the level of development and sufficiency of information available across the identified opportunities at the time this report was written, and that only three

Index	Opportunity	Readiness Impact	Feasibility	Readiness and Feasibility Score	Timeframe	Return on Investment	Economic Impact	Timeframe, ROI, Impact Score	Total Score
12	Production of Metal Shipping Containers	2.8	2.6	**2.7**					
10	Production of Critical Chemicals	3.0	2.4	**2.7**					
11	Production of Metal Components for 155mm Artillery Munitions	2.4	2.0	**2.2**	2.0	2.5	2.0	**2.2**	**2.2**
9	Production of Ammunition Containers	1.0	2.6	**1.8**					
2	Centralized Support for Prepositioned Vessel Mission Reset	1.2	2.2	**1.7**					
14	Security Guard Academy	0.6	2.8	**1.7**	2.5	1.0	1.0	**1.5**	**1.6**
13	R&D Lab for Advanced Manufacturing Processes	1.0	2.2	**1.6**					
1	Centralized Security Monitoring Center	0.4	2.2	**1.3**	3.0	3.0	3.0	**3.0**	**2.2**
8	Management of Non-Munition Military Items Returning from Overseas	0.6	1.4	**1.0**					
6	Electric Vehicle Battery Production, Storage, Maintenance, and/or Recycling	0.4	1.6	**1.0**					
4	Conventional Munitions Demilitarization using the BGCAPP SDCs	0.8	1.0	**0.9**					
3	Conventional Munitions Demilitarization Center of Excellence	1.0	0.4	**0.7**					
5	Data Centers	0.2	0.8	**0.5**					
7	Hazardous Waste Processing with SCWO Facility	0.2	0.2	**0.2**					

Figure 48: Opportunity Analysis Combined Scoring. Eight opportunities with combined readiness impact and feasibility scores greater than 1.0 have potential to pursue further.

of the opportunities were evaluated in step 2 of the opportunity evaluation process, the study team has triaged the 14 known opportunities based on results of the opportunity analysis and the team's present understanding of each of these opportunities. The 14 identified opportunities fall across three categories:

1) The most promising opportunities to pursue
2) Other potential opportunities for further exploration and consideration
3) Least promising opportunities

The team's overall evaluation and rationale for each of the 14 opportunities is described in the following subsections. In addition, the five most promising opportunities are addressed in more detail in *Section 4.1 – Business Case Evaluation of the Most Promising Opportunities*. Note that while six of the opportunities are considered the least promising for repurpose of facilities, equipment, or infrastructure at BGAD, that does not mean they could not be performed at BGAD, just that they are not as promising as the other opportunities evaluated.

3.2.3.1 – Most Promising Opportunities to Pursue

The following five opportunities are found to be the most promising, from an overall feasibility and impact point of view, of the 14 identified opportunities (these five opportunities are described below and in further detail in *Section 4.1 – Business Case Evaluation of the Most Promising Opportunities*):

- **Production of Critical Chemicals (Opportunity #10).** Critical chemicals are chemicals critical for the defense industry that are difficult to produce or are produced in foreign countries. This is a strategic opportunity that would have far- reaching implications for securing the future capabilities of the defense industrial base, if successfully implemented. Although no specific chemical has yet been identified for production through this opportunity, the BGCAPP workforce and surrounding community has extensive experience working with hazardous chemicals as well as developing and operating novel automated processes. A chemical production plant could likely use either existing BGAD or BGCAPP facilities. Environmental permitting may restrict the production of certain types of chemicals; however, personnel at BGAD are well versed in the permitting process. Installing a chemical plant that is not performing work related to munitions or energetics (i.e., explosive munitions) on the BGCAPP site may severely constrain BGAD's use of munitions storage igloos in the vicinity of the plant due to resetting of explosive arcs. Most of the funds awarded under the Defense Production Act Title III have gone to support expansion of private facilities; however, opportunities exist for a government owned, contractor operated facility (GOCO). Grants under DPA Title III are typically used for equipment and not for real estate and buildings. Therefore, the BGCAPP site may represent a unique opportunity for a contractor that has the expertise to produce a critical chemical yet lacks the appropriate facilities. The state of Kentucky also produces large amounts of agricultural waste that may be useful as a sustainable feedstock to produce certain chemicals.

- **Production of Metal Shipping Containers (Opportunity #12).** This is a strategic opportunity to address the Nation's current near-total reliance on foreign manufacturers as a source of supply for shipping containers. Without a sufficient supply of containers, sustaining a large-scale deployment of U.S. forces would be extremely difficult given modern cargo ship and port configurations. Additionally, the efficient functioning of domestic supply chains requires a steady supply of containers. Limited cargo container availability was a contributing factor that led to national supply chain disruptions during the COVID-19 pandemic.[53] BGAD currently has a small facility that performs maintenance and repair services for shipping containers, but this facility is not appropriate for container production. This opportunity is considered one of the top two most promising opportunities evaluated during this study given the strategic consequences of U.S. reliance on foreign manufacturers as a supplier for shipping containers, BGAD's accessibility and central location in the U.S., and the suitability of BGAD to perform this mission.

- **Production of Metal Components for 155mm Artillery Munitions (Opportunity #11).** Production of 155mm metal parts is a strategic opportunity that would add significant capacity and resiliency to the U.S. munitions industrial base at a time when existing production capabilities are being stretched to their limits. Realizing this opportunity at BGAD will require construction of a new building as none of the existing facilities meet the size requirements for the plant design. This opportunity is imminent (i.e., expected to come online within the next couple of years), and therefore the transition timeline for the BGCAPP site would require BGAD to locate this new facility elsewhere on the installation. There are multiple promising locations in the Administrative Area where construction of an appropriately sized building could likely take place on an existing pad after demolition of buildings that have passed their expected useful lifespans. This is considered one of the top two most promising opportunities evaluated during this study given its strategic importance and alignment with existing BGAD missions and capabilities. While this opportunity is specific to 155mm production, the associated equipment is capable of producing parts with diameters ranging from 60mm to 155mm and lengths from 150mm to 700mm.

- **Security Guard Academy (Opportunity #14).** Capabilities and capacity exist today at BGAD to support this opportunity. The academy would not repurpose any BGCAPP facilities or workforce but would make use of existing BGAD facilities. The Academy currently uses training facilities and trainers at BGAD to provide training to new guards for all JMC installations, which is expected to increase standardization while reducing liability for JMC installation commanders. The academy could also be expanded to provide annual training for all guards across OIB installations within AMC's purview, which would increase the revenue and job creation potential of the opportunity. BGAD currently delivers one three-week security guard training course once per month and each class has capacity for up to 25 students. BGAD has sufficient housing to accommodate all trainees on site. If BGAD assumes the guard recertification mission for all JMC installations, each installation would likely no longer be required to maintain a local trainer (GS-9 position).

- **Centralized Security Monitoring Center (Opportunity #1).** An estimated 100-150 workers would be needed to support this opportunity, however, these are likely to be contractor or Provost Marshall employees. Available administrative buildings at BGAD or office space vacated by BGCA should be considered for reuse to accommodate this opportunity. Centralized monitoring centers are likely to be implemented in four to six years and would provide an enduring mission. Although this timeline could match with BGCAPP site availability, putting the monitoring center anywhere in the restricted area would likely have a significant negative impact on BGAD's ability to store munitions in igloos near the facility due to restrictions from explosive arcs.

3.2.3.2 – Other Opportunities for Further Exploration and Consideration

The following three opportunities are deemed feasible but have either lesser readiness impact, or are less developed opportunities, than the more promising opportunities above.

- **Production of Ammunition Containers (Opportunity #9)**. BGAD facilities could likely be repurposed for the production mission (e.g., the 30mm ammo can refurbishment facility and the larger industrial facilities in the Restricted and Administrative areas), but the machinery and tooling required for the production facility do not exist at BGAD at this time. BGAD currently repairs ammunition containers, and therefore it is presumed it has at least some of the required skillsets to perform this mission. If a production facility for ammunition containers was placed in the Administrative Area, it is anticipated there would be no impact on the BGAD explosive arcs. However, if the facility was in the Restricted Area (including on the BGCAPP site), the explosive arcs may be impacted and this could result in the loss of explosive storage capacity for BGAD.

- **Centralized Support for Prepositioned Vessel Mission Reset (Opportunity #2).** BGAD is approximately 620 miles from the Military Operations Terminal Sunny Point (MOTSU) and has infrastructure that would allow for rail transport of shipping containers between MOTSU and BGAD. The operating footprint and workforce size required to execute the mission reset was not known at the time the study was conducted. Given the ongoing munitions storage and distribution missions at BGAD, the skillsets required to execute this mission are likely inherent to the BGAD workforce.

- **R&D Lab for Advanced Manufacturing Processes (Opportunity #13).** The BGCAPP facility has industrial automation integrated into some of the processes used in the destruction of the chemical munitions, and therefore the workforce affected by sunset of the BGCAPP's mission is familiar with working with automated processes. The study team is not aware of any current OIB production processes for which automation is being developed. Given the trend for growing use of automation in industry, it is plausible that the OIB would see a need for an organic capability to develop its own automation solutions.

3.2.3.3 – Least Promising Opportunities

The following six opportunities were deemed least promising for reuse of facilities or infrastructure at BGAD. However, that does not mean they could not be performed at BGAD, only that information available indicates the opportunities are less promising than those in the other two categories. All of these opportunities are hypothetical, and at the time of writing no mission detail or requirements for established programs related to these opportunities were known.

- **Management of Non-Munition Military Items Returning from Overseas (Opportunity #8).** The BGAD workforce currently conducts demilitarization and sorting operations, and therefore is likely to have some of the requisite skillsets for this opportunity. However, the knowledge to properly disposition materiel that is non-munitions related is likely not widely held by the current BGAD workforce or the workforce impacted by BGCAPP's mission sunset. If established as a mission at BGAD, it would likely have to be located in the Administrative Area or it may have a negative impact BGADs explosive arcs. No information about the size or type of facility to perform the activities associated with this opportunity was available.
- **Conventional Munitions Demilitarization with the BGCAPP SDCs (Opportunity #4).** The SDCs at BGCAPP were not designed for conventional munitions demilitarization. To the best understanding of the study team, the manufacturer of the SDCs is unwilling to provide support to repurpose the SDCs for use with conventional munitions. Given the relatively low net explosive weight limits and relatively high operating costs for the SDCs, it is likely the cost to dispose of conventional munitions in the SDC will be dramatically higher than the cost for OB and OD disposal.

  Note: at the time of this study, the JMC Demilitarization Directorate has not conducted a study to determine the cost differential between OB and OD and SDC disposal methods, and sufficient information was not available for the study team to develop an estimate of the cost differential
- **Electric Vehicle Battery Production, Storage, Maintenance, and/or Recycling (Opportunity #6).** The BGAD and BGCAPP workforce has experience with hazardous materials, automated industrial processes, and environmental permitting, which are all skillsets related to this opportunity. At this time, DoD is not currently pursuing development of organic capabilities related to electric vehicle batteries. Therefore, developing this opportunity further would likely require the Government to find a commercial partner willing to make the required investments at BGAD.
- **Conventional Munitions Demilitarization Center of Excellence (Opportunity #3).** The JMC Demilitarization Directorate and leadership from the JMC Munitions Logistics Readiness Center provided information to support evaluation of this opportunity. BGAD currently performs demilitarization of conventional munitions, and therefore has the capabilities and workforce in place. BGAD munitions stockpile is the smallest in the OIB due to limited explosives storage capacity, and therefore they have limited capacity to store additional munitions for disposal without risking

significant impact to the distribution mission. BGAD also has limited capability to expand munitions demilitarization under their existing environmental permits. There are other facilities in the JMC enterprise that are far better suited to expand their mission for conventional munitions disposal (e.g., Hawthorne Army Depot).

- **Data Centers (Opportunity #5).** No subject matter experts from the Government were identified that could provide additional information on the opportunity beyond what was gathered through external research by the study team. While BGAD provides the requisite 24/7 security for a data center, none of the existing buildings at BGAD are likely suitable for repurposing as a data center due to cooling and thermal management requirements. If a data center was located in the Administrative Area, there would likely be no impacts to BGAD's explosive arcs, but there would likely be impacts to the arcs if a data center was located anywhere in the Restricted Area (including the BGCAPP site).
- **Hazardous Waste Processing with SCWO Facility (Opportunity #7).** The U.S. Army Combat Capabilities Development Command, Chemical Biological Center and PEO ACWA provided information that contributed to the analysis of this opportunity. The capabilities of the BGCAPP SCWO facility are expected to be some of the most advanced of any SCWO facility in the world. It is the only known facility capable of operating as a continuous process as opposed to batch processing. Technical limitations discovered during facility testing precluded its use for the chemical munitions destruction mission, and it has not been used for processing other types of hazardous waste. Therefore, the full extent of the facility's capabilities is not known. Preliminary discussions with a commercial company involved in processing hazardous waste suggest they may be interested in relocating and repurposing the SCWO for their use at a different location.

3.3 – Zones of Opportunity

While the prior section focused on evaluating identified opportunities to repurpose BGAD facilities, this section serves to identify a broader set of opportunities to consider for BGAD. To help target additional opportunities, the study team developed a structured ideation process and analysis tool to identify "Zones of Opportunity". This tool is a powerful methodology for quickly developing and evaluating opportunities for any site or business.

A Zone of Opportunity represents the intersection of a capability (e.g., manufacturing, maintenance, transportation, etc.) with a product or service. The intent of the Zones of Opportunity assessment was to identify areas the JMC and BGAD Business Development Teams may not be aware of for consideration and to find the zones that represent BGAD's greatest areas of strength to ensure the business development teams are focusing their limited resources on the right areas. These zones are not time-bound and could be used to evaluate both short- and long-term opportunities.

3.3.1 – Zones of Opportunity Methodology

Through interviews, research, and industry experience, the study team identified eleven criteria to evaluate whether BGAD would be a suitable site to deliver a particular product or service through a given capability. The eleven criteria enable assessment from two different perspectives: 1) the requirements to deliver the product or service, and 2) the extent to which BGAD has the capabilities to meet those requirements, as informed by the site assessment.

The Zone of Opportunity score is calculated for every capability and product/service combination, and the results are plotted on a spider graph. Product/service combinations that receive high scores across multiple capability areas are richer Zones of Opportunity.

3.3.2 – Results of the Zones of Opportunity Analysis

The Zone of Opportunity assessment is shown in **Figure 49** (next page)**.** Results should be viewed with a BGAD lens and may not reflect community preferences. The team evaluated eight capabilities (production, distribution, storage, maintenance, disposal of military assets, disposal of non-military assets, administrative activities, and research and development) as shown at the outside points of the spider chart. These capabilities were evaluated for five product/service sets: inert products, explosive products, hazardous waste/chemicals, technology and data centers, and energy and power generation. The values on the chart represent the percent of requirements BGAD satisfied in each zone for each product/service.

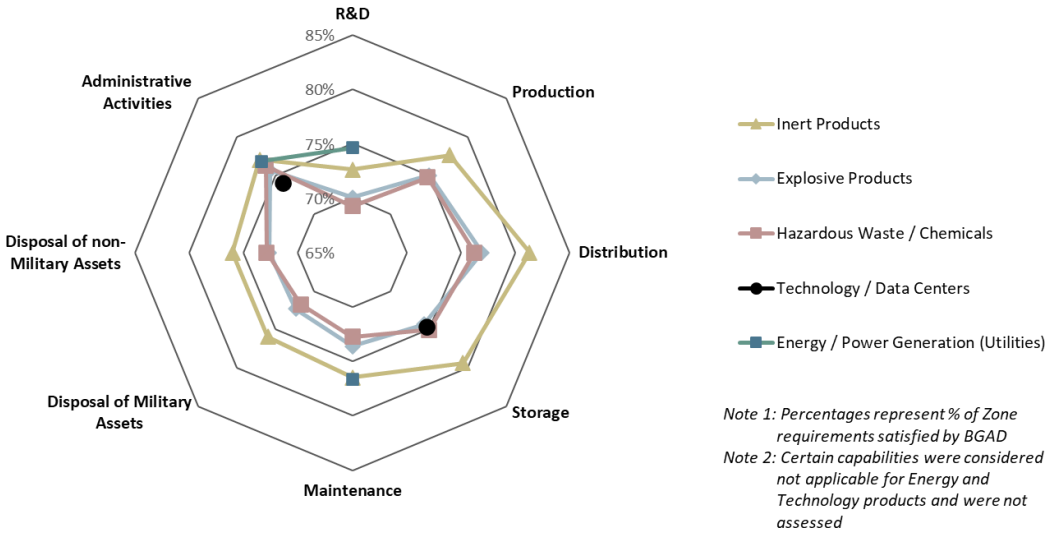

Figure 49: Zones of Opportunity Results. Attractive zones were determined using requirements for products/services along with the capabilities present at BGAD.

The results show that for almost all the capabilities evaluated, BGAD has the most opportunity related to inert products. This is due to the large portion of the BGAD site that is affected by explosive arcs and the potential to disrupt existing missions by requiring changes to the arcs. Assuming that new opportunities brought to BGAD related to inert products will be located in the Administrative Area, no impact to existing arcs is expected. These same considerations for inert products apply to all the other product and service categories except explosive products. Explosive products score relatively low despite the majority of BGAD's facilities and land area being devoted to the explosive munitions mission because there is limited unused explosive storage capacity, and if new operations related to explosives are introduced to BGAD, there is limited space to situate the new operations in the Restricted Area.

Based on the Zones of Opportunity analysis, the JMC and BGAD Business Development teams should prioritize developing opportunities in the following (listed in order of priority):

- **Inert Product/Service Set.** Opportunities for inert products across almost all capability areas (opportunities to produce, distribute, store, maintain, or dispose of inert products and/or perform administrative actives related to inert products)
- **Administrative Activities Capability Area.** Opportunities for admin activities across all the evaluated product/service types (except technology/data centers)
- **Explosive Products and Hazardous Waste/Chemicals Product/Service Set.** Opportunities for these product/service sets across all capability areas (except R&D)

Part 4

Study Outcomes

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4.1 – Business Case Evaluation for the Most Promising Opportunities

Of the 14 defined opportunities evaluated in during this study, five have been determined to be the most promising opportunities to pursue. *Part 3 – Opportunity Evaluation* outlined the two-step evaluation methodology. Step 1 of the analysis considered the readiness impact and feasibility of all 14 opportunities. Readiness impact evaluated the degree to which the opportunity aligns with the intent and purpose of the OIB and the degree to which it could impact military readiness. Feasibility evaluated the degree to which the opportunity's requirements could be met by BGAD.

The analysis revealed three opportunities with both high readiness impact and high feasibility. All three are production missions and are of strategic importance:

- Production of Critical Chemicals (Opportunity #10)
- Production of Metal Shipping Containers (Opportunity #12)
- Production of Metal Components for 155mm Artillery Munitions (Opportunity #11)

The other two most promising opportunities were evaluated to have low readiness impact, but high feasibility. These two opportunities contribute less clearly to BGAD's mission (hence the low readiness impact score), but have the potential to contribute positively to BGAD rates and create value for the customers that would be served. These two opportunities are:

- Security Guard Academy (Opportunity #14)
- Centralized Security Monitoring Stations (Opportunity #1)

Three of the opportunities are defined (opportunities #1, #11, #14), which means requirements have been established and enough information is available to estimate the revenue potential and number of jobs that may be created by the opportunity. The other two opportunities (#10 and #12) are hypothetical. There are no known requirements for them, but because they address important strategic issues, would repurpose existing facilities and infrastructure at BGAD, and BGAD could play a meaningful role in addressing the needs associated with them, the study team believes they should be pursued further.

Because the information currently available for each of these five opportunities varies widely, the details and analysis in each of the following sections also vary. The elements of a business case that can be made from the available information are provided for each opportunity in the subsections that follow.

4.1.1 – Production of Critical Chemicals

Approximately thirty chemicals that are critical to the defense industry but are difficult to produce, or have only foreign sources of supply, are the subject of this strategic opportunity. Expanding the base of suppliers for these critical chemicals adds significant capabilities to the industrial base that are essential for national defense and improves overall supply chain resilience. In December 2022, the Defense Production Act (DPA) Title III office, through the Air Force Research Laboratory, issued a funding opportunity announcement and a call for proposals to establish domestic suppliers of critical chemicals. Approximately $200 million in DPA Title III funding is expected to be awarded in FY2023 and an additional $200 million is expected to be awarded in future fiscal years. The DPA Title III office anticipates award amounts will range between $2 and $20 million per project, and will fund up to twenty projects.

The capital expenditure required to build a chemical plant can range from the high tens / low hundreds of millions of dollars, to multiple billions of dollars for the largest, most complex facilities.[54] Grants under DPA Title III are typically limited to equipment, and not for real estate and buildings. While there is currently no known requirement for BGAD or the AOIB to manufacture or support the manufacture of critical chemicals, BGAD may represent a unique opportunity for a partner that has the expertise to produce a critical chemical but is searching for a site to establish a production facility. Combining DPA grant funding for equipment with repurposed buildings and infrastructure on BGAD could be very attractive to a partner.

Anticipated critical chemical production requirements range from 1000 pounds per year to 200,000 pounds per year, which indicates there is likely a wide variation in plant size and investment required to establish a production facility. The factors that strongly influence site selection decisions for chemical plants[55] overlap directly with the capabilities and benefits that BGAD offers. These factors are:

- **Transportation infrastructure.** Facilities should be serviced by at least two major forms of transportation (e.g., rail, major roadway, waterway, seaport) to facilitate the flow of raw materials and supplies to the plant and finished product from the plant to market. BGAD offers interstate highway access, rail access, and over 1,000 miles of commercially navigable waterways.
- **Availability of suitable land.** The site should be suitable for industrial operations. Minimal exposure to natural disasters and hazards is highly desirable. BGAD has multiple industrial operations ongoing throughout the installation, and Madison County, KY, has relatively low risk of loss due to natural hazards. The expected total annual losses in the county are well under one million dollars and are most likely to be caused by lightning strikes or landslides.
- **Availability of utilities.** Sufficient utility services and waste management infrastructure must be available to support operations at the facility. Robust utility infrastructure exists at BGAD, and there is capacity in excess of that required to operate the BGCAPP facility. The hydrolysate storage tanks on the BGCAPP site may be highly attractive to a chemical plant operator. The fact that BGAD already has

significant installed utility capacity available for use means potentially over $100 million in site development cost avoidance to a partner who builds a chemical production facility at BGAD.

- **Availability of skilled labor.** It is common that chemical plant operators must bring skilled labor to the plant from outside the local area. The workforce supporting BGCAPP operations are likely to have many, if not most, of the skills and capabilities needed to operate a chemical production plant.
- **Permissive regulatory environment.** Highly restrictive regulatory environments and slow-moving review and approval processes can make it impossible for smaller chemical manufacturing operators to bear the cost (in dollars and time) to successfully navigate the bureaucracy. Despite previous challenges with KDEP, Kentucky has one of the most permissive regulatory environments of states in the southeast and ranks in the middle of states nationally. BGAD has experience working with KDEP and its workforce may provide a partner the necessary expertise and experience needed to navigate the Kentucky regulatory environment successfully.

The number of jobs created by a chemical plant depends heavily on the type of plant, scale of the operation, and the level of process automation it uses. The capital expenditure (CAPEX) required to build and start the facility does not correlate with the number of jobs created (i.e., there are low CAPEX chemical plants that create a relatively large number of jobs, and large CAPEX chemical plants that create a relatively low number of jobs).

Without specific potential partners identified and an idea of which chemicals are viable for production at BGAD (both of which the team was not able to determine during the short timeframe of this study) it is not possible to conduct a thorough business case analysis for this opportunity. Industry proposals for the DPA funding were due to the Air Force Research Laboratory on March 09, 2023. The points of contact at the relevant contracting office are Whitney Foxbower (whitney.foxbower@us.af.mil, 937-713-9877) and Aaron Pitts (aaron.pitts1@us.af.mil, 937-713-9928).

4.1.2 – Production of Metal Shipping Containers

Insufficient domestic or ally-nation production of shipping containers represents a strategic risk to the U.S. Currently, 96% of dry cargo containers and 100% of refrigerated containers are produced in China.[56] Only three manufacturers produce 82% of all Chinese containers and the Department of Commerce has determined the Chinese manufacturers are the recipient of large government subsidies.[57] The number of domestically produced dry cargo shipping containers is not known but is estimated to be very small.

The most common lengths for shipping containers are 20- and 40-foot. Production of shipping containers is commonly expressed in 20-foot equivalent units (TEUs). Global production of containers peaked in 2021 at 7.1 million TEUs, in response to global supply chain disruptions and the lack of available containers. Production in 2020 was approximately 3.4 million TEUs, and 2022 production was about 3.9 million TEUs. Production in 2023 is forecast to be down to approximately 2.8 million TEUs.[58]

JMC uses 20-foot metal shipping containers for transporting munitions. Due to the sensitive nature of munitions, shipping containers must meet stringent quality conditions to provide the necessary physical and environmental protection needed during global transportation of the munitions. Further, access to a sufficient stockpile of shipping containers is essential for maintaining readiness across the DoD. The U.S. Transportation Command ships approximately 300,000 containers per year on behalf of all DoD branches.[59] The expected lifespan of a shipping container is 13 years, which means approximately 23,000 containers per year are needed to replace old containers, not accounting for those that are lost or damaged before their lifespan expires.

A surge in military operations or large-scale deployment will likely require a dramatic increase in the need for containers. Previous experience from large deployments and surge operations in Operations Iraqi Freedom and Enduring Freedom suggests that the lifespan of a container can be expected to drop significantly because containers are much more likely to be lost, damaged, or repurposed. It is not unreasonable to expect demand for containers to increase by two to three times current demand or more in surge conditions (i.e., demand could exceed one million containers per year), and effective container lifespan may drop to only a couple of years.

If the reason for the dramatic increase in demand for containers by the DoD is related to China or areas where there are significant Chinese interests, the U.S. should not assume China would remain a reliable supplier for containers. Further, in such a scenario, where the supply of new containers rapidly declines, the DoD will be competing with U.S. industry for access to available containers and that has the potential to undermine domestic U.S. supply chains across all industries.

Although there are several domestic companies that bring shipping containers to market in the U.S., the study team was only able to identify one company that is producing shipping containers domestically. Very limited domestic production and the extreme concentration of global shipping container manufacturing in China is a strategic risk to large-scale deployment of U.S. forces and continued operation of domestic supply chains. The capabilities, infrastructure, land, and facilities that are available at BGAD make it an attractive location to start building more robust U.S. capabilities to produce shipping containers. BGAD currently has a large state of the art shipping facility, rail and navigable commercial waterway access, existing container repair capability, and significant painting capability, all of which make it an attractive option to locate a domestic shipping container production facility.

Establishing the capability to produce metal shipping containers at BGAD would require construction of a new facility. To estimate the size and capacity of a facility at BGAD, a Chinese facility owned by CXIC Group[60] and a proposed facility in Memphis, TN[61] were used as benchmarks (see **Figure 50** for a summary of their relevant facility data). CXIC Group's container production facility was built in 2005 for a cost of approximately USD $43.8 million, equal to $70 million in May 2023 dollars. The proposed Memphis facility is a similar size and the investment to refurbish an existing facility and install the necessary equipment is $116 million. The total CXIC facility workforce is 1,830 people; whereas the proposed Memphis facility is intended to use automated assembly lines and have a workforce of approximately 400 people. Annual production capacity at CXIC is 200,000 TEUs, whereas the Memphis

	CXIC Group (China)	Proposed Memphis Facility
Facility Size	540,000 ft^2	818,000 ft^2
Production Lines	1 container line	2 container lines + 1 chassis line
Annual Production Capacity	200,000 TEUs	60,000 TEUs
Staff	1,830	400
Facility + Equipment Cost	$70 million	$116 million

Figure 50: Shipping Container Manufacturing Facility Build Costs. Build costs for two facilities to manufacture shipping containers ranged from $70M to $116M.

facility is targeting approximately 60,000 TEUs per year of production. The estimated cost to build and equip a facility similar to the Chinese and Memphis benchmarks is $100M. While such a facility will not meet domestic demand for containers, it will establish a meaningful domestic production capability.

Note: Since initial announcement in January 2022 of the plans to develop the Memphis facility, no other announcements have been made to indicate if the project is moving forward.

When purchased, the landed-cost of containers used by JMC for shipping munitions is approximately $15,000. Estimates for the costs of manufacture, shipping, and distributor markup are shown in **Figure 51**. In this estimate shipping costs and distributor markup are estimated to account for 80% of the total container cost. While production costs for containers produced domestically are projected to be much higher than containers produced in China, *this is outweighed by the savings of shipping costs and costs paid to distributors by producing them domestically*. In June 2023, prices for hot-rolled steel, which is a major material component in shipping containers, were over 130% higher in the US than in China; and labor costs in China are still much less than those in the US. However, as shown in **Figure 51**, even with higher U.S. input costs, the cost of a container domestically manufactured is potentially lower than what SAB currently pays to source and modify them through a distributor.

Costs	% of Total Cost	China	USA
Raw Materials	50%	$ 1,500	$ 3,481
Labor	30%	$ 900	$ 4,775
Overhead	15%	$ 450	$ 3,286
Production Profit Margin	5%	$ 150	$ 577
Production Subtotal	100%	$ 3,000	$ 12,119
Freight Costs		$ 4,350	$ -
Distributor Modifications and Mark-up	51%	$ 7,650	$ -
Total		**$ 15,000**	**$ 12,119**

Figure 51: Estimated Cost Breakdown to Purchase or Manufacture a Shipping Container. Estimated costs to produce a container are nearly 20% less in the USA without freight and distributor mark-up costs. (WP&C estimate)

4.1.3 – Production of Metal Components for 155mm Artillery Munitions

With the end of the Cold War and the multi-decade engagement in regional conflicts with terrorists and non-state actors, operational battle plans had shifted emphasis away from munitions traditionally associated with large-scale land wars (e.g., aimed mortar, artillery, and tank munitions) to precision-guided weapons (e.g., laser, inertial navigation system, and satellite guided munitions). The ongoing conflict between Russia and Ukraine has shown that the demand for mortar, artillery, and tank munitions, in even localized land battles, may be significantly higher than war planners have accounted for. While the U.S. had a significant stockpile of artillery munitions at the start of the RUS/UKR conflict, the production capacity of the defense industrial base to sustain the stockpile has proved inadequate. To enable a dramatic increase in artillery munitions production three lines producing metal components needed for 155mm artillery rounds have been contracted, and an additional line is also planned. The location for where the fourth line will be sited has not yet been determined. Regardless of where these lines are located, they represent a strategic opportunity to add capacity and resiliency to the U.S. munitions industrial base at a time that existing production capacities are stretched to their limits.

Locating or relocating the production lines for the 155mm metal parts at BGAD aligns well with the depot's existing workforce and munitions mission. Because none of BGAD's existing facilities meet the size requirements for the plant design, a new facility to house the production lines will be required. This could be accomplished in three ways: 1) construction in the BGAD Administrative Area on the site where buildings 216 and 217 are currently located, 2) on the BGCAPP site, and 3) on a greenfield site not located on BGAD. The startup timeline for each of these scenarios would also vary. Given the unique and specialized characteristics of the required facility, and the recent impacts of inflation inducing high variability in costs of construction materials and labor, it is beyond the scope of this study to produce a detailed construction cost estimate for a new 155mm metal parts production facility. If BGAD is considered a likely site for this facility, and a construction timeline is specified, it will be possible to estimate the facility construction costs. In the event the facility is located in the BGAD Administrative Area, because Buildings 216 and 217 are currently used for storage, the contents would have to be re-warehoused before their pads could be repurposed for construction of the new facility. If the 155mm metal parts production lines were built on the BGCAPP site, then it is likely no site work will be needed as an existing pad will be repurposed. As previously detailed in this study, the BGCAPP site is not expected to be available for reuse until mid-CY2027. Note that placing a production facility that is not doing energetics production in the Restricted Area may impact the explosive arcs to such an extent that significant BGAD munitions storage capacity will be lost.

Annual labor costs to operate the 155mm metal parts facility are expected to be approximately $6.4 million, as shown in **Figure 52**. Operation of the facility is expected to create 62 jobs and generate approximately $28.5M in annual revenue for BGAD, at their FY2024 labor rates. The local annual economic impact from this opportunity is estimated to be $11 million.

Input	Value
Planned Production Shifts	2
Staffing per Shift	31
BGAD Average Annual Contractor Wage	$103,226
Total Labor Costs	**$6.4 million**

Figure 52: Estimated Annual Operating Expenses for 155mm Facility. With two shifts and 31 employees per shift, estimated annual operating costs total $6.4M.

4.1.4 – Security Guard Academy

At present, JMC installations are responsible for conducting the training of their own security forces. The requirements and standards for training are established, but how the training is delivered is determined locally at each installation. While the requirement for the AOIB's security guards to be trained is a defined requirement, this opportunity is a hypothetical expansion of the existing BGAD security training team to create a security guard academy that would centralize and standardize training for guards across the AOIB and potentially across active-duty Army garrisons.

The BGAD security team has developed a training program that meets the requirements and standards of established security programs, and they are now offering other JMC installations the opportunity to send their new guards to BGAD to participate in their program. Because the BGCAPP facility is onboard the BGAD installation, BGAD's security training program has been developed to include capabilities that do not exist at other JMC sites (e.g., special response team training, video-based scenario simulator that incorporates actual video from the installation into the simulations used in the training program).

The program is a three-week course that BGAD offers once per month. Each class has capacity for 25 students, and BGAD has sufficient temporary housing facilities available to accommodate all trainees on site. The current annual labor costs for the security guard training program are approximately $364,000 which provides for four security guard instructors.

This opportunity includes four potential paths. The first two paths would expand BGAD's current security guard training program but not require repurposing of any facilities at BGAD. The second two paths expand BGAD's security guard training program further and would require repurposing of existing BGAD facilities to accommodate more students and classes.
The four paths are:

- **Path 1: Continue with the BGAD academy as the centralized facility to provide initial training to all JMC installation security guards**. JMC OPORD 23-07 directs all DASG new hires to attend the BGAD DASG academy. The current program can accommodate 300

trainees per year. The annual revenue potential to BGAD is approximately $750,000 without requiring additional instructors.

- **Path 2: Expand the academy to also provide recertification training for guards from all JMC installations.** After initial certification, the security guards require 40 hours of training annually. Currently, this training is provided locally at each installation by a GS-9 trainer. Centralizing the annual training along with the initial training would eliminate the need for the local trainer position at each JMC installation and result in approximately 400 guards across JMC requiring annual training. This has the potential to generate approximately $400,000 in additional revenue and would likely require the addition of 2-3 instructor resources at a cost of approximately $182,000 to $273,000.

- **Path 3: Expand the academy to provide initial and recertification training for guards from installations across AOIB.** The other AOIB installations outside of JMC's cognizance fall under headquarters commands that report to AMC. If AMC mandated the use of the BGAD academy for all AOIB guards, the revenue potential for the academy would expand to approximately $5 million per year (note, this figure includes the revenue from paths 1 and 2 and is not in addition to those revenue estimates). Expanding to this level of capacity for the academy would require the addition of an estimated 35 instructor resources for a cost of approximately $3.1 million, and the addition of classroom facilities. The needed classroom facilities are estimated at 5000 SF, and the estimated renovation costs for repurposing existing BGAD facilities is $450,000. Based on available information at the time of the study, it is not known if additional facility investments for the range and simulator at BGAD are needed for this expansion path.

- **Path 4: Expand the academy to provide initial and recertification training for guards from all active Army garrisons.** The U.S. Army Installation Command (IMCOM) is responsible for managing the programs related to installation security and physical security at all active Army installations, and IMCOM is a subordinate command to AMC. If the Security Guard Academy is further developed as an opportunity to repurpose capabilities and facilities at BGAD, then consideration could be given to expanding the training service to all active Army garrisons.

4.1.5 – Centralized Security Monitoring Center

The Army National Guard has implemented centralized security monitoring centers through which multiple facilities and installations are monitored from a single location. These centers are performing activities such as monitoring intrusion detection systems and building health and safety systems. When alerts or alarms are triggered in a local system, the central monitoring centers coordinate the appropriate responses with local resources such as security, fire, police, public works, etc.

It is planned that there will be three total central monitoring centers in the U.S. and each one will be responsible for monitoring a geographic region (e.g., east, west, or central U.S.) This opportunity is

defined, and BGAD is being considered for one of the regions. The estimated annual cost and revenue potential is $13.6M in labor costs and $43.7M in revenue, as summarized in **Figure 53**. If executed by contractors with BGAD receiving an ISSA, revenue impact to the depot could be as low as $415k. The execution path for this opportunity has not yet been determined.

The monitoring center will be staffed continuously to enable 24/7/365 operations. Each shift is estimated to require 25 personnel, and therefore could generate 150 new jobs at BGAD, although personnel are likely to be contractors or Provost Marshall employees. The skillset necessary to execute the centralized monitoring mission are consistent with those who monitor the operations of industrial plants, and therefore this work is aligned with the skills present in the BGCAPP workforce.

Administrative-type buildings are appropriate for this type of requirement, and there are multiple BGAD and BGCA facilities that would likely be suitable for use with a moderate level of renovation and upgrading. If the monitoring center is located in the BGAD Administrative Area, it is not expected to have any impact on existing BGAD explosive arcs. If it were located on the BGCAPP site, it would likely impact the explosive arcs and result in BGAD losing the ability to store explosives in facilities near the monitoring center.

The estimated local economic impact this opportunity could create is $24 million. The cost to renovate and upgrade existing BGAD facilities for this opportunity is approximately $625,000.

Current estimates for the timeframe to implement the centralized monitoring centers is four- to-five years. If BGAD were selected for this opportunity and existing administrative-type facilities are repurposed for the monitoring center, it is likely to cost less than executing this mission at another location that does not repurpose any facilities.

Input	Value
Operating Hours	8,760
Staff per Shift	25
Total Headcount	150
Estimated Revenue	$415k - $43.7 million
Labor Costs	$13.6 million
Office Space Required	5,000 ft^2
Estimated Renovation Costs	$500,000
Estimated Equipment Costs	$125,000

Figure 53: Revenue and Cost Potential for Centralized Security Monitoring Center. This opportunity could bring up to $43.7M in annual revenue to the depot, with less than $1M in initial investment and $13.6M in annual labor costs. (Note: revenue impact would be significantly lower if executed by contractors with an ISSA to the depot)

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4.2 – Summary of Findings, Recommendations, and Risks

The purpose of this study was to assess the feasibility and potential for reuse of the BGCAPP located on Blue Grass Army Depot in Richmond, KY. Although the primary scope of the study was the BGCAPP, there are significant related impacts to the BGCA and BGAD organizations caused by the completion of the chemical munitions destruction mission and the remediation and demolition of the BGCAPP facilities. Therefore, all BGCA buildings, infrastructure, and personnel were included in-scope, as were selected BGAD buildings, infrastructure, and personnel.

4.2.1 – Study Findings

Analysis of information and data gathered during interviews with stakeholders from the DoD, Department of the Army, and the Blue Grass community; outreach to industry; on-site assessment of facilities and infrastructure, and engagement with leadership and subject matter experts from BGCAPP, BGCA, and BGAD; and review of existing documents, specifications, plans, and prior studies revealed the following findings:

1. The BGAD installation has multiple characteristics that make it attractive to industrial-type activities (e.g., good accessibility with multiple interstate highways and an active rail spur, robust utilities service, and a relatively permissive state regulatory environment).
2. There are 54 facilities totaling nearly 200,000 square feet of space that are highly feasible for reuse; these facilities are the utility building, container handling building, maintenance building, and substation at BGCAPP; the mask fitting building in the Restricted Area; and 49 storage igloos in the Chemical Limited Area (the storage igloos are planned for reuse).
3. Another 37 facilities, with approximately 700,000 square feet of space, are feasible for reuse to lesser degrees.
4. By law, the BGCAPP Munitions Demilitarization Building and MDB Filter Area must be demolished because they were directly involved in the processing of chemical agents.
5. Although it did not come in contact with chemical agents, the Control Support Building will be demolished because it is structurally integrated into the MDB.

6. Most of the impacted BGCAPP, BGCA, and BGAD employees will be released from their jobs well ahead of, in some cases years before, BGCAPP facilities become available.
7. The workforce conducting BGCAPP operations is highly skilled and the Madison County, KY, labor market is tight, which indicates they may be in high demand by other employers in the local area.
8. Depot rates are estimated to increase by 12.7% if monies received through ISSAs with PEO ACWA and BGCA are not replaced with other revenue when the ISSAs are terminated.
9. New operations or missions placed at BGAD must be evaluated to understand their potential impacts on explosive arcs and other BGAD operations.
10. Eight opportunities were assessed to have potential to reuse facilities and infrastructure at BGAD; five of the opportunities were determined to be most promising:
    a. Three of the most promising opportunities are assessed to have high readiness impact and high feasibility; these opportunities have strategic importance and align with the purpose of the OIB (production of metal shipping containers, production of critical chemicals, production of metal components for 155mm artillery munitions).
    b. The other two most promising opportunities (centralized security monitoring center and security guard academy) were assessed as low readiness impact but high feasibility.
    c. The final three opportunities (production of ammunition containers, centralized support for prepositioned vessel mission support, and R&D lab for advanced manufacturing processes) are feasible, but do not have any known requirements or organizations actively advocating for them.

4.2.2 – Recommendations

Based on the findings and associated analysis conducted for this study, the following actions are recommended:

1. Continue to further develop the eight identified opportunities and place particular focus on the five most promising opportunities.
2. Continue exploring the attractive zones of opportunity to identify additional opportunities.
3. Use the information included in this feasibility study (especially the site assessment) to inform and support future BGAD industry days.
4. Continue to host annual Industry Days and follow up with interested parties (e.g., the commercial enterprise that expressed interest in the SCWO – information provided to the JMC Business Development team).

4.2.3 – Risks and Mitigation

Some risks were identified during this study. There was not sufficient information available to perform a thorough risk assessment for these risks (e.g., to develop estimates for the likelihood and severity of the risks and to evaluate a comprehensive suite of mitigations). The information that is available about these risks is provided so that it may inform, when appropriate, future actions to develop and implement facility and infrastructure reuse opportunities at BGAD. The risks identified are:

- **Unexpected impacts to BGAD explosive arcs.** Reuse of facilities and/or infrastructure at BGCAPP, BGCA, or BGAD may impact the existing explosive arcs at BGAD. If the arcs are negatively impacted, BGAD may lose explosive storage capacity that is critical for the execution of its long-standing munitions missions. To reduce the likelihood of this risk having an unexpected impact on BGAD, ensure the BGAD Safety Office is involved in the early phases of evaluating opportunities. While formal analysis of the impacts on explosive arcs cannot begin until a new operation is at least 35% design complete, the input from the BGAD Safety Office may be very useful for avoiding unanticipated limitations from explosive arcs.
- **BGCAPP facilities are retained without developed use cases.** It is possible that a decision to retain facilities at BGCAPP will be made before an opportunity is certain to use the facility. If this happens, BGAD will have to pay future sustainment costs and potentially demolition costs once the facility is turned over from PEO ACWA to BGAD. Minimizing exposure to this risk requires a disciplined process for evaluating opportunities, objective criteria that define the cases where facilities should be retained, and clearly defined decision-making authorities to ensure the decision is made at the right level and at the right time.
- **BGAD hires permanent workers for an opportunity or mission that turns out not to be enduring.** It is possible that the permanent workforce is repurposed or hired for a mission that turns out to not be enduring, leaving BGAD with excess workforce at the sunset of this future mission, with negative impact on NOR and/or rates. Minimizing this risk requires thoroughly evaluating opportunities for likely years of service and employing appropriate workforce strategies properly balancing between permanent and temporary workers given the anticipated years of service of the opportunity and level of uncertainly regarding the years of service.

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Appendix

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A.1 – Individuals Engaged

The following individuals were engaged during the feasibility study.

Name	Organization	Interview	Briefing	Email/ Discussion	Survey
Dr Bernard Goodley	AMC	x	X	X	
Stephanie Hoaglin	AMC		X		
Richard Martin	AMC		X		
Tom Ray	AMC		X		
Donald R. Nitti	AMCOM				X
Aaron Renfro	Army Corps of Engineers	X	X	X	
Patrick Jewell	ASC	X			
Brian Aubrey	ASC	X			
Matthew L. Sannito	ASC				X
COL Brett Ayvazian	BGAD		X		
Mandy Byron	BGAD	X	X	X	
Greg Collinsworth	BGAD	X			
Joe Elliott	BGAD	X	X		
Brian Freeman	BGAD	X	X		
Greg Gaerke	BGAD		X	X	
Mark Henry	BGAD	X			
Jeff Hurst	BGAD		X		
Joel Kallenberger	BGAD		X	X	
Chris Lee	BGAD		X	X	
Ramesh Melarkode	BGAD	X			
Neal Robinson	BGAD	X			
James Sivley	BGAD	X	X		
Matt Turner	BGAD		X		
Mike Williams	BGAD		X		
Chris Willoughby	BGAD			X	
Chris Chasteen	BGCA	X			
Jamie Hall	BGCA		X	X	
Sam Jones	BGCA	X			
Lt Col Tyler McKee	BGCA		X		
Kelso Horne	CMA	X			
Robert Cavallo	CMA	X			
Dr. Eric Moore	DEVCOM				X
Travis Wheat	DEVCOM - C5ISR Center				X
Michael Bailey	DEVCOM - CBC				X
Lloyd Pusey	DEVCOM CBC	X			
J Randall Robinson	IMCOM				X

Name	Organization	Interview	Briefing	Email/ Discussion	Survey
COL Ronnie Anderson	JMC		X		
Bryan Arensdorff	JMC		X	X	
Dave Banian	JMC			X	
Justine Barati	JMC		X	X	
John Campbell	JMC		X		
Jay Carr	JMC		X		
Ian Chesnutt	JMC	X			
Keith Clift	JMC	X		X	
Crenesto Crosby	JMC		X		
Kathryn Crotty	JMC		X		
Colin Deppe	JMC	X	X	X	
Seth Dismore	JMC	X		X	
Bill Dunkin	JMC		X	X	
Jamarlon Figgs	JMC	X			
Daniel Freitag	JMC		X		
Nate Hawley	JMC		X		
Rob Helton	JMC		X		
John Hinnant	JMC		X		
Eric Hoover	JMC	X	X	X	
Corey Hotle	JMC		X	X	
Jim Janke	JMC	X			
Fritz Larsen	JMC	X	X	X	
Jennifer McCalester-Conner	JMC		X	X	
Ryan McGivern	JMC		X		
Mike Mohr	JMC	X	X	X	
Chad Rhoades	JMC	X	X	X	
Sara Schaich	JMC	X			
Jeannette Sergeant	JMC	X			
Mark Sikes	JMC		X		
Darin Strazewski	JMC	X			
Stephanie Teaney	JMC	X	X		
Brian Tuftee	JMC		X		
Jim Vaughn	JMC	X			
Jim Veto	JMC		X		
Gina Ward	JMC	X		X	
Christine Yaddof	JMC	X	X	X	

Name	Organization	Interview	Briefing	Email/ Discussion	Survey
Bryan McVeigh	PEO - GCS PM Mounted Armored Vehicles (MAV)				X
COL Freeman Bonnette	PEO - GCS PM Self Propelled Howitzer Systems (SPHS)				X
Clifton J. Boyd	PEO - GCS PM Stryker Brigade Combat Team (SBCT)				X
Laurence Mixon	PEO - IEW&S				X
Jeff Stevens	PEO - Missiles and Space / PM IF/RCO				X
COL Christopher M. Hill Sr.	PEO - Missiles and Space / PM IFMC				X
COL Guy Yelverton	PEO - Missiles and Space / PM STORM				X
Michael Kuenzli	PEO - Missiles and Space / PM TAGM				X
Andrew T. Clements	PEO - Soldier				X
Dr. Candace Coyle	PEO ACWA	X		X	
Tom Haduch	PEO ACWA	X		X	
Wade Hollinger	PEO ACWA	X	X	X	
Ray Malecki	PEO ACWA	X			
Jody Hicks	PEO Aviation				X
Rodney Lee	PEO Aviation				X
COL Burr Miller	PEO Aviation / PM AMSA				X
Andrew DiMarco	PEO CS & CSS				X
Matt Zimmerman	JPEO - A&A				X
Darryl J. Colvin	JPEO - CBRND				X
CAPT Brian Schom	PD - Joint Bombs (PD - JB)				X
COL Jason Bohannan	PD - Joint Services				X
COL Jeffery Jurand	PEO - GCS PM Maneuver Combat Systems (MCS)				X
James Schirmer	PEO - GCS				X
Robert McNeill	PEO - GCS PL Capability Transition & Product Integration				X
David Dopp	PEO - GCS PL Future Battle Platforms (FBP)				X
COL Ryan Howell	PEO - GCS PM Main Battle Tank Systems (MBTS)				X

Name	Organization	Interview	Briefing	Email/ Discussion	Survey
Matt Glaser	PM - CAS				X
COL Leon Rogers	PM - CAS Combat Ammo Systems				X
Mr. Raymond Colon	PM - CAS Conventional Ammo Division				X
LTC Brian Adkins	PM - CAS Precision Attack Cannon Munitions				X
LTC John McGee	PM - CAS Precision Fires and Mortars				X
COL Russell Hoff	PM - CCS Close Combat Systems				X
David Millette	PM - CCS Combat Armaments & Protection Systems				X
Michael Burke	PM - CCS Demolitions & Countermeasures				X
LTC Isaac Cuthbertson	PM - CCS Terrain Shaping Obstacles				X
James Terhune	PM - JPEO DEMIL				X
LTC Brent Odom	PM - MAS Large Caliber				X
COL Paul Allesio	PM - MAS Maneuver Ammo Systems				X
LTC Paul Santamaria	PM - MAS Medium Caliber				X
David Ahmad	PM - MAS Small Caliber				X
LTC Joseph Miozzi	PM - MAS Special Ammo & Weapon Systems				X
Chris Hatch	PM - TAS				X
Brian Butler	TACOM				X
Robert Lantka	Tobyhanna Army Depot				X
Matt Hutchens	DLA			X	
John Taraschke	MARCORSYSCOM, LCES PM Ammo				X
CAPT Richard Gensley	NAVAIR PMA - 201 PM Precision Strike Weapons			X	X
Ashley Johnson	NAVSEA Systems Integration				X
Eric Shields	OUSD - A&S	X		X	
David James	OUSD - A&S	X			
Hannah Moody	OUSD - A&S	X			
Shane Bederson	OUSD - A&S	X			
Carolina Demario	OUSD - A&S	X			
Dr. Marta Pazos	OUSD - A&S	X			
Scott Adams	USMC PM-AMMO				X
Kathleen Hogan	DOE (Department of Energy)			X	
Ken Ankrom	Amentum	X			
Vince Johnston	Amentum	X			
David Dellinger	Bluegrass Dev. District	X			
Bill Caldwell	Clean Harbors	X		X	
Matt DeWitt	Clean Harbors			X	
James DeSmet	CRG Automation	X			
Rebekah Fischer	CRG Automation	X			
Elizabeth Carter	MWM Consulting	X			

A.2 – Organizations Engaged

The following organizations were engaged during the Feasibility Study.

Organization	Acronym	Interview	Briefing	Email	Survey
Army Aviation and Missile Command	AMCOM				X
Army Chemical Materials Activity	CMA	X	X	X	
Army Combat Capabilities Development Command	DEVCOM				X
Army Combat Capabilities Development Command - Chemical Biological Center	DEVCOM CBC			X	X
Army Combat Capabilities Development Command - Command, Control, Communication, Computers, Cyber, Intelligence, Surveillance and Reconnaissance Center	DEVCOM C5ISR			X	X
Army Corps of Engineers	USACE	X	X	X	
Army Installation Management Command	IMCOM				X
Army Materiel Command	AMC	X	X	X	
Army Sustainment Command	ASC	X		X	
Army Tank-automotive and Armaments Command	TACOM				X
Blue Grass Army Depot	BGAD	X	X	X	
Blue Grass Chemical Activity	BGCA	X	X	X	
Joint Munitions Command	JMC	X	X	X	
Joint Program Executive Office - Armaments and Ammunition	JPEO A&A				X
Joint Program Executive Office - Armaments and Ammunition Product Director Demilitarization	JPEO A&A PdD DEMIL				X
Joint Program Executive Office - Armaments and Ammunition Program Manager Towed Artillery Systems	JPEO A&A PM - TAS				X
Joint Program Executive Office - Armaments and Ammunition Project Director Joint Bombs	JPEO A&A PD JB				X
Joint Program Executive Office - Armaments and Ammunition Project Director Joint Services	JPEO A&A PD JS				X
Joint Program Executive Office - Armaments and Ammunition Project Manager Close Combat Systems	JPEO A&A PM - CCS				X
Joint Program Executive Office - Armaments and Ammunition Project Manager Close Combat Systems Product Manager Combat Armaments & Protection Systems	JPEO A&A PM - CCS PdM CAPS				X

Organization	Acronym	Interview	Briefing	Email	Survey
Joint Program Executive Office - Armaments and Ammunition Project Manager Close Combat Systems Product Manager Demolitions & Countermeasures	JPEO A&A PM - CCS PdM D&C				X
Joint Program Executive Office - Armaments and Ammunition Project Manager Close Combat Systems Product Manager Terrain Shaping Obstacles	JPEO A&A PM - CCS PdM TSO				X
Joint Program Executive Office - Armaments and Ammunition Project Manager Combat Ammunition Systems	JPEO A&A PM - CAS				X
Joint Program Executive Office - Armaments and Ammunition Project Manager Combat Ammunition Systems Product Manager Conventional Ammunition Division	JPEO A&A PM - CAS PdM CAD				X
Joint Program Executive Office - Armaments and Ammunition Project Manager Combat Ammunition Systems Product Manager Precision Attack Cannon Munitions	JPEO A&A PM - CAS PdM PACM				X
Joint Program Executive Office - Armaments and Ammunition Project Manager Combat Ammunition Systems Product Manager Precision Fires and Mortars	JPEO A&A PM - CAS PdM PFM				X
Joint Program Executive Office - Armaments and Ammunition Project Manager Maneuver Ammo Systems	JPEO A&A PM - MAS				X
Joint Program Executive Office - Armaments and Ammunition Project Manager Maneuver Ammo Systems Product Director Special Ammo & Weapons Systems	JPEO A&A PM - MAS PD SAWS				X
Joint Program Executive Office - Armaments and Ammunition Project Manager Maneuver Ammo Systems Product Manager Large Caliber	JPEO A&A PM - MAS PdM LC				X
Joint Program Executive Office - Armaments and Ammunition Project Manager Maneuver Ammo Systems Product Manager Medium Caliber	JPEO A&A PM - MAS PdM MC				X
Joint Program Executive Office - Armaments and Ammunition Project Manager Maneuver Ammo Systems Product Manager Small Caliber	JPEO A&A PM - MAS PdM SC				X
Joint Program Executive Office - Chemical, Biological, Radiological, and Nuclear Defense	JPEO CBRND				X
Program Executive Office - Assembled Chemical Weapons Alternatives	PEO ACWA	X		X	
Program Executive Office - Aviation	PEO - Aviation				X

Organization	Acronym	Interview	Briefing	Email	Survey
Program Executive Office - Aviation Project Manager Aviation Mission Systems and Architecture	PEO - Aviation PM AMSA				X
Program Executive Office - Combat Support & Combat Service Support	PEO - CS & CSS				X
Program Executive Office - Ground Combat Systems	PEO - GCS				X
Program Executive Office - Ground Combat Systems Project Lead Capability Transition & Product Integration	PEO - GCS PL CTPI				X
Program Executive Office - Ground Combat Systems Project Lead Future Battle Platforms	PEO - GCS PL FBP				X
Program Executive Office - Ground Combat Systems Project Manager - Maneuver Combat Systems	PEO - GCS PM - MCS				X
Program Executive Office - Ground Combat Systems Project Manager Main Battle Tank Systems	PEO - GCS PM MBTS				X
Program Executive Office - Ground Combat Systems Project Manager Mounted Armored Vehicles	PEO - GCS PM MAV				X
Program Executive Office - Ground Combat Systems Project Manager Self Propelled Howitzer Systems	PEO - GCS PM SPHS				X
Program Executive Office - Ground Combat Systems Project Manager Stryker Brigade Combat Team	PEO - GCS PM SBCT				X
Program Executive Office - Intelligence, Electronic Warfare, and Sensors	PEO - IEW&S				X
Program Executive Office - Missiles and Space Project Manager Integrated Fire / Rapid Capabilities	PEO - MS PM IF/RCO				X
Program Executive Office - Missiles and Space Project Manager Integrated Fire Missions Command	PEO - MS PM IFMC				X
Program Executive Office - Missiles and Space Project Manager Strategic & Operational Rockets & Missiles	PEO - MS PM STORM				X
Program Executive Office - Missiles and Space Project Manager Tactical Aviation & Ground Munitions	PEO - MS PM TAGM				X

Organization	Acronym	Interview	Briefing	Email	Survey
Program Executive Office - Soldier	PEO - Soldier				X
Tobyhanna Army Depot	TAD			X	X
Defense Logistics Agency	DLA			X	
Marine Corps Systems Command, Logistics Combat Element Systems - Program Manager Ammunition	MARCORSYSCOM, LCES PM Ammo				X
Naval Air Systems Command, Precision Strike Weapons Program	NAVAIR PMA - 201			X	X
Naval Sea Systems Command - Systems Integration Department	NAVSEA Systems Integration Dept.				X
Office of the Under Secretary of Defense for Acquisition & Sustainment	OUSD (A&S)	X		X	
United States Special Operations Command	SOCOM			X	
Department of Energy	DOE			X	
Bluegrass Development District	N/A	X	X	x	
MWM Consulting	N/A	X		X	
CRG Automation	N/A	X			
Amentum	N/A	X			
Boeing	N/A			X	
Clean Harbors	N/A	X			

A.3 – BGCAPP Fact Sheet

U.S.ARMY

UNIQUE INDUSTRIAL OPERATIONS BASE AND GREEN FIELD SITE AVAILABILITY AT BLUE GRASS ARMY DEPOT

Richmond, KY

In September 2023, Blue Grass Chemical Agent Destruction Pilot Plant (BGCAPP) will complete its mission to demilitarize the chemical weapons stockpile stored at the Blue Grass Army Depot (BGAD). At the conclusion of this mission, the demilitarization site that houses BGCAPP will be decontaminated to GPL (General Population Limit) standard and repurposed for general military and industrial use. The site will contain more than 70,000 square feet of industrial space and a shovel ready greenfield site with all utilities, road, and rail in place.

The site is also currently home to two static detonation chambers (SDCs), and a facility capable of supercritical water oxidation (SCWO) which may be available for use.

Available for lease beginning in late 2026, the repurposed site is wholly contained within BGAD. BGAD is a Government-Owned, Government-Operated, Department of Defense (DoD) facility located in Richmond, KY.

Located near numerous transportation arteries, tenants will be able to leverage BGAD's skilled transportation team and move material via air, rail, or ground. The site is also home to a skilled workforce, with welders, mechanics, and electricians all available.

For more information about this facility contact: 859-779-6698
For more information on Business Development Opportunities:
https://www.jmc.army.mil
Email: usarmy.rib.jmc.mbx.business-development@army.mil
Phone: DSN 793-2225 / COMM 309-782-2225

The JMC Business Development Office offers land for industrial, commercial, and office development, as well as buildings and infrastructure that may be tailored to suit your needs. These assets are available immediately for short and long term occupancy at seven JMC locations across the United States.

AMENITIES AND INFRASTRUCTURE

AVAILABLE SITE FEATURES

FACILITIES

- More than 70,000 square feet of industrial space
- Two Static Detonation Chambers
  - SDC 2000
  - SDC 1200
- Supercritical Water Oxidation Facility
  - 3 Units
  - 1000 Gallons/Unit
- Chemical Storage Tanks with 680k gal capacity
  - 2 x 300k gal
  - 1 x 80k gal with agitation
- Two Outdoor Storage Areas
- Access Control Buildings and Fenced Perimeter
- 6.7 Acres of Paved Parking

UTILITIES

- 138 kV Substation – stepped down to 12.47 kV for distribution within the facility
- Three 3.3 MW standby diesel generators (SDGs) with 2 x 22.5k gal fuel storage tanks
- Three fire/potable water tanks with 450k gal total capacity (500k gal nominal)
- Up to 1M gallons of daily water supply onsite, 8" line from public water utility
- Process Water Recovery Systems
- Cooled Water Supply
- Chilled Water Supply
- Secondary Heat Transfer Systems
- Nitrogen Systems
- 4" natural gas connection, currently permitted for 31,000 MCFs per month

WIDER SITE CAPABILITIES

DISTRIBUTION

- Facility Outload
- 21 Shipping/Receiving Pads, 17 Rail Loading Docks
- 4 Locomotives, 59 Army Railcars, 13 Straddle Carriers
- Distribution Center in Restricted Area

STORAGE/SURVEILLANCE

- Available Storage Capacity
- Igloos
- Above Ground Magazines
- 3 Holding Yards, 2 Rail Holding Yards
- 30 Loading Docks

DEMILITARIZATION

- Open Detonation (OD) Pits
- Burning Pans (OB)
- Contained Detonation Chamber

PRODUCTION/MAINTENANCE

- Paint Booths
- Logistics Container Repair and Maintenance
- Bomb Maintenance
- Mortar Ammunition Ultrasonic Testing
- Non-destructive Testing
- Conventional Ammunition Maintenance

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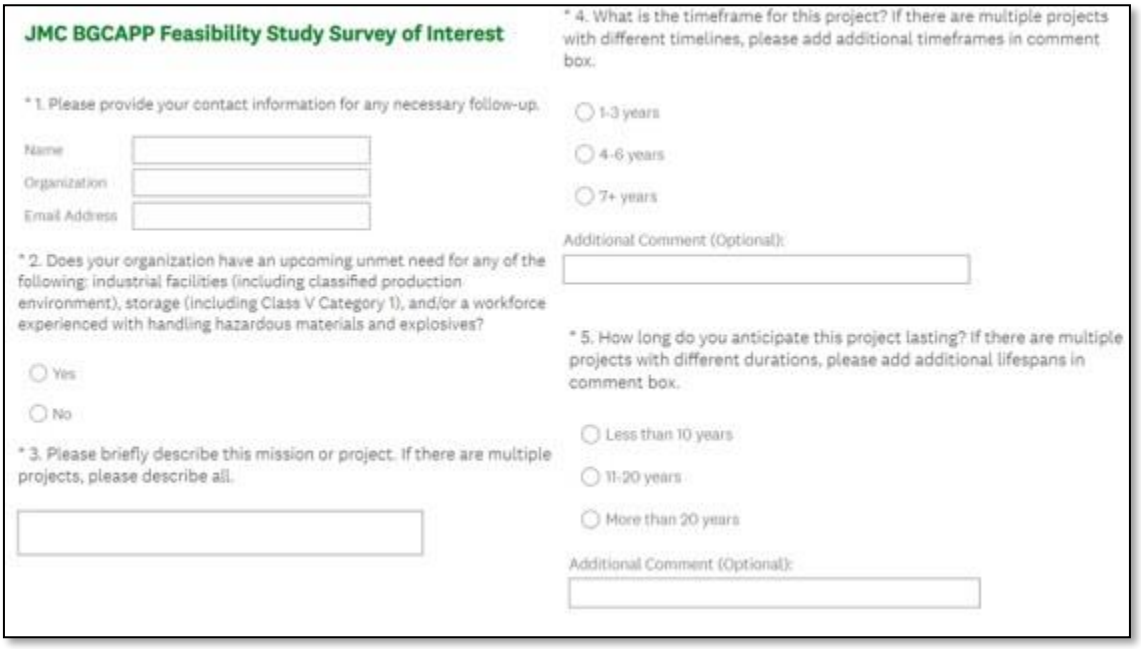
A.4 – Survey of Interest

This survey of interest was sent along with the BGCAPP fact sheet to individuals and offices across ASA(ALT), AMC, other services, etc. to identify potential requirements or opportunities that could make use of the BGCAPP site or broader Blue Grass Army Depot.



JMC BGCAPP Feasibility Study Survey of Interest

* 1. Please provide your contact information for any necessary follow-up.

Name

Organization

Email Address

* 2. Does your organization have an upcoming unmet need for any of the following: industrial facilities (including classified production environment), storage (including Class V Category 1), and/or a workforce experienced with handling hazardous materials and explosives?

- Yes
- No

* 3. Please briefly describe this mission or project. If there are multiple projects, please describe all.

* 4. What is the timeframe for this project? If there are multiple projects with different timelines, please add additional timeframes in comment box.

- 1-3 years
- 4-6 years
- 7+ years

Additional Comment (Optional):

* 5. How long do you anticipate this project lasting? If there are multiple projects with different durations, please add additional lifespans in comment box.

- Less than 10 years
- 11-20 years
- More than 20 years

Additional Comment (Optional):

Figure A.4: BGCAPP Feasibility Study Survey of Interest

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A.5 – State-by State Regulatory Restrictions

This appendix provides background data on state-by-state regulatory restrictions identified by the Mercatus Center.

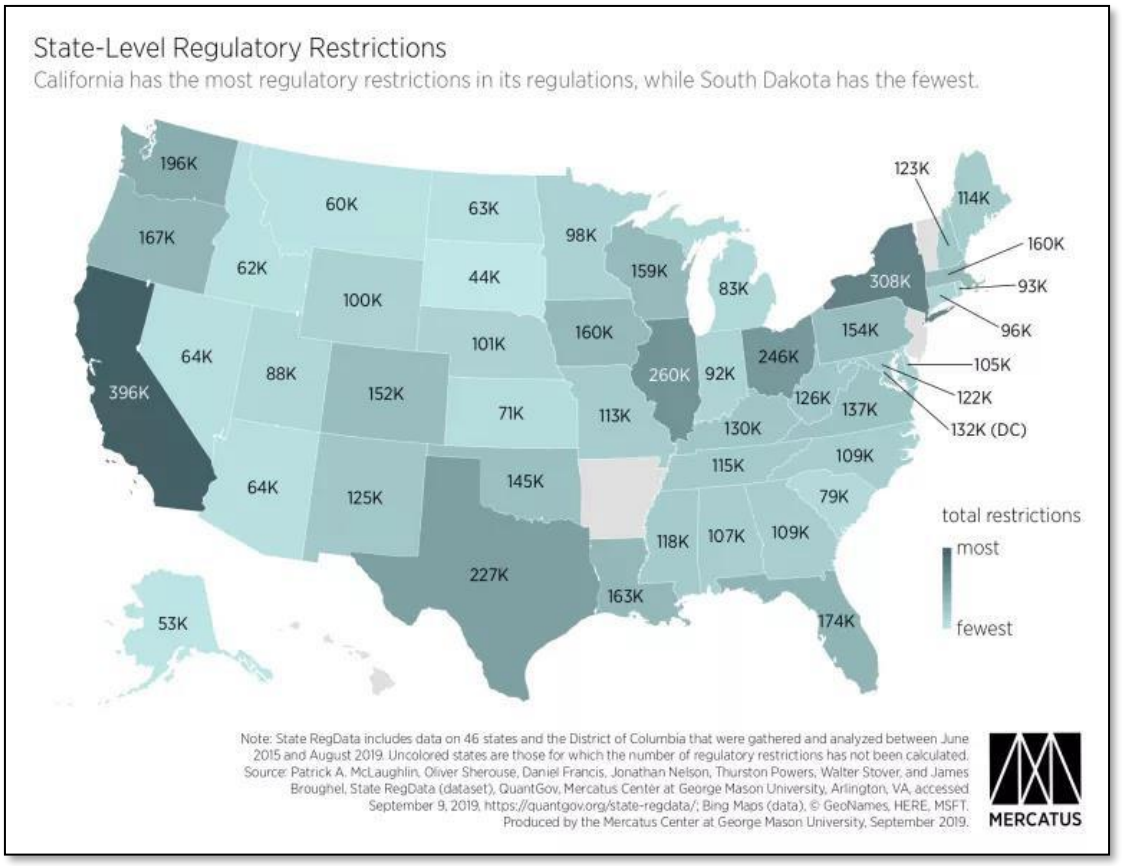


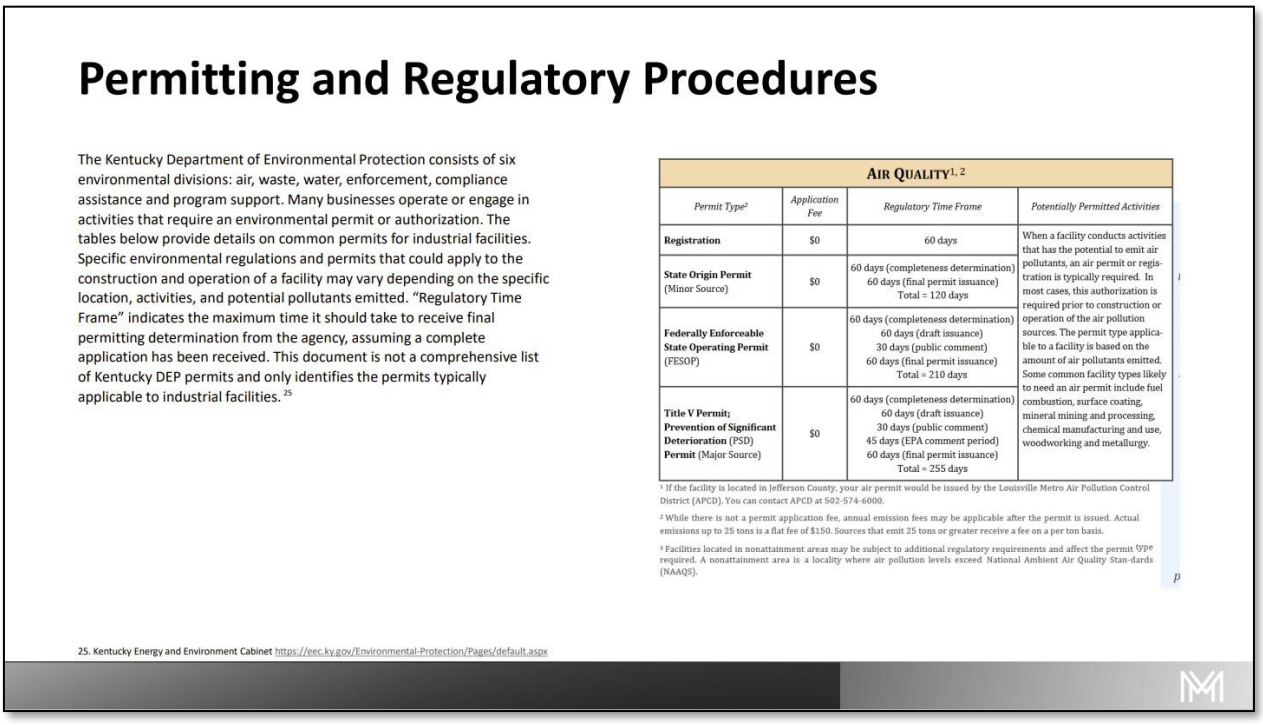
Figure A.5a: Number of Restrictions by State from June 2015 – August 2019 study.[62]

Rank	State	# of Restrictions
1	California	395,608
2	New York	296,296
3	Ohio	274,470
4	Illinois	273,989
5	Texas	263,369
6	Oregon	200,477
7	Washington	197,466
8	Florida	168,795
9	Massachusetts	164,575
10	Louisiana	164,387
11	Pennsylvania	162,937
12	Wisconsin	161,549
13	Iowa	160,603
14	Colorado	154,964
15	Oklahoma	142,604
16	Virginia	140,021
18	New Hampshire	133,592
19	New Mexico	128,946
20	Maryland	123,465
21	Maine	119,591
22	Tennessee	119,272
23	Kentucky	116,252
24	Mississippi	116,153
25	West Virginia	114,964
26	Georgia	109,848
27	Alabama	107,686
28	North Carolina	107,092
29	Minnesota	98,067
30	Connecticut	96,247
31	Nebraska	95,660
32	Rhode Island	94,051
33	Missouri	93,915
34	Delaware	93,421
35	Utah	91,517
36	Indiana	91,155
37	South Carolina	78,727
38	Michigan	76,236
39	Wyoming	71,294
40	Kansas	69,925
41	Arizona	64,319
42	Nevada	64,265
43	Montana	59,788
44	Alaska	52,569
45	North Dakota	52,368
46	South Dakota	43,251
47	Idaho	38,961
48	Hawaii	N/A
49	Arkansas	N/A
50	Vermont	N/A

Figure A.5b: Number of Restrictions by State from 2020 study.[35]

A.6 – Permitting and Regulatory Procedures

This appendix highlights additional permitting and regulatory procedures as outlined in the *Economic Resiliency Plan for the Community of Madison County, KY*. The plan was prepared by the Bluegrass Area Development District in partnership with MWM Consulting, with financial support from the Office of Economic Adjustment, Department of Defense.



Permitting and Regulatory Procedures

The Kentucky Department of Environmental Protection consists of six environmental divisions: air, waste, water, enforcement, compliance assistance and program support. Many businesses operate or engage in activities that require an environmental permit or authorization. The tables below provide details on common permits for industrial facilities. Specific environmental regulations and permits that could apply to the construction and operation of a facility may vary depending on the specific location, activities, and potential pollutants emitted. "Regulatory Time Frame" indicates the maximum time it should take to receive final permitting determination from the agency, assuming a complete application has been received. This document is not a comprehensive list of Kentucky DEP permits and only identifies the permits typically applicable to industrial facilities. [25]

AIR QUALITY[1, 2]

Permit Type[3]	*Application Fee*	*Regulatory Time Frame*	*Potentially Permitted Activities*
Registration	$0	60 days	When a facility conducts activities that has the potential to emit air pollutants, an air permit or registration is typically required. In most cases, this authorization is required prior to construction or operation of the air pollution sources. The permit type applicable to a facility is based on the amount of air pollutants emitted. Some common facility types likely to need an air permit include fuel combustion, surface coating, mineral mining and processing, chemical manufacturing and use, woodworking and metallurgy.
State Origin Permit (Minor Source)	$0	60 days (completeness determination) 60 days (final permit issuance) Total = 120 days	
Federally Enforceable State Operating Permit (FESOP)	$0	60 days (completeness determination) 60 days (draft issuance) 30 days (public comment) 60 days (final permit issuance) Total = 210 days	
Title V Permit; Prevention of Significant Deterioration (PSD) **Permit** (Major Source)	$0	60 days (completeness determination) 60 days (draft issuance) 30 days (public comment) 45 days (EPA comment period) 60 days (final permit issuance) Total = 255 days	

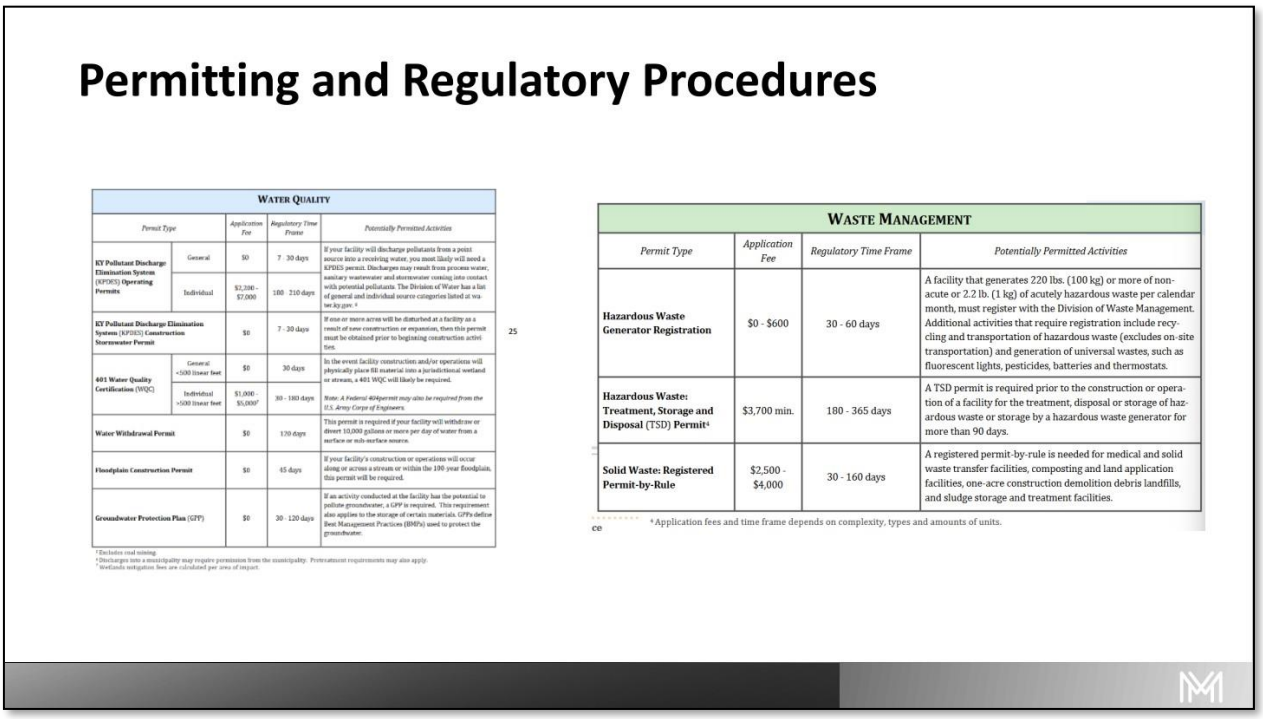
[1] If the facility is located in Jefferson County, your air permit would be issued by the Louisville Metro Air Pollution Control District (APCD). You can contact APCD at 502-574-6000.

[2] While there is not a permit application fee, annual emission fees may be applicable after the permit is issued. Actual emissions up to 25 tons is a flat fee of $150. Sources that emit 25 tons or greater receive a fee on a per ton basis.

[3] Facilities located in nonattainment areas may be subject to additional regulatory requirements and affect the permit type required. A nonattainment area is a locality where air pollution levels exceed National Ambient Air Quality Stan-dards (NAAQS).

25. Kentucky Energy and Environment Cabinet https://eec.ky.gov/Environmental-Protection/Pages/default.aspx

Figure A.6a. Permitting and Regulatory Procedures – Air Quality. Additional permitting and regulatory details from the Economic Resiliency Plan Page 51.[63]



Permitting and Regulatory Procedures

WATER QUALITY

Permit Type		*Application Fee*	*Regulatory Time Frame*	*Potentially Permitted Activities*
KY Pollutant Discharge Elimination System (KPDES) **Operating Permits**	General	$0	7 - 30 days	If your facility will discharge pollutants from a point source into a receiving water, you most likely will need a KPDES permit. Discharges may result from process water, sanitary wastewater and stormwater coming into contact with potential pollutants. The Division of Water has a list of general and individual source categories listed at wa ter.ky.gov. [2]
	Individual	$2,200 - $7,000	180 - 210 days	
KY Pollutant Discharge Elimination System (KPDES) **Construction Stormwater Permit**		$0	7 - 30 days	If one or more acres will be disturbed at a facility as a result of new construction or expansion, then this permit must be obtained prior to beginning construction activities.
401 Water Quality Certification (WQC)	General <500 linear feet	$0	30 days	In the event facility construction and/or operations will physically place fill material into a jurisdictional wetland or stream, a 401 WQC will likely be required. *Note: A Federal 404permit may also be required from the U.S. Army Corps of Engineers.*
	Individual >500 linear feet	$1,000 - $5,000[3]	30 - 180 days	
Water Withdrawal Permit		$0	120 days	This permit is required if your facility will withdraw or divert 10,000 gallons or more per day of water from a surface or sub-surface source.
Floodplain Construction Permit		$0	45 days	If your facility's construction or operations will occur along or across a stream or within the 100-year floodplain, this permit will be required.
Groundwater Protection Plan (GPP)		$0	30 - 120 days	If an activity conducted at the facility has the potential to pollute groundwater, a GPP is required. This requirement also applies to the storage of certain materials. GPPs define Best Management Practices (BMPs) used to protect the groundwater.

[1] Excludes coal mining.
[2] Discharges into a municipality may require permission from the municipality. Pretreatment requirements may also apply.
[3] Wetlands mitigation fees are calculated per area of impact.

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WASTE MANAGEMENT

Permit Type	*Application Fee*	*Regulatory Time Frame*	*Potentially Permitted Activities*
Hazardous Waste Generator Registration	$0 - $600	30 - 60 days	A facility that generates 220 lbs. (100 kg) or more of non-acute or 2.2 lb. (1 kg) of acutely hazardous waste per calendar month, must register with the Division of Waste Management. Additional activities that require registration include recycling and transportation of hazardous waste (excludes on-site transportation) and generation of universal wastes, such as fluorescent lights, pesticides, batteries and thermostats.
Hazardous Waste: Treatment, Storage and Disposal (TSD) **Permit**[4]	$3,700 min.	180 - 365 days	A TSD permit is required prior to the construction or operation of a facility for the treatment, disposal or storage of hazardous waste or storage by a hazardous waste generator for more than 90 days.
Solid Waste: Registered Permit-by-Rule	$2,500 - $4,000	30 - 160 days	A registered permit-by-rule is needed for medical and solid waste transfer facilities, composting and land application facilities, one-acre construction demolition debris landfills, and sludge storage and treatment facilities.

[4] Application fees and time frame depends on complexity, types and amounts of units.

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Figure A.6b. Permitting and Regulatory Procedures – Water Quality and Waste Management. Additional permitting and regulatory details from the Economic Resiliency Plan Page 52.[64]

A.7 – Additional Utility Information

This appendix highlights additional utility information as outlined in the *Economic Resiliency Plan for the Community of Madison County, KY*. The plan was prepared by the Bluegrass Area Development District in partnership with MWM Consulting, with financial support from the Office of Economic Adjustment, Department of Defense.

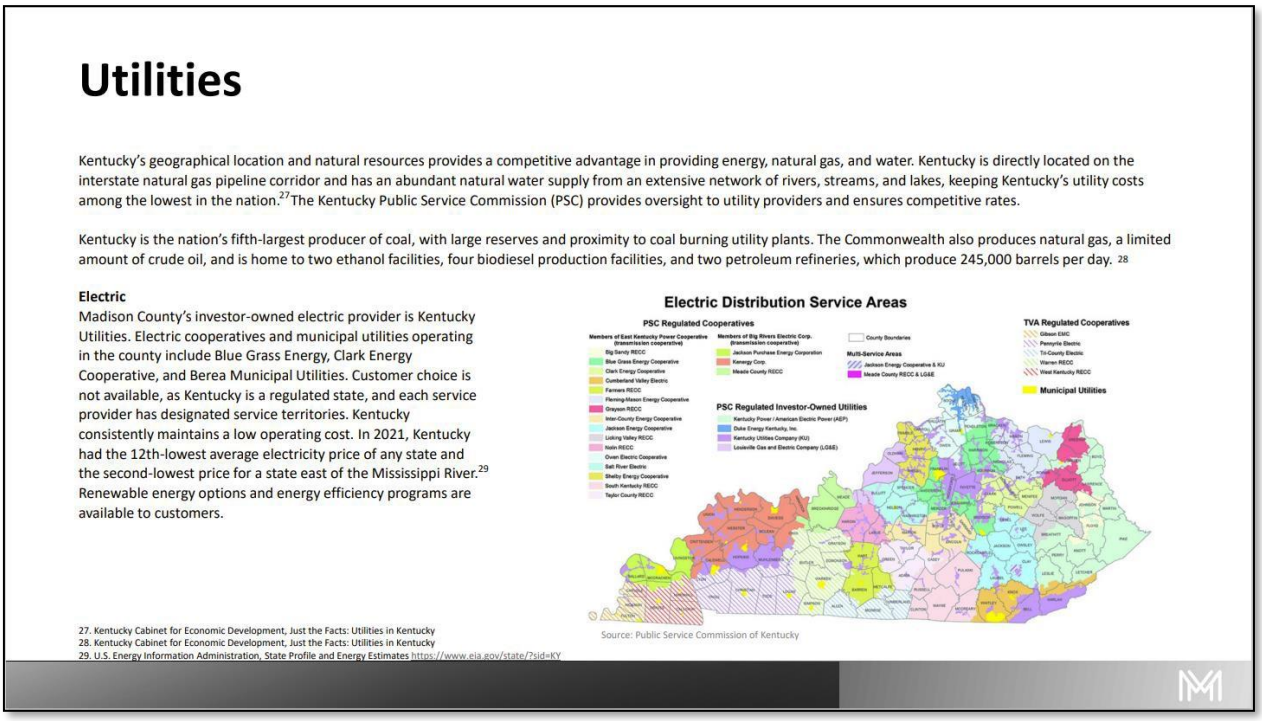

Figure A.7a. Utilities – Electric Service. Additional utility information from the Economic Resiliency Plan Page 57.[65]

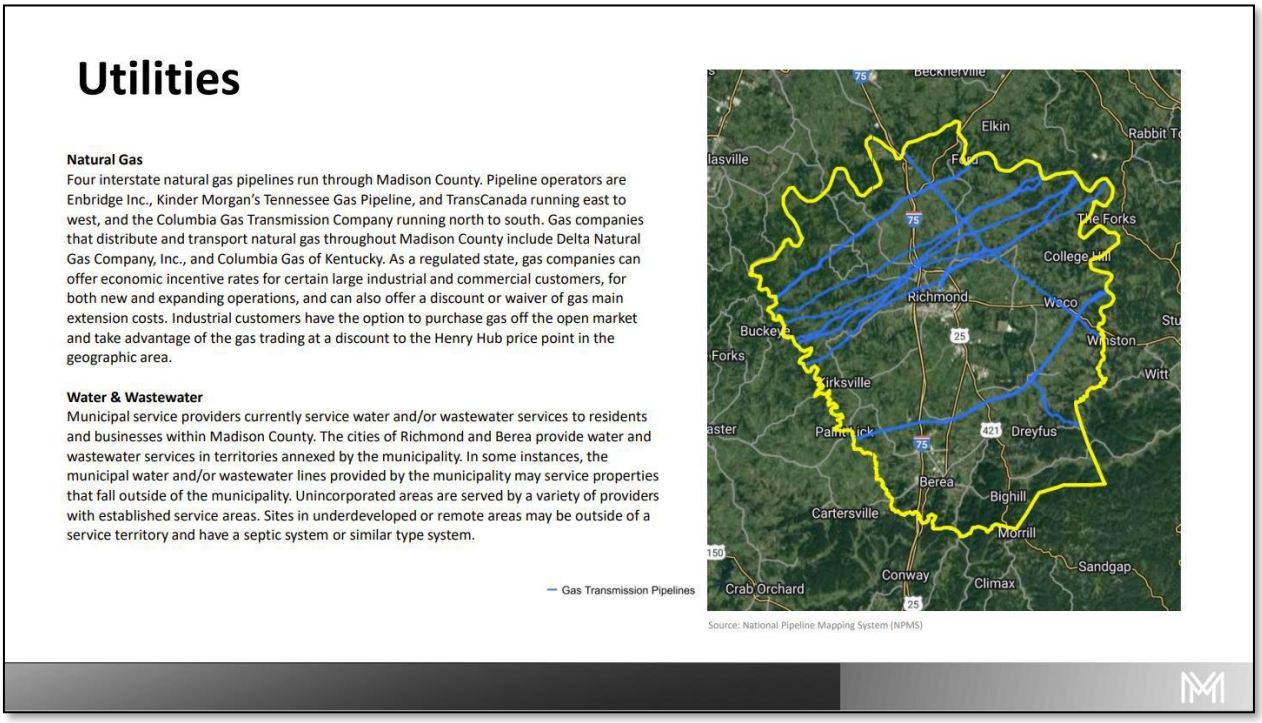

Figure A.7b. Utilities – Natural Gas, Water, and Wastewater. Additional utility information from the Economic Resiliency Plan Page 58.[66]

A.8 – Full List of In-Scope Depot

This appendix includes the full list of primary and secondary/tertiary facilities that were in scope as part of this feasibility study. These facilities are contained at BGCAPP, BGCA, and BGAD.

Facility Description	Bldg. No.	Work Breakdown Structure	Location	UM	Quantity	Quality Score	Estimated Remaining Life	Sustainment Costs	Sustainment Costs/Square Foot (Buildings)
138KV Substation	25210	04 - Substation	BGCAPP	KV	138	100	69	$65,000	DNA
30mm Can Refurbishment	215	Additional BGAD Facilities	BGAD	SF	18,000	64.35	69	$84,958	$4.72
Access Control Facility	25125	70 - EDT	BGCAPP	SF	420	DNA	DNA	DNA	DNA
Access Control Facility	17874	15 - ECF	BGCAPP	SF	1790	100	DNA	$8,537	$4.77
Acid Storage Tanks	1778A	DNA	BGCAPP	GA	200000	DNA	DNA	DNA	DNA
Admin Gen Purpose	25124	70 - EDT	BGCAPP	SF	4485	DNA	DNA	DNA	DNA
Admin Gen Purpose	N/A	70 - EDT	BGCAPP	SF	1990	DNA	69	DNA	DNA
Air-Conditioning / Refrigeration Plant	17782	13 - UBK	BGCAPP	TR	2400	100	DNA	$175,107	DNA
APS-1b location	229	Additional BGAD Facilities	BGAD	SF	18,393	45.56	69	$67,380	$3.66
BGCA Assembly & Training	S-16	BGCA Facilities Inside the Administrative Area	BGCA	SF	12000	96.86	DNA	$38,806	$3.23
BGCA Command HQ	S-8	BGCA Facilities Inside the Administrative Area	BGCA	SF	16579	96.96	69	$19,688	$1.19
BGCA Project Office	S-43	BGCA Facilities Inside the Administrative Area	BGCA	SF	4000	93.46	69	$17,181	$4.30
Break/Lunch Room	N/A	70 - EDT	BGCAPP	SF	1420	DNA	69	DNA	DNA
Bulk Chemical - Truck Unloading Area w/canopy	25119	DNA	BGCAPP	DNA	DNA	95	64	$36,812	DNA
Bulk Chemical Storage (BCS)	17787	DNA	BGCAPP	DNA	DNA	DNA	69	DNA	DNA
Cable Vault	17786	07 - MDB/CSB	BGCAPP	EA	1	95	70	$167	DNA
Cable Vault	17846	07 - MDB/CSB	BGCAPP	EA	1	95	64	$167	DNA
Cable Vault	25217	07 - MDB/CSB	BGCAPP	EA	1	95	69	$167	DNA
Cantonment Area Roads, Paved	BGCAPVD	02 - CLA Roads	BGCAPP	SY	37,955	100	69	$921	DNA
Cantonment Area Roads, Paved - BGCAPP	DMPVD	01 - Site Improvements	BGCAPP	SY	24,064	77.29	69	$28,886	DNA
Care and Preservation Shop	17876	19 - GMSB	BGCAPP	SF	944	100	69	$3,225.18	$3.42
Change House	53	BGCA Facilities Inside the Administrative Area	BGCA	SF	891	77.53	69	$5,903	$6.63
Channel Lock Fencing (Hwy 52 - BGCAPP)	04174	01 - Site Improvements	BGCAPP	SF	5,394	85	69	$19,388	$3.59
CHATS Pad Storage Building	16550	Inside the CLA	BGCA	SF	2800	100	69	$6,952	$2.48
Chem Ops Storage	31950	Inside the Restricted Area	BGCA	SF	3200	99.58	69	$6,952	$2.17
Chem Ops Storage Shed at FCP 1	Not Assigned	Inside the Restricted Area	BGCA	SF	27	DNA	69	DNA	DNA
Chem Ops Storage Shed at FCP 2	Not Assigned	Inside the Restricted Area	BGCA	SF	27	DNA	69	DNA	DNA
Chemical Defense Equipment	211	Additional BGAD Facilities	BGAD	SF	91,000	86.87	62	$219,278	$2.41
Chemical Operations	1146	Inside the Restricted Area	BGCA	SF	7492	94.45	62	$32,181	$4.30
Chemistry Lab	17870	23 - LAB	BGCAPP	SF	5066	100	62	$58,760	$11.60
Chilled Water Distribution System	CWD01	03 - Utils	BGCAPP	LF	2,632	100	62	$13,358	DNA
Communication Lines, Aboveground	COMM3	03 - Utils	BGCAPP	MI	46	95	62	$21,652	DNA
Compressed Air Line	CAL03	03 - Utils	BGCAPP	LF	5,894	95	62	DNA	DNA
Compressed Air Plant	17781	13 - UBK	BGCAPP	EA	1	95	62	$24,409	DNA
Compressed Air Plant	17781A	13 - UBK	BGCAPP	EA	1	95	64	$24,409	DNA
Compressed Air Plant	17781B	13 - UBK	BGCAPP	EA	1	95	DNA	$24,409	DNA
Container Handling Building (CHB)	17740	06 - CHB	BGCAPP	SF	22318	DNA	62	$48,482	$2.17
Control & Support Building (CSB)	17760	07 - MDB/CSB	BGCAPP	SF	19648	DNA	69	$74,694	$3.80
Cooling Tower	17784	13 - UBK	BGCAPP	EA	8	95	69	$380,566	DNA

Facility Description	Bldg. No.	Work Breakdown Structure	Location	UM	Quantity	Quality Score	Estimated Remaining Life	Sustainment Costs	Sustainment Costs/Square Foot (Buildings)
CSEPP Storage	60	BGCA Facilities Inside the Administrative Area	BGCA	SF	800	99.42	69	$1,738	$2.17
DES - Access Control Point	4570	18 - ACB	BGCAPP	SF	1,188	100	69	$5,904	$4.97
DES - Access Control Point - Guard Booth	0457A	18 - ACB	BGCAPP	SF	24	87.92	69	$114	$4.77
DES - Access Control Point - Guard Booth	0457B	18 - ACB	BGCAPP	SF	24	100	69	$114	$4.77
DES - Access Control Point - Guard Booth	0457C	18 - ACB	BGCAPP	SF	24	100	DNA	$114	$4.77
DES - Access Control Point - Guard Booth	0457D	18 - ACB	BGCAPP	SF	24	100	69	$114	$4.77
DES - ACP Auto Canopy	0457E	01 - Site Improvements	BGCAPP	SF	5,394	100	DNA	$3,249	$0.60
DES - ACP Truck Canopy	0457F	01 - Site Improvements	BGCAPP	SF	6,762	100	69	$4,073	$0.60
DES Guard Booth - Chemical Demilitarization (Chem Demil) Entrance	4525	DNA	BGCAPP	SF	24	DNA	69	$458	$19.08
DES Guard Booth - Rt10 & Rt 123	0483A	DNA	BGCAPP	SF	24	DNA	57	$191	$7.95
Detonation Chamber	280	Additional BGAD Facilities	BGAD	SF	3,500	68.84	DNA	$21,220	$6.06
Directorate of Emergency Servies (DES) - Badging Building	04280	37 - Badging	BGCAPP	SF	1,700	100	69	$7,302	$4.30
Eastern Pads	PD171	07 - MDB/CSB	BGCAPP	SY	1,807	95	DNA	$2,944	DNA
Electrical Bunker Building	1610	Inside the CLA	BGCA	SF	80	DNA	69	DNA	DNA
Electrical Bunker Building	1615	Inside the CLA	BGCA	SF	80	DNA	69	DNA	DNA
Electrical Bunker Building	1648	Inside the CLA	BGCA	Sf	80	DNA	DNA	DNA	DNA
Electrical Bunker Building	1649	Inside the CLA	BGCA	SF	80	DNA	DNA	DNA	DNA
Electrical Switching Station	SWG05	04 - Substation	BGCAPP	KV	138	100	69	$50	DNA
Electrical Switching Station	SWG01	03 - Utils	BGCAPP	KV	4,160	100	DNA	$1,520	DNA
Electrical Switching Station	SWG02	03 - Utils	BGCAPP	KV	4,160	100	69	$1,520	DNA
Electrical Switching Station	SWG03	03 - Utils	BGCAPP	KV	4,160	100	69	$1,520	DNA
Electrical Switching Station	SWG04	03 - Utils	BGCAPP	KV	4,160	100	69	$1,520	DNA
Emergency Operations Center (EOC)	S-18	BGCA Facilities Inside the Administrative Area	BGCA	SF	3744	91.91	69	$21,923	$5.86
Entry Control Facility (ECF) at Chem Demil	17875	DNA	BGCAPP	SF	2,400	DNA	69	DNA	DNA
Environmental Test Facility	25127	70 - EDT	BGCAPP	SF	602	DNA	DNA	DNA	DNA
Environmental Test Facility	17733	07 - MDB/CSB	BGCAPP	EA	1	95	DNA	$214	DNA
Exterior Lighting	STL06	70 - EDT	BGCAPP	EA	8	DNA	69	DNA	DNA
Exterior Lighting	STL04	04 - Substation	BGCAPP	EA	2	DNA	69	DNA	DNA
Exterior Lighting	STL03	03 - Utils	BGCAPP	EA	17	100	DNA	$6,666	DNA
Exterior Lighting	STL03	02 - CLA Roads	BGCAPP	EA	134	100	DNA	$6,666	DNA
Fencing and Walls	DMFEN	04 - Substation	BGCAPP	LF	460	95	69	$9,763	DNA
Filtration Overhead Canopy	OH026	Inside the CLA	BGCA	SF	240	100	DNA	$145	$0.60
Filtration Overhead Canopy	OH027	Inside the CLA	BGCA	SF	240	100	DNA	$145	$0.60
Forward Aid Station 1	276	Inside the Restricted Area	BGCA	SF	886	70	69	$3,246	$3.66
Forward Aid Station 2	277	Inside the Restricted Area	BGCA	SF	886	70	69	$3,246	$3.66
Forward Command Post (FCP 1)	TM 159	Inside the Restricted Area	BGCA	SF	840	DNA	DNA	DNA	DNA
Forward Command Post (FCP 2)	TM 039	Inside the Restricted Area	BGCA	SF	840	DNA	69	DNA	DNA
Gas Mask Storage Building (GSB)	1787B	19 - GMSB	BGCAPP	SF	944	DNA	69	DNA	DNA
Gas Pipelines	DG001	03 - Utils	BGCAPP	LF	924	100	70	$356	DNA
Gate	DMG02	70 - EDT	BGCAPP	LF	154	DNA	DNA	DNA	DNA

Facility Description	Bldg. No.	Work Breakdown Structure	Location	UM	Quantity	Quality Score	Estimated Remaining Life	Sustainment Costs	Sustainment Costs/Square Foot (Buildings)
Gate	25210J	04 - Substation	BGCAPP	LF	20	DNA	69	DNA	DNA
Gate	DMG01	01 - Site Improvements	BGCAPP	LF	172	95	69	$202	DNA
General Purpose Magazine, Installation	25121	70 - EDT	BGCAPP	SF	900	DNA	70	DNA	DNA
Guard Booth at Gate E-2	16330	Inside the CLA	BGCA	SF	840	DNA	69	DNA	DNA
Hazardous Material Storage, Inst Level	17817	02 - CLA Roads	BGCAPP	SF	4,211	100	69	$22,537	$5.35
Health Clinic	17815	16 - MED	BGCAPP	SF	4,400	100	69	$43,056	$9.79
Heating Fuel Storage Tank, Above Ground	AST01	14 - SDG	BGCAPP	GA	22,489	95	69	$44,857	DNA
Heating Fuel Storage Tank, Above Ground	AST02	14 - SDG	BGCAPP	GA	22,489	95	DNA	$44,857	DNA
Heating Plant, Steam	17783	13 - UBK	BGCAPP	MB	72.9	100	DNA	$0	DNA
Hot Water Lines	HL001	03 - Utils	BGCAPP	LF	547.2	100	69	$1,696	DNA
Hydrolysate Storage Area (HSA)	17847	11 - HSA*	BGCAPP	DNA	DNA	DNA	69	DNA	DNA
Information Processing Center	25123	70 - EDT	BGCAPP	SF	299	DNA	69	DNA	DNA
Instrument Rack Room (IRR)	2513A	DNA	BGCAPP	DNA	DNA	DNA	69	DNA	DNA
Lab	31930	Inside the Restricted Area	BGCA	SF	2871	52.85	69	$17,937	$6.25
Lab Filter Area (Lab Fil)	1787A	DNA	BGCAPP	DNA	DNA	DNA	69	DNA	DNA
Large Paint Booth	233	Additional BGAD Facilities	BGAD	SF	17,000	86.37	69	$73,020	$4.30
Laundry Facility	31940	Inside the Restricted Area	BGCA	SF	5474	41.98	70	$3,476	$0.63
Lift Station	04578	DNA	BGCAPP	DNA	DNA	DNA	69	DNA	DNA
Loading Dock with Metal Canopy	1657	Inside the Restricted Area	BGCA	SF	2831	100	69	$1,705	$0.60
Logistics	50690	BGCA Facilities Inside the Administrative Area	BGCA	SF	3600	98.88	69	$15,463	$4.30
LP-60 Break Room	1600	Inside the Restricted Area	BGCA	SF	1913	89.47	69	$7,448	$3.89
Maintenance Building (MB)	25160	20 - MB	BGCAPP	SF	11860	100	69	$115,002	$9.70
Mask fitting	1147	Inside the Restricted Area	BGCA	SF	10440	90.18	70	DNA	DNA
MDB Fil - West	17731	07 - MDB/CSB	BGCAPP	DNA	DNA	DNA	69	DNA	DNA
MDB Filter Monitor House 1	1773A	07 - MDB/CSB	BGCAPP	DNA	DNA	DNA	69	DNA	DNA
MDB Filter Monitor House 2	1773B	07 - MDB/CSB	BGCAPP	DNA	DNA	DNA	DNA	DNA	DNA
Modular Laboratory Building (LAB) - Chem Demil	17870	23 - Lab	BGCAPP	SF	5854	100	DNA	$58,760	$10.04
Monitoring Shed #1	MS 1	Inside the CLA	BGCA	SF	49	DNA	DNA	$235	$4.79
Monitoring Shed #2	MS 2	Inside the CLA	BGCA	SF	200	DNA	DNA	$235	$1.17
Monitoring Shed #3	17770	Inside the CLA	BGCA	SF	144	DNA	DNA	$313	$2.17
Monitoring Shed #4	17775	Inside the CLA	BGCA	SF	144	DNA	DNA	$313	$2.17
Multitemperature Referigerator Container System	232	Additional BGAD Facilities	BGAD	SF	28,600	46.19	DNA	$91,584	$3.20
Munition Demilitarization Building (MDB)	17750	07 - MDB/CSB	BGCAPP	SF	86530	DNA	69	$464,806	$5.37
Munitions Demilitarization Building (MDB) Filter Area (MDB Fil) - East	17730	07 - MDB/CSB	BGCAPP	EA	1	DNA	69	$214	DNA
Open Storage Area, Installation	OS017	02 - CLA Roads	BGCAPP	SY	3,064	95	69	$484	DNA
Organization Vehicle Parking, Unpaved	VP051	02 - CLA Roads	BGCAPP	SY	27,930	100	69	$7,722	DNA
Outside Operations Support Facility	25131	70 - EDT	BGCAPP	SF	3530	100	69	$36,949	$10.47
Overhead Canopy for MIC	OH024	BGCA Facilities Inside the Administrative Area	BGCA	SF	720	100	70	$434	$0.60
Overhead Cover	OH018	06 - CHB	BGCAPP	SF	1020	100	70	$614	$0.60
Overhead Electric Lines	EDF004	04 - Substation	BGCAPP	LF	56400	DNA	69	$86,222	DNA

Facility Description	Bldg. No.	Work Breakdown Structure	Location	UM	Quantity	Quality Score	Estimated Remaining Life	Sustainment Costs	Sustainment Costs/Square Foot (Buildings)
Overhead Electric Lines	ED004	03 - Utils	BGCAPP	LF	179,599	100	69	$86,222	DNA
Overhead Protection	OH025	70 - EDT	BGCAPP	SF	64	DNA	69	DNA	DNA
Overhead Protection	OH028	70 - EDT	BGCAPP	SF	874	DNA	69	DNA	DNA
Overhead Protection	OH023	23 - LAB	BGCAPP	SF	1300	100	69	$793	$0.61
Overhead Protection	OH021	16 - MED	BGCAPP	SF	1,449	100	69	$873	$0.60
Overhead Protection	OH022	16 - MED	BGCAPP	SF	48	100	69	$29	$0.60
Overhead Protection	OH020	13 - UBK	BGCAPP	SF	2,960	100	69	$1,783	$0.60
Overhead Protection	OH019	10 - SPB	BGCAPP	SF	2592	100	69	$1,561	$0.60
Overhead Wood Picnic Shelter next to EOC	Not Assigned	BGCA Facilities Inside the Admin Area	BGCA	SF	27	DNA	69	DNA	DNA
Pad	PD168	20 - MB	BGCAPP	SY	6	95	DNA	$10	DNA
Pad	PD165	15 - ECF	BGCAPP	SY	2	95	DNA	$2	DNA
Pad	PD156	03 - Utils	BGCAPP	SY	746	95	DNA	$772	DNA
Pads	PD179	70 - EDT	BGCAPP	SY	58	DNA	69	DNA	DNA
Pads	PD177	70 - EDT	BGCAPP	SY	36	DNA	0	DNA	DNA
Pads	PD178	70 - EDT	BGCAPP	SY	617	DNA	0	DNA	DNA
Pads	PD180	70 - EDT	BGCAPP	SY	159	DNA	0	DNA	DNA
Pads	PD181	70 - EDT	BGCAPP	SY	21	DNA	0	DNA	DNA
Pads	PD182	70 - EDT	BGCAPP	SY	45	DNA	0	DNA	DNA
Pads	PD183	70 - EDT	BGCAPP	SY	13.33	DNA	0	DNA	DNA
Pads	PD175	16 - MED	BGCAPP	SY	9	95	0	$15	DNA
Pads	PD173	23 - LAB	BGCAPP	SY	146	95	69	$238	DNA
Pads	PD167	19 - GMSB	BGCAPP	SY	682	95	DNA	$67	DNA
Pads	PD174	17 - PSB	BGCAPP	SY	5.3	95	69	$8	DNA
Pads	PD166	16 - MED	BGCAPP	SY	95	95	69	$57	DNA
Pads	PB164	14 - SDG	BGCAPP	SY	474	95	69	$772	DNA
Pads	PD162	13 - UBK	BGCAPP	SY	1,189	95	69	$1,936	DNA
Pads	PD161	11 - HSA*	BGCAPP	SY	682	95	69	$1,111	DNA
Pads	PD159	10 - SPB	BGCAPP	SY	621	95	69	$1,012	DNA
Pads	PD170	07 - MDB/CSB	BGCAPP	SY	72	95	DNA	$117	DNA
Pads	PD176	07 - MDB/CSB	BGCAPP	SY	462	95	DNA	$753	DNA
Pads	PD158	06 - CHB	BGCAPP	SY	1135	95	70	$1849	DNA
Pads	PD157	04 - Substation	BGCAPP	SY	405	95	69	$660	DNA
Personnel & Medical Bldg (PMB) - Chem Demil	17810	16 - MED	BGCAPP	SF	9502	100	0	$38,866	$4.09
Personnel Support Building (PSB)	25130	17 - PSB	BGCAPP	SF	23200	100	0	$100,081	$4.31
Personnel Support Facility	17710	Inside the CLA	BGCA	SF	7500	DNA	0	$32,215	$4.30
Picnic Overhead Canopy at Building 17710	17710	Inside the CLA	BGCA	SF	7500	DNA	47	$32,215	$4.30
POL Pipeline, Above Ground	OL001	03 - Utils	BGCAPP	LF	833.1	95	57	$8,118	DNA
Pollutant Catch Basin	PCB19	14 - SDG	BGCAPP	GA	59228	95	DNA	$595	DNA
Pollutant Catch Basin	PCB16	13 - UBK	BGCAPP	GA	112,192	95	62	$1,108	DNA
Pollutant Catch Basin	PCB17	13 - UBK	BGCAPP	GA	36,385	95	72	$359	DNA

Facility Description	Bldg. No.	Work Breakdown Structure	Location	UM	Quantity	Quality Score	Estimated Remaining Life	Sustainment Costs	Sustainment Costs/Square Foot (Buildings)
Pollutant Catch Basin	PCB18	13 - UBK	BGCAPP	GA	33,264	95	DNA	$328	DNA
Pollutant Catch Basin	PCB15	11 - HSA*	BGCAPP	GA	784,335	95	66	$7,745	DNA
Pollutant Catch Basin	PCB13	10 - SPB	BGCAPP	GA	4608	95	56	$46	DNA
Pollutant Catch Basin	PCB14	10 - SPB	BGCAPP	GA	236192	95	62	$2,332	DNA
Pollutant Catch Basin	PCB11	04 - Substation	BGCAPP	GA	19261	95	59	$190	DNA
Pollutant Catch Basin	PCB12	04 - Substation	BGCAPP	GA	19261	95	48	$190	DNA
Potential Maintenance Operation Building	60440	Additional BGAD Facilities	BGAD	SF	4,713	93.28	DNA	$10,238	$2.17
Power Substation/Switching Station Building	25213	14 - SDG	BGCAPP	SF	260	100	DNA	$1,217	$4.68
Power Substation/Switching Station Building	25214	14 - SDG	BGCAPP	SF	260	100	DNA	$1,217	$4.68
Power Substation/Switching Station Building	25221	14 - SDG	BGCAPP	SF	260	100	DNA	$1,217	$4.68
Power Substation/Switching Station Building	25210	04 - Substation	BGCAPP	SF	144	100	DNA	$674	$4.68
PPE Storage	31960	Inside the Restricted Area	BGCA	SF	3500	99.19	DNA	$15,034	$4.30
PPE Storage	31980	Inside the Restricted Area	BGCA	SF	4320	99.01	DNA	$11,810	$2.73
Protective Barrier	PB252	04 - Substation	BGCAPP	EA	1	DNA	DNA	$150	DNA
Protective Barrier	PB003	02 - CLA Roads	BGCAPP	EA	2	95	26	$300	DNA
Pump Station, Potable	1785P	03 - Utils	BGCAPP	KG	619	DNA	33	$2,909	DNA
Retaining Wall	RW008	70 - EDT	BGCAPP	LF	131	DNA	43	DNA	DNA
Risk Management	S-7	BGCA Facilities Inside the Admin Area	BGCA	SF	4316	96.81	57	$18,539	$4.30
RTAP Maintenance Building	31990	Inside the Restricted Area	BGCA	SF	4376	99.11	57	$9,506	$2.17
RTAP Storage	31910	Inside the Restricted Area	BGCA	SF	4000	99	57	$8,689	$2.17
Sanitary Sewer	SS001	70 - EDT	BGCAPP	LF	426	72.91	DNA	$6,099	DNA
Sanitary Sewer	SS001	03 - Utils	BGCAPP	LF	2,866	72.91	57	$6,098	DNA
SCWO Process Building (SPB) Chem Demil	17790	10 - SPB	BGCAPP	SF	25600	DNA	65	$137,513	$5.37
SDC 1200 Enclosure	25122	70 - EDT	BGCAPP	SF	8693	DNA	71	DNA	DNA
SDC 2000 Enclosure		70 - EDT	BGCAPP	DNA	DNA	DNA	DNA	DNA	DNA
Security Fence	DMFEN	70 - EDT	BGCAPP	LF	2653	95	65	$9,763	DNA
Security Fence	DMFEN	01 - Site Improvements	BGCAPP	LF	5,196	95	DNA	$9,763	DNA
Sidewalks and Walkways, Paved	DSW01	70 - EDT	BGCAPP	SY	3138	95	DNA	$76	DNA
Sidewalks and Walkways, Paved	DSW01	70 - EDT	BGCAPP	SY	220	95	DNA	$76	DNA
Sidewalks and Walkways, Paved	DSW01	02 - CLA Roads	BGCAPP	SY	1,773	95	DNA	$76	DNA
Sidewalks and Walkways, Paved	DMSW1	01 - Site Improvements	BGCAPP	SY	1,251	95	65	$18	DNA
Smoke Shelter at SSCC	N/A	Inside the CLA	BGCA	SF	60	DNA	DNA	DNA	DNA
Smoke Shelter for Surety Building	Not Assigned	BGCA Facilities Inside the Admin Area	BGCA	SF	27	DNA	DNA	DNA	DNA
Smoke Shelter next to Building S-8	Not Assigned	BGCA Facilities Inside the Admin Area	BGCA	SF	27	DNA	DNA	DNA	DNA
Smoke Shelter next to Treaty Building	Not Assigned	BGCA Facilities Inside the Admin Area	BGCA	SF	27	DNA	71	DNA	DNA
Smoking Shelter at BGCA Lab	Not Assigned	Inside the Restricted Area	BGCA	SF	80	DNA	DNA	DNA	DNA
Sound Barrier	SB002	70 - EDT	BGCAPP	EA	1	DNA	73	DNA	DNA
Sound Barrier	SB001	02 - CLA Roads	BGCAPP	EA	1	95	73	$214	DNA
SSCC Canopy Gate E-1	N/A	Inside the CLA	BGCA	SF	60	DNA	DNA	DNA	DNA
SSCC Exterior Shelter	1662	Inside the CLA	BGCA	SF	72	100	71	$43	$0.60

Facility Description	Bldg. No.	Work Breakdown Structure	Location	UM	Quantity	Quality Score	Estimated Remaining Life	Sustainment Costs	Sustainment Costs/Square Foot (Buildings)
SSCC Generator Building	1659	Inside the CLA	BGCA	SF	240	DNA	DNA	DNA	DNA
SSCC Generator Building	1660	Inside the CLA	BGCA	SF	2434	100	DNA	$11,608	$4.77
SSCC Interior CLA Shelter	1663	Inside the CLA	BGCA	SF	72	100	46	$43	$0.60
Standby Diesel Generator (SDG-1)	2521A	14 - SDG	BGCAPP	KW	3300	DNA	46	DNA	DNA
Standby Diesel Generator (SDG-2)	2521B	14 - SDG	BGCAPP	KW	3300	DNA	DNA	DNA	DNA
Standby Diesel Generator (SDG-3)	2521C	14 - SDG	BGCAPP	KW	3300	DNA	DNA	DNA	DNA
Standby Generator	SG122	70 - EDT	BGCAPP	KW	1250	DNA	59	DNA	DNA
Standby Generator	SG125	70 - EDT	BGCAPP	KW	80	DNA	0	DNA	DNA
Standby Generator	SDG178	15 - ECF	BGCAPP	KW	175	100	0	$3,988	DNA
Standby Generator	SB0457	02 - CLA Roads	BGCAPP	KW	125	100	25	DNA	DNA
Steam Lines	SL001	03 - Utils	BGCAPP	LF	2,619	100	15	$8,123	DNA
Storage Building	1144	Inside the Restricted Area	BGCA	SF	896	54.93	DNA	$3,088	$3.45
Storage Building	202	BGAD	BGAD	SF	90,000	97.76	66	$264,910	$2.94
Storage Building	203	BGAD	BGAD	SF	90,000	97.58	63	$263,846	$2.93
Storage Building	216	BGAD	BGAD	SF	91,866	95.08	63	$199,565	$2.17
Storage Building	217	BGAD	BGAD	SF	91,866	93.4	64	$199,565	$2.17
Storage Building next to Building S-43	Not Assigned	BGCA Facilities Inside the Admin Area	BGCA	SF	4200	DNA	64	DNA	DNA
Storage Garage	59	BGCA Facilities Inside the Admin Area	BGCA	SF	4000	99.18	65	$8,689	$2.17
Storage Igloos	Multiple	BGCA ECM's Inside the CLA	BGCA	SF	2411	84.39	65	$42,281	$2.92
Storm Sewer	STS03	70 - EDT	BGCAPP	LF	480	95	69	$9,711	DNA
Storm Sewer	STS03	03 - Utils	BGCAPP	LF	10,201	95	DNA	$9,711	DNA
Surety	51660	BGCA Facilities Inside the Admin Area	BGCA	SF	3200	98.01	69	$13,745	$4.30
Tank Truck Load/Unload Facility	25119	13 - UBK	BGCAPP	OL	6	95	70	$36,812	DNA
Tank Truck Load/Unload Facility	17791	10 - SPB	BGCAPP	OL	2	95	69	$12,271	DNA
Tanker Trailer Drop & Swap	25159	DNA	BGCAPP	DNA	DNA	DNA	69	DNA	DNA
TCM Building	1661	Inside the CLA	BGCA	SF	9134	100	DNA	$51,770	$5.67
TCM Smoking Shelter	1667	Inside the CLA	BGCA	SF	140	95	DNA	$96	$0.69
Tower 1 - E Area (Outside Route 10 near E8 row)	Tower 1	CSEPP Met Towers	BGCA	SF	40000	DNA	69	DNA	DNA
Tower 2- PD Outer Tract area just outside game R6 on Route 114	Tower 2	CSEPP Met Towers	BGCA	SF	100	DNA	69	DNA	DNA
Tower 3- Across from Demo Grounds inside Route 10/West of Route 3	Tower 3	CSEPP Met Towers	BGCA	SF	8800	DNA	69	DNA	DNA
Tower 4 - H Area outside Route 10 near H15 Row	Tower 4	CSEPP Met Towers	BGCA	SF	9700	DNA	69	DNA	DNA
Transformer	TFG66	70 - EDT	BGCAPP	KV	30	DNA	DNA	DNA	DNA
Transformer	TFG67	70 - EDT	BGCAPP	KV	225	DNA	DNA	DNA	DNA
Transformer	TFG68	70 - EDT	BGCAPP	KV	600	DNA	69	DNA	DNA
Transformer	TFG64	16 - MED	BGCAPP	KV	75	100	69	$483	DNA
Transformer	TFG65	16 - MED	BGCAPP	KV	75	95	69	$483	DNA
Transformer	TFG63	16 - MED	BGCAPP	KV	75	100	DNA	$483	DNA
Transformer	TFF08	23 - LAB	BGCAPP	KV	150	100	69	$966	DNA
Transformer	TFF09	23 - LAB	BGCAPP	KV	112.5	100	69	$724	DNA
Transformer	TFF06	20 - MB	BGCAPP	KV	75	100	69	$483	DNA

Facility Description	Bldg. No.	Work Breakdown Structure	Location	UM	Quantity	Quality Score	Estimated Remaining Life	Sustainment Costs	Sustainment Costs/Square Foot (Buildings)
Transformer	TFF07	20 - MB	BGCAPP	KV	75	100	69	$483	DNA
Transformer	TFW01	16 - MED	BGCAPP	KV	30	100	69	$193	DNA
Transformer	TFW02	16 - MED	BGCAPP	KV	75	100	69	$483	DNA
Transformer	TFW03	16 - MED	BGCAPP	KV	45	100	69	$290	DNA
Transformer	TFW04	16 - MED	BGCAPP	KV	75	100	69	$483	DNA
Transformer	TFF02	15 - ECF	BGCAPP	KV	45	100	69	$290	DNA
Transformer	TFG55	13 - UBK	BGCAPP	KV	45	100	0	$290	DNA
Transformer	TFG56	07 - MDB/CSB	BGCAPP	KV	750	100	69	$4,829	DNA
Transformer	TFG57	07 - MDB/CSB	BGCAPP	KV	750	100	0	$4,829	DNA
Transformer	TFG58	07 - MDB/CSB	BGCAPP	KV	750	100	0	$4,829	DNA
Transformer	TFG59	07 - MDB/CSB	BGCAPP	KV	750	100	0	$4,829	DNA
Transformer	25210K	04 - Substation	BGCAPP	KV	30	DNA	69	DNA	DNA
Transformer	TFF03	17 - PSB	BGCAPP	KV	112.5	100	69	$742	DNA
Transformer	TFF04	17 - PSB	BGCAPP	KV	225	100	69	$1,449	DNA
Transformer	TFF05	17 - PSB	BGCAPP	KV	225	100	69	$1,449	DNA
Transformers (x12)	TFG42, etc	03 - Utils	BGCAPP	KV	1,000	100	69	$6,438	DNA
Treaty	S-56	BGCA Facilities Inside the Admin Area	BGCA	SF	5000	95.64	69	$29,277	$5.86
Truck Gate Building	1658	Inside the CLA	BGCA	SF	171	100	69	$816	$4.77
Truck Gate Canopy	N/A	Inside the CLA	BGCA	SF	60	DNA	69	DNA	DNA
Truck Gate Exterior CLA Shelter	1664	Inside the CLA	BGCA	SF	81	100	69	$49	$0.60
Truck Gate Interior CLA Shelter	1665	Inside the CLA	BGCA	SF	81	100	69	$49	$0.60
Uninterruptible Power Supply	UPS178	15 - ECF	BGCAPP	KW	20	100	69	$456	DNA
Utility Building (UB)	17780	13 - UBK	BGCAPP	SF	25200	DNA	69	$117,947	$4.68
Utility Power Control (UPC- 13)	17785	03 - Utils	BGCAPP	SF	1939	DNA	69	$9,075	$4.68
Utility Power Control (UPC 3-1)	25215	03 - Utils	BGCAPP	SF	2244	100	62	$10,503	$4.68
Utility Power Control (UPC 3-2)	17845	03 - Utils	BGCAPP	SF	2244	100	69	$10,409	$4.64
Utility Power Control (UPC 7)	17755	03 - Utils	BGCAPP	SF	1951	DNA	69	$9,202	$4.72
Utility Power Control (UPC) - UPC-8	17735	03 - Utils	BGCAPP	SF	1410	DNA	69	$6,599	$4.68
Utility Power Control (UPC-10)	25135	03 - Utils	BGCAPP	SF	1939	100	69	$9,075	$4.68
Vehicle Scales	DMVS1	02 - CLA Roads	BGCAPP	EA	1	100	69	$5,752	DNA
Warehouse	32710	DNA	BGCAPP	DNA	DNA	98.46	69	$60,826	DNA
Water Distribution Lines Potable	W0002	70 - EDT	BGCAPP	LF	172	86.46	DNA	$12,130	DNA
Water Distribution Lines Potable	W0002	03 - Utils	BGCAPP	LF	14,629	86.46	69	$12,130	DNA
Water Pump Station - Chem Demil	17850	03 - Utils	BGCAPP	SF	1475	100	DNA	$6,904	$4.68
Water Retaining Basin	DMWRB	01 - Site Improvements	BGCAPP	GA	2,782,464	100	DNA	$27,475	DNA
Water Tank - Above Ground (East)	1785A	03 - Utils	BGCAPP	GA	250000	100	DNA	$9,874	DNA
Water Tank - Above Ground (West)	1785B	03 - Utils	BGCAPP	GA	250000	100	DNA	$9,874	DNA
Weigh Scale Building	17776	Inside the CLA	BGCA	SF	100	DNA	DNA	DNA	DNA
Western Pads	PD172	07 - MDB/CSB	BGCAPP	SY	1,807	95	DNA	$2,944	DNA

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A.9 – Personnel Data

This appendix provides additional information regarding the number of employees and breakdowns of roles, departments, etc. at Blue Grass Army Depot.

BGAD Personnel *Unaffected and Affected Personnel Combined*	
Directorate of Emergency Services	318
Directorate of Information Management	13
Directorate of Mission Management	295
Directorate of Public Works	52
Directorate of Resource Management	9
Ofc of CDR / CoS/ Personnel	24
Total	711

Figure A.9a. Total BGAD Personnel by Directorate. There are 711 total BGAD employees, including those not affected by the end of the chemical munitions destruction mission.

				Post-Mission Employment Plans				
Organization	**Type of Employee**	**Functional Area**	**Current Employees**	**Retire**	**Consider Retiring**	**Look for Local Job**	**Look for Job Elsewhere**	**Move to Other ACWA/BGAD Roles**
BGCAPP	KTR	Bechtel (Schedulers, QA, procurement, etc.)	301	22.5	33.2	59.1	186.2	
BGCAPP	KTR	Parsons (Operators, etc.)	337	25.2	37.2	66.2	208.5	
BGCAPP	KTR	Amentum (Maintenance, engineers, mechanics, etc.)	537	40.1	59.3	105.4	332.2	
BGCAPP	KTR	GP Strategies (Technical training)	53	4.0	5.9	10.4	32.8	
BGCAPP	KTR	Battelle (Monitoring equipment, lab, etc.)	239	17.8	26.4	46.9	147.8	
BGCAPP	Perm	PEO ACWA (Oversight)	15	N/A	N/A	0	0	15
		BGCAPP Subtotals	***1482***	***109.5***	***161.9***	***288***	***907.5***	***15***
BGCA	Perm	HSE, PPE, and Monitoring	45	10	3	20	12	
BGCA	Perm	Material Handlers	38	4	3	29	2	
BGCA	Perm	Operators, Inspectors, and Mechanics	25	4	1	10	10	
BGCA	Perm	Admin, Mgmt.	39	6	2	18	13	
BGCA	Perm	Scientists, Specialists	17	0	1	6	10	
		BGCA Subtotals	***164***	***24***	***10***	***83***	***47***	***0***
BGAD	Term	Security	115	12.7	9.9	51.6	40.8	
BGAD	Term	Fire	11	1.2	0.9	4.9	3.9	
BGAD	Term	SRT (Security Reaction Team)	3	0	0	0	0	3
BGAD	Term	Environmental	3	0.3	0.3	1.3	1.1	
BGAD	Term	Badging	2	0.2	0.2	0.9	0.7	
BGAD	Term	Admin & Training	2	0.2	0.2	0.9	0.7	
BGAD	Term	Physical Security	1.85	0.2	0.2	0.8	0.7	
BGAD	Term	Property Account Officer	1	0.1	0.1	0.4	0.4	
BGAD	Term	IDS (Intrusion Detection System)	0.85	0.1	0.1	0.4	0.3	
BGAD	Term	Resource Mgmt	0.5	0.1	0.0	0.2	0.2	
		BGAD Subtotals	***140.2***	***15.2***	***11.8***	***61.6***	***48.7***	***3***
		Totals Across Organizations	**1786**	**149**	**184**	**433**	**1003**	**18**

Figure A.9b. Post-Mission Employment Plans by Organization.

Assumption	Value	Explanation	Source(s)
BGCAPP Retirement Rate	7.5%	Based on BGCAPP Planning Survey Respondents (n = 308) conducted in Fall 2022; % of respondents replying "Yes – I plan to retire before my BGCAPP assignment ends" or "Yes – I plan to retire after my BGCAPP assignment ends" to the question "Do you plan to retire after your release date?"	Economic Resiliency Plan Prepared by the Bluegrass Area Development District and MWM Consulting
BGCAPP Consider Retirement Rate	11%	Based on BGCAPP Planning Survey Respondents (n = 308) conducted in Fall 2022; % of respondents replying "I am undecided about retirement" to the question "Do you plan to retire after your release date?"	
BGCAPP Local Job Search Rate	24%	Based on BGCAPP Planning Survey Respondents (n = 220) conducted in Fall 2022; % of respondents replying "Madison County & neighboring counties in Central Kentucky" to the prompt "Interested in Jobs Located In:"	
BGCAPP Mobile Job Search Rate	76%	Based on BGCAPP Planning Survey Respondents (n = 220) conducted in Fall 2022; all other respondents that did not indicate they were interested in Madison County placement; Options included: "Kentucky", "Outside Kentucky", and "Anywhere" (64% of all respondents answered "Anywhere")	
PEO ACWA Transition Rate	100%	PEO ACWA is a large organization that is used to sunsetting their organizations and moving personnel to the next mission	JMC G1
BGAD Retirement Rate	11%	Since no survey was completed for BGAD personnel, rates are based on averaged rates across BGCA and BGCAPP populations	Economic Resiliency Plan Prepared by the Bluegrass Area Development District and MWM Consulting and BGCA Transition Office
BGAD Consider Retirement Rate	9%		
BGAD Local Job Search Rate	45%		
BGAD Mobile Job Search Rate	35%	Assumed by subtracting the above BGAD estimates from 100%	None

Figure A.9c. Personnel Assumptions for Workforce Analysis.

A.10 – Equipment Retention Evaluation Criteria

This assessment framework provides a method to evaluate equipment to determine if it should be retained based on the expected use case and financial considerations.

	Assessment Criteria	Detail	Evaluation Metric
Use Case	**Use**	Description of the asset and its intended use	None
	Interest for Current Mission	Evaluation of applicability to current missions at BGAD	Qualitative
	Interest for Future Mission	Evaluation of applicability to future/potential missions at BGAD	Qualitative
	Interest for other sites	Evaluation of applicability for missions outside of BGAD: other JMC sites, other DoD sites, or transfer/sale to other governmental agencies or private industry	Qualitative
Financial Considerations	**Sustainment Costs**	Repair and maintenance costs	USD
	Personnel	Admin, Operations, MRO, or Security personnel required to support	USD
	Taxes	Applicable property or use taxes (Federal, State, Local)	USD
	Shared (w/ facility)	Determination of shared base costs associated with the remaining buildings and infrastructure	USD
	FMV	Fair market value (where applicable) of the asset	USD (net)

Figure A.10. Equipment Retention Evaluation Criteria. When considering whether to retain specific equipment, both the use case and financial considerations should be assessed.

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A.11 – Replacement Construction Costs

This table shows the estimated replacement costs for BGCAPP facilities based on original construction costs that have been indexed for inflation using PPI. If these facilities were reused in-lieu of building new facilities, the Army may realize cost avoidances of $46.9M for high feasibility facilities and $43.5M for low and limited feasibility facilities.

Facility	Facility Number	Original Cost[1]	Estimated Replacement Cost[2]	Assessed Feasibility for Re-use
Container Handling Building (CHB)	17740	$13.1M	$21.3M	High
138 kV Substation	25210	$8.2M	$13.3M	High
Utility Building (UB)	17780	$4.8M	$7.7M	High
Maintenance Building (MB)	25160	$2.8M	$4.6M	High
Subtotal for High Feasibility Facilities		**$28.9M**	**$46.9M**	
Chemistry Lab	17870	$8.8M	$14.3M	Limited
Modular Laboratory Building (LAB) – Chem Demil	17870	$6.8M	$11.0M	Limited
Personnel Support Building (PSB)	25130	$5.7M	$9.2M	Limited
Personnel & Medical Bldg (PMB) – Chem Demil	17810	$4.7M	$7.6M	Limited
Outside Operations Support Facility	25131	$0.8M	$1.4M	Low
Subtotal for Limited & Low Feasibility Facilities		**$26.8M**	**$43.5M**	
Munitions Demilitarization Building (MDB)	17750	$371.4M	$602.7M	Not Feasible
Control & Support Building (CSB)	17760	$66.5M	$107.9M	Not Feasible
Munitions Demilitarization Building (MDB) Filter Area	17730	$2.4M	$3.9M	Not Feasible
Subtotal for No Feasibility Facilities		**$440.3M**	**$714.5M**	

Figure A.11. Estimated Replacement Construction Costs. Nearly $47M in costs can be avoided by repurposing high feasibility facilities, while an additional $43.5 million can be avoided if repurposing limited and low feasibility buildings.

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A.12 – Acronym List

ADP	Area Development Plan
AE	Ammunition and Explosives
AFC	U.S. Army Futures Command
AMC	U.S. Army Materiel Command
AMCOM	U.S. Army Aviation and Missile Command
ANMC	Anniston Munitions Center
AOIB	Army Organic Industrial Base
AOR	Accumulated Operating Result
AR	Army Regulation
ASA (ALT)	Assistant Secretary of the Army (Acquisition, Logistics, and Technology)
ASA(IE&E)	Assistant Secretary of the Army (Installations, Energy, and Environment)
ASD(NCB)	Assistant Secretary of Defense (Nuclear, Chemical, and Biological Defense Programs)
ASC	U.S. Army Sustainment Command
AWCF	Army Working Capital Fund
BES	Budget Estimate Submission
BGAD	Blue Grass Army Depot
BGCA	Blue Grass Chemical Activity
BGCAPP	Blue Grass Chemical Agent-Destruction Pilot Plant
BPBG	Bechtel Parsons Blue Grass
CAE	Chemical Agent Exposure
CDA	Core Depot Assessments
CDC	Centers for Disease Control
CECOM	U.S. Army Communications-Electronics Command
CFT	Cross-Functional Team
CG	Commanding General

CLA	Chemical Limited Area
CMA	U.S. Army Chemical Materials Activity
CSB	Control Support Building
CSEPP	Chemical Stockpile Emergency Preparedness Program
CSMS	Combined Support Maintenance Shop
CWC	Chemical Weapons Convention
CY	Calendar Year
DASA(ESOH)	Deputy Assistant Secretary of the Army (Environment, Safety, and Occupational Health)
DASD(TRAC)	Deputy Assistant Secretary of Defense (Threat Reduction and Army Control)
DESR	Defense Explosives Safety Regulation
DNA	Data Not Available
DoD	Department of Defense
DPA	Defense Production Act
EDCA	Executive Director for Conventional Ammunition
FEMA	Federal Emergency Management Agency
FTE	Full Time Equivalent
FY	Fiscal Year
GOCO	Government-Owned, Contractor-Operated
GOGO	Government-Owned, Government-Operated
HQDA	Headquarters Department of the Army
HSE	Health, Safety, and Environmental
IPT	Integrated Project Team
ISSA	Inter-Service Support Agreement
ISR	Installation Status Reports
JMC	Joint Munitions Command
JPEO A&A	Joint Program Executive Office – Armaments and Ammunition
JV	Joint Venture
KDEP	Kentucky Department of Environmental Protection
KTR	Contractor
kV	Kilovolt

MDB	Munitions Demilitarization Building
MCF	A unit of measurement equal to the volume of 1,000 cubic feet
MVA	Million Volt-Amperes
NDAA	National Defense Authorization Act
NOR	Net Operating Result
NPV	Net Present Value
NRI	National Risk Index
OB	Open Burn
OD	Open Detonation
OIB	Organic Industrial Base
OSD	Office of the Secretary of Defense
P3	Public Private Partnership
PEO	Program Executive Office
PEO ACWA	Program Executive Office Assembled Chemical Weapons Alternatives
PFAS	Per- and Polyfluoroalkyl Substances
PM	Program Manager
PM ACWA	Program Manager for Assembled Chemical Weapons Assessment
POC	Point of Contact
PPE	Personal Protective Equipment
PPI	Producer Price Index
R&D	Research and Development
RCRA	Resource Conservation and Recovery Act
RIF	Reduction In Force
RFI	Request for Information
ROI	Return on Investment
SCWO	Super Critical Water Oxidation
SDC	Static Detonation Chamber
SDG	Standby Diesel Generator
SF	Square Feet
SMCA	Single Manager for Conventional Ammunition
SME	Subject Matter Expert
TACOM	U.S. Army Tank-Automotive & Armaments Command

TEU	Twenty-foot Equivalent Unit
UPC	Utility Power Center
USD(A&S)	Under Secretary of Defense for Acquisition and Sustainment
USMC	United States Marine Corps
USN	United States Navy
VERA	Voluntary Early Retirement Authority
VSIP	Voluntary Separation Incentive Pay
WBS	Work Breakdown Structure
WP&C	Wilson Perumal & Company
WTP	Water Treatment Plant

A.13 – Industry Days Addendum

The Joint Munitions Command (JMC), in association with the Blue Grass Army Depot (BGAD), and with support from the Chemical Materials Activity, the Blue Grass Chemical Activity, and Program Executive Office, Assembled Chemical Weapons Alternative, hosted formal “Industry Days” opportunities on June 27th and 28th, 2023. This effort served as a continuation of the ongoing Blue Grass Feasibility Study, which was directed by the National Defense Authorization Act for Fiscal Year 2023.

With the planned completion of the chemical destruction mission and the subsequent demolition of all or portions of the Blue Grass Chemical Agent Destruction Pilot Plant (BGCAPP), the economic reality is that over 1,800 positions are planned to be eliminated over a period of the next few years. To offset those potential losses, the Army is focused on efforts to enable Team Blue Grass to realize workload growth through new or expanding military or commercial missions, which could also include Public Private Partnerships.

A government Industry Days event provides an opportunity for industry, academia, government labs and/or any legitimate entity that can conduct business with the U.S. Government, to explore possibilities and address questions or concerns directly with the government subject matter experts. Typically, government agencies hold Industry Day events to provide information on upcoming procurements, goals, schedules, and to solicit feedback for an upcoming “request for proposal”. In contrast, this Blue Grass Industry Day event was to highlight to government and industry organizations; the existing industrial capacity and capabilities at BGAD that is currently, or may soon be available for use. With the BGCAPP mission soon concluding, the Industry Days sought to capitalize on the rare opportunity to reuse or repurpose the multi-billion-dollar investment made at BGAD for new military or commercial opportunities.

The two-day event included a briefing on current and future BGAD capabilities and related capacity for potential business partnerships. All Industry Day participants were provided personalized tours that included the Blue Grass Chemical Limited Area, an inside the fence line viewing of the BGCAPP site, and several of BGAD’s other facilities and capabilities. Team Blue Grass has capabilities that include full-spectrum logistics support for sustainment, overhaul and repair, fabrication and manufacturing, engineering design and development, systems integration, postproduction support, technology insertion, modification support, foreign military sales and global field support to Joint Service warfighters.

The BGAD Commander, COL Brett Ayvazian addressed the attendees and explained that the event agenda was built to inform the prospective government and commercial entities about current and emerging business and partnering opportunities with Team Blue Grass. Joel Kallenberger, BGAD Chief of Staff, emphasized that Blue Grass Industry Days are intended to help start meaningful partnerships with government agencies and local, regional, and national private companies. Participation in the two-day Industry Day event was attended by:

- 5 personnel from 2 U.S. Government agencies.
- 16 individuals representing 8 different commercial business organizations.
- Personnel representing 3 state, county, and city local government economic development offices.

Feedback from event participants was positive, and the following activities related to the event are ongoing:

- Participants are continuing their engagement with BGAD and JMC subject matter experts to clarify facility technical details and further understand BGAD business operations.
- White papers are being developed by participants to detail their potential opportunities to use BGAD facilities.
- The JMC and BGAD Business Development Offices (BDOs) are soliciting feedback from participants and providing supplementary copies of materials presented during the event.

The JMC and BGAD BDOs are actively working with parties seeking to use facilities at BGAD and evaluating their prospective opportunities.

A.14 – JMC Listening Session Addendum

On 13 July 2023, the JMC Commander hosted a community listening session to complement the Blue Grass Army Depot Feasibility Study. Panel members for the session included leadership from JMC, BGAD, BGCA, and BGCAPP. The purpose of the session was to receive community ideas about the path forward for Blue Grass Army Depot since the chemical munitions destruction mission has ended. It was also an opportunity to educate the community on the feasibility study and the fact that Blue Grass Army Depot still has ongoing missions not related to the chemical munitions. The meeting was streamed live on the Blue Grass Army Depot Facebook site.

Twenty-three members of the public attended the meeting in person and 430 attended online. Local representatives from the office of Congressman Andy Barr (R-KY-6) attended, as along with local government officials, and representatives from Senator Mitch McConnel (R-KY) viewed the session on Facebook. Community participants indicated they were grateful for the end of the chemical munitions destruction mission and the opportunity to provide their thoughts and ideas for potential future missions at BGAD. After the event ended, representatives from the offices of Congressman Barr and Senator McConnel (R-KY) gave positive feedback about the session to the JMC Commander. A recording of the session can be viewed on the Blue Grass Army Depot Facebook site.

Community input on future missions for BGAD included the following:

- A Kentucky State Representative suggested the Army consider Homeland Security training, space program, and clean energy opportunities.

- Environmental advocates suggested the use of the BGCAPP static detonation chambers to replace open burning and open detonation disposal of conventional munitions at Blue Grass Army Depot. They also discouraged using BGAD facilities to process hazardous or toxic wastes brought to BGAD from other locations.

- The Mayor of Berea (a community approximately 10 miles south of the BGAD) encouraged partnerships with local authorities, continued community and industry engagement, and working with local defense industries to source additional mission opportunities for BGAD

- A representative for the City of Richmond Industrial Development Corporation suggested pursuing opportunities related to shipping and receiving, to include an emphasis on rail-based transportation, the possibility adding rail spur capacity, and creating an intermodal facility near BGAD.

- Other environmental advocates endorsed exploring opportunities in clean energy, creating a multi-use training site at BGAD, and building community housing on the depot to supplement local community housing availability.

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