



# TANKS

**VITAL TO DEFENSE**



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# EXECUTIVE SUMMARY

In 2013, a year before Russia invaded Ukraine, the United States came within months of shuttering the last plant in the Western Hemisphere capable of building main battle tanks. The Obama Administration, believing that the United States no longer faced the threat of conflict with a major land power, sought to save money by terminating the Abrams upgrade program and closing for four years the factory, called the Joint Systems Manufacturing Center (JSMC), at Lima, Ohio.<sup>1</sup>

Now, great-power competition is back and with it the need to deter large-scale conventional aggression in Europe and Asia. Russia, for example, has been engaged in a decade-long program to modernize its conventional forces, and now it poses a threat to NATO. According to the Chief of Staff of the Army, General Mark Milley, U.S. ground forces are threatened by Russian tanks and artillery: “It’s close. It’s not overly dramatic but it’s the combination of systems — we don’t like it, we don’t want it — but yes, we are technically outranged and outgunned.”<sup>2</sup>

The U.S. Army needs to restore its superiority in land combat power, particularly in Europe. This requires an expanded program to upgrade the current fleet of M1A2 Abrams main battle tanks. It also needs to revitalize the heavy-armor industrial base, particularly the JSMC. And, the

workforce required to support a resurgent industrial base has to be rebuilt after years of decline.

The Trump Administration recognized the need to revitalize the Army, restore the relevant industrial base and create many hundreds of skilled jobs for American workers. In the Fiscal Year 2019 defense budget, the administration funded the Army for the production of 135 Abrams upgraded with the state-of-the-art System Enhancement Package Version 3 (SEPV3). Overall, the JSMC has received nearly \$2 billion in new orders for Abrams tanks and Stryker vehicles. As a result, a workforce that had shrunk to just 400 during the recession is likely to top 1,000 again.<sup>3</sup>

A robust Abrams upgrade program benefits national security and supports advanced manufacturing in the industrial heartland of the Midwest. The Abrams upgrade program will enable the Lima plant and its suppliers to operate at an efficient rate of production and add skilled jobs not only at the tank plant, but throughout the Midwest.

It is vital that the increase in production of the M1A2 Abrams SEPV3 begun in FY2019 be continued. The Abrams upgrade program will ensure the survival of the last tank plant in America, and of America’s soldiers on future battlefields.



<sup>1</sup><https://www.lexingtoninstitute.org/why-the-army-is-wrong-about-closing-its-only-tank-plant/>

<sup>2</sup><https://www.defensenews.com/land/2016/04/07/us-army-chief-sounds-alarm-military-at-high-risk/>

<sup>3</sup><https://www.bizjournals.com/columbus/news/2018/10/17/ohio-s-14b-defense-business-is-at-risk-without.html>

# THE TANK IS BACK

U.S. armored forces, led by the main battle tank, have always been the tip of the spear in land warfare. From the breakout at Normandy of Patton's Third Army and its race across France in 1944 to the Thunder Runs through Baghdad in 2003, U.S. armored units have proven decisive in multiple conflicts.

During the Cold War, the United States and its allies, particularly NATO, faced a Soviet military that invested massively in land power. At its height, the Red Army possessed some 52,000 tanks equipping 52 tank divisions and 150 motorized rifle divisions.<sup>4</sup> More than 20 of these divisions confronted NATO along the German border.

In response to this threat, the U.S. Army invested in a family of new systems, called the Big Five, and a new operational concept, AirLand Battle, to deter the Red Army. The M1 Abrams was a key element of the Army's Big Five. Since first deployed in 1980, the Abrams has repeatedly proven its value in combat against armies equipped with Russian tanks.

Even after the fall of the Soviet Union, the Abrams tank continued to play an important role in U.S. conflicts. It led the march upcountry to Baghdad in 2003. The Abrams also demonstrated its value in urban counter-insurgency operations such as the liberation of Fallujah in 2004.<sup>5</sup>

Now, the prospect for great-power conflict has returned and with it, the need for more capable armored forces. The Army finds itself confronted by conventional land-power adversaries with advanced weapons that threaten to neutralize U.S. battlefield advantages.

The Army has created a Cross Functional Team (CFT) focused on Next Generation Combat Vehicles. Its mandate is to manage near-term upgrade programs while pursuing longer-term efforts to find replacements for existing armored fighting vehicles.<sup>6</sup> The top vehicle modernization priority of Army leaders is a replacement for the Bradley Fighting Vehicle.<sup>7</sup>

Fortunately, the Army does not have to develop a new tank. The Abrams today is the tank of the future. Even when defense budgets were declining, modernization continued to make it better. Now the Army is beginning to receive the latest upgrade, the M1A2 SEPv3. According to Major General David Bassett, the former program executive officer for Ground Combat Systems, "The Abrams M1A2 SEPv3 is the first in a series of new or significantly improved vehicles that we will be delivering to the Army's Armored Brigade Combat Teams. It is a great step forward in reliability, sustainability, protection, and on-board power which positions the Abrams tank and our ABCTs for the future."<sup>8</sup>

<sup>4</sup><https://fas.org/irp/doddir/army/fm100-2-3.pdf>

<sup>5</sup>[https://www.armyupress.army.mil/Portals/7/military-review/Archives/English/MilitaryReview\\_20141231\\_art006.pdf](https://www.armyupress.army.mil/Portals/7/military-review/Archives/English/MilitaryReview_20141231_art006.pdf)

<sup>6</sup>[https://www.army.mil/article/211236/preparing\\_for\\_future\\_battlefields\\_the\\_next\\_generation\\_combat\\_vehicle](https://www.army.mil/article/211236/preparing_for_future_battlefields_the_next_generation_combat_vehicle)

<sup>7</sup><https://www.businessinsider.com/army-secretary-says-replacing-bradley-fighting-vehicle-a-priority-2018-5>

<sup>8</sup><https://nationalinterest.org/blog/buzz/army-upgrading-100-m1-abrams-main-battle-tanks-here-everything-we-know-27692>





*An Abrams tank firing its main gun. Abrams was conceived to provide soldiers with the three things they need most to survive and win on modern battlefields: firepower, protection and mobility. Those needs won't change, but the technology required to provide them will as the armor and anti-armor capabilities of potential adversaries advance.*





# CHALLENGES TO U.S. MILITARY SUPERIORITY

The United States today faces a strategic environment more dangerous than at any time since the end of the Cold War. Great-power competition has returned and with it the potential for major conventional conflicts. Russia is rebuilding its conventional forces and deploying new formations to positions from which they could execute a quick strike against NATO. As the *New York Times* recently observed: “The Russian military threat has changed markedly since the Soviet Union collapsed in 1991. Mr. Putin has invested heavily in modern infantry forces, tanks and artillery. Moscow has also increased its constellation of surveillance drones that can identify targets and coordinate strikes launched from other weapons.”<sup>9</sup>

Moscow is seeking to create the impression that it has sufficient military power to coerce the U.S. and its NATO allies. In 2017, Russian Deputy Minister of Defense Dmitry Bulgakov declared that: “Over the five years between 2012 and 2017, the army has received more than 25,000 units of new armored tank and automobile kit, as well as 4,000 modern items of rocket and artillery weaponry.” Bulgakov believes these acquisitions have “allowed the Russian Federation to claim first place in the world by number of tanks, armored personnel carriers and multiple launch rocket systems.”<sup>10</sup>

In addition, the Russian army is restructuring its armored forces and reconstituting its Cold War

tank armies -- the formations designed for deep, rapid offensive operations. One such unit, the 6th Guards Tank Army, consists of about 50,000 soldiers and at least 500-600 of the most modern tanks in the Russian inventory.<sup>11</sup>

Russia is beginning to deploy a 21st century main battle tank, the T-14 Armata, which could present a challenge to existing U.S. armored forces. The Armata is more lethal and more survivable than any existing Russian tank. The T-14 carries a powerful 125mm main gun with an automatic loader in a two-man turret. It achieves improved survivability by employing a combination of explosive-reactive armor and a sophisticated active protection system intended to shoot down incoming projectiles.<sup>12</sup>

Without planned improvements, the Abrams is vulnerable to advanced Russian- and Chinese-made anti-tank guided missiles. Some of these systems have been sold widely. As a result, in the conflicts in Yemen and Iraq, dozens of Saudi and Iraqi Abrams tanks have been destroyed by such missiles.

U.S. armored forces must be improved in order to counter threats that are quantitatively superior and beginning to deploy weapons systems equal to our own. That includes investing in Abrams upgrades and the industrial base that supports the program.

<sup>9</sup><https://www.nytimes.com/2018/06/27/us/politics/american-allies-russia-baltics-poland-hybrid-warfare.html>

<sup>10</sup><https://www.newsweek.com/russia-says-it-has-more-tanks-any-nation-world-705599>

<sup>11</sup><https://www.businessinsider.com/this-is-the-russian-tank-corps-putin-is-sending-natos-borders-2017-8>

<sup>12</sup><https://nationalinterest.org/blog/the-buzz/why-russia-china-fear-americas-m1-abrams-tank-19258>





*An Abrams tank on maneuvers. The powerful propulsion system of the Abrams tank enables it to operate virtually anywhere, from the dark forests of central Europe to the dusty deserts of the Middle East. The tank's low profile and camouflage allow it to hide under trees and behind buildings so it can evade detection by overhead drones and hostile ground forces.*





# ABRAMS IS THE TANK OF THE FUTURE

Fortunately, the Army does not need to develop a new tank. Since its introduction in 1980, the Abrams tank has undergone a series of upgrades to keep it ahead of competitors. Over the four decades the M1 Abrams has been in service, the Army has upgraded or replaced almost everything on it but the original 1500 horsepower gas turbine engine. As a result, the Abrams remains today the world's best main battle tank.

More important in view of the evolving threat, the Abrams is the tank of the future. Planned upgrades will ensure that the Abrams maintains its dominant position for decades to come. The Army is beginning to receive the latest upgrade, the System Enhancement Package Version 3 (SE Pv3).<sup>13</sup> This provides the M1A2 with new computers, sensors, radios and power management systems. It installs a new Auxiliary Power Unit (APU) that allows the Abrams to keep its sophisticated systems running while the engine is off. Survivability measures include an improved Crew Remotely Operated Weapon Station, an improvised explosive device electronic-warfare package and reinforced armor.

According to Major General David Bassett, former program executive officer for Ground Combat Systems, "The Abrams M1A2 SE Pv3 is

the first in a series of new or significantly improved vehicles that we will be delivering to the Army's Armored Brigade Combat Teams. It is a great step forward in reliability, sustainability, protection, and on-board power which positions the Abrams tank and our ABCTs for the future."<sup>14</sup>

The Army already has an even more advanced enhancement package for the Abrams in development. It has been reported that the SE Pv4 will add a new laser rangefinder, an advanced forward-looking infrared sight, cameras to provide 360-degree situational awareness, integrated on-board networks, advanced meteorological sensors, better ammunition data links, laser warning receivers and a more lethal, multi-purpose tank round.<sup>15</sup>

There are numerous options available to the Army to enhance the performance of the M1A2 Abrams. This essential truth led Colonel Jim Schirmer, Program Manager for the Next Generation Combat Vehicle, to conclude that "a complete replacement of the Abrams would not make sense, unless we had a breakthrough...with much lighter armor which allows us to re-architect the vehicle. . . Until technology matures we are going to mature the Abrams platform."<sup>16</sup>

<sup>13</sup><https://taskandpurpose.com/m1-abrams-tank-army-upgrade/>

<sup>14</sup><https://nationalinterest.org/blog/buzz/army-upgrading-100-m1-abrams-main-battle-tanks-here-everything-we-know-27692>

<sup>15</sup><https://nationalinterest.org/blog/the-buzz/americas-once-future-tank-the-us-new-m1a2-sep-v4-super-18422>

<sup>16</sup><https://defensemaven.io/warriormaven/land/special-report-army-analyzes-detailed-plans-for-future-tank-McrsL3rfUEKEkhJDJ3Lm0Q>





*An Abrams turret being prepared for integration with the tank's main body at the Joint Systems Manufacturing Center at Lima, Ohio. Formerly known as the Lima Army Tank Plant, it is the sole surviving facility in the United States that can assemble main battle tanks. The Army is investing heavily in modern production equipment as contractor General Dynamics trains a new generation of workers.*





# THE INDUSTRIAL FOUNDATIONS FOR RENEWED U.S. ARMORED SUPERIORITY

Between 1980 and 1998, the U.S. armored vehicle industrial base produced some 8,000 M1s and improved M1A1s. Most M1s were produced at Ohio's Lima Army Tank Plant (LATP). Some were built at the Detroit Arsenal Tank Plant in Warren, Michigan, until the latter was closed in 1996, leaving LATP as the only factory of its kind in the Western Hemisphere. At the height of production in the mid-1980s, Lima was producing some 60 tanks a month.

Since the Department of Defense ended new production of Abrams tanks in 1996, the LATP, renamed the Joint Systems Manufacturing Center (JSMC) in 2004, has survived on a series of upgrade programs and foreign military sales. Unfortunately, annual production rates for these programs were a mere fraction of those experienced during the period between 1980 and 1998. As a result, the JSMC was forced to operate inefficiently, its supply chain across the Midwest was allowed to degrade and the workforce shrank from more than 1,200 to a low of 400.

The fate of the JSMC is a reflection of the broader decline that has occurred over the past several decades in America's industrial base. As the Trump Administration's recently released industrial-base study makes clear, the combination of inconsistent funding, declining production capacity, supply-chain fragility, poor government practices, foreign competition and diminishing skills is threatening the American economy.<sup>17</sup>

President Trump is committed to changing the conditions that led to the decline of U.S. manufacturing, thereby enabling both a strong economy and national defense. Investing in the JSMC and its supplier base serves both these ends. The administration's defense budget increases provided some \$2 billion in new orders to the JSMC for upgraded Abrams tanks and new Stryker vehicles. The workforce at the JSMC is expected to top 1,000 again.<sup>18</sup>

The key to the long-term future of U.S. armored forces lies with two interrelated factors: stability of funding and a commitment to the modernization of U.S. heavy armored fighting vehicles. The combination of secure funding and a commitment to the future will allow reinvestment in manufacturing capacity, the revitalization of critical supply chains and the recruitment and training of a skilled workforce.

In a letter to President Trump, Michigan Congressman Paul Mitchell and a number of his colleagues articulated the many benefits of a long-term program to modernize the Abrams tank: "An annual production level of 135 tanks in Fiscal Year 2020 and beyond will not only get tanks to our troops faster, but will reduce the cost of each unit by more than 10 percent and stabilize the U.S. tank industrial base. This predictable production schedule will realize savings for the taxpayer and provide job stability for hundreds of small and large tank suppliers."<sup>19</sup>

<sup>17</sup> *Assessing and Strengthening the Manufacturing and Defense Industrial Base and Supply Chain Resiliency of the United States*

<sup>18</sup> <https://www.bizjournals.com/columbus/news/2018/10/17/ohio-s-14b-defense-business-is-at-risk-without.html>

<sup>19</sup> *The office of Congressman Paul Mitchell*





# THE IMPORTANCE OF THE ABRAMS UPGRADE PROGRAM TO OHIO AND THE MIDWEST

The history of the JSMC mirrors that of the city of Lima and the manufacturing heartland of America. For much of the 20th Century, Lima, Ohio was a center of industrial activity. The city boasted a locomotive factory, construction-equipment plants and the nation's biggest maker of buses.<sup>20</sup> A number of the country's great railroads connected through Lima. During the Reagan defense buildup in the 1980s, the Lima Army Tank Plant -- since 2004 the Joint Systems Military Center (JSMC) -- employed several thousand skilled workers.

The factories in Lima, including the JSMC, spawned multi-state networks of small and medium-sized companies that supplied the components for automobile engines, locomotives and main battle tanks. Together, these facilities and their suppliers constituted a major part of the manufacturing and defense industrial base on which the nation's economic prosperity and national security depended.

The decline in U.S. manufacturing and defense industrial production began in the 1960s and accelerated from 1990 onward. Between 2000 and 2010 alone, more than two-thirds of U.S. manufacturers saw production decline and some 60,000 manufacturing facilities closed.<sup>21</sup> The end of the Cold War led to a reduction in defense spending. This resulted in a long-term contraction of the workload at the tank plant and the loss of many jobs.

The M1A2 Abrams SEPv3 upgrade program is part of a broader strategy by the Trump

Administration to reverse decades of industrial decline, revitalize American manufacturing and restore the nation's military preeminence. The program will add hundreds of additional highly skilled manufacturing jobs to the Lima plant. The increased workload will bring hundreds of millions of dollars to Lima and the surrounding region, reduce the per-tank cost for the upgrades, improve the JSMC's ability to handle surge demands in the event of conflict and, most importantly, prepare the facility for follow-on enhancements to the Abrams in the decades to come.

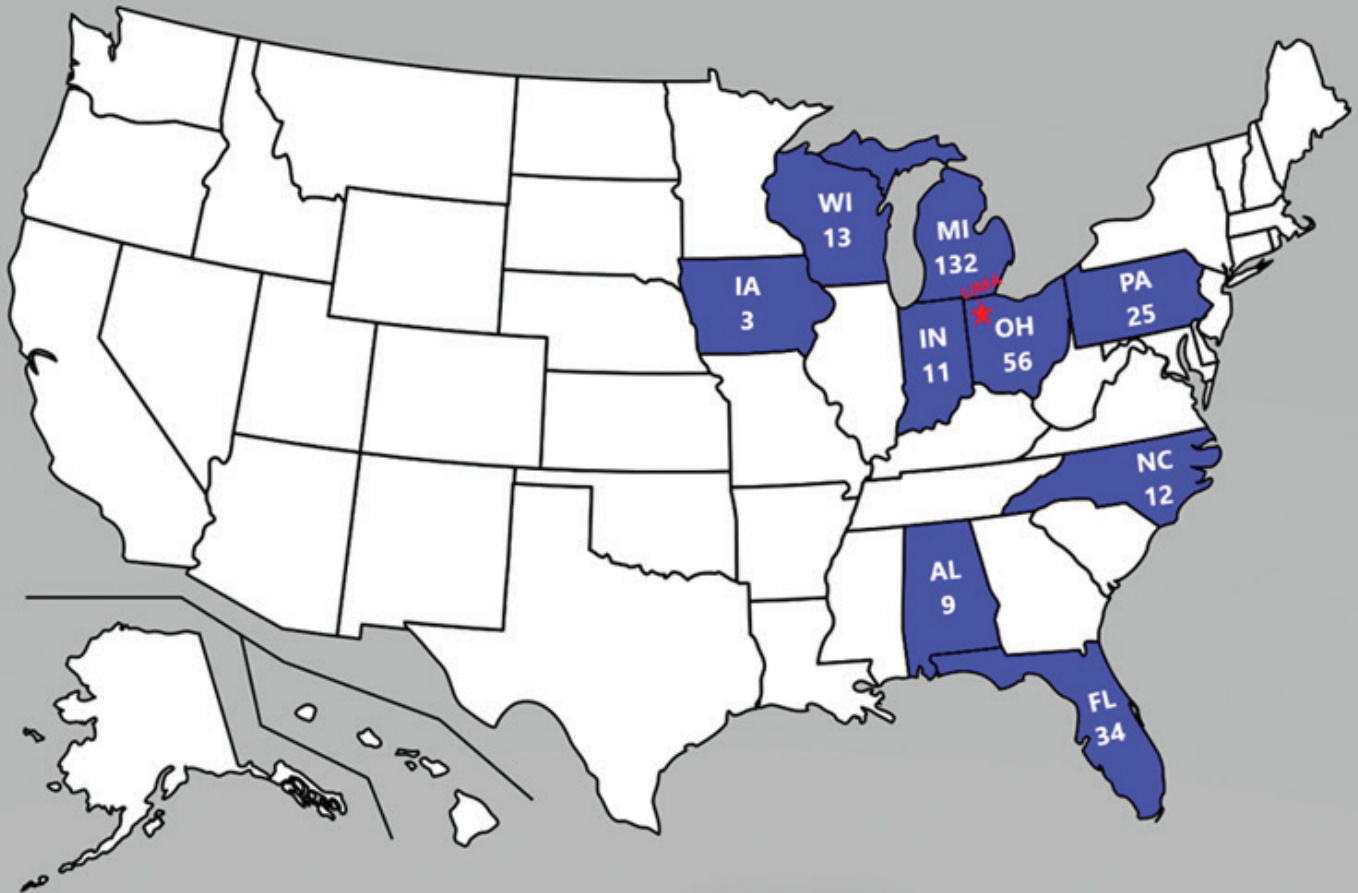
Equally important, the upgrade program, if continued, will energize a supply chain throughout the Midwest and across the country that includes both manufacturers of traditional components such as metal forgings, transmissions, suspensions and engines, and new providers of advanced electronics, sensor and computer systems. The Abrams transmission is manufactured by Allison in Indiana, the main gun by the Watervliet Arsenal in New York, the titanium plates by Allegheny Technologies, Inc. of Pittsburgh and the treads by a local firm in Ohio.

The SEPv3 upgrade creates a demand for new, advanced systems and the engineers and technicians who can design, build and integrate them. The SEPv3 incorporates new power systems, sophisticated electro-optical and infra-red sensors and easy-to-replace modules for mission computers. Consequently, investing in Abrams upgrades supports the creation and expansion of a 21st Century industrial base.

<sup>20</sup><https://www.forbes.com/sites/lorenthompson/2017/01/26/better-tanks-for-the-army-means-more-manufacturing-jobs-in-the-midwest/#ad8ea5a6c1d5>

<sup>21</sup><https://media.defense.gov/2018/Oct/05/2002048904/-1/-1/1/ASSESSING-AND-STRENGTHENING-THE-MANUFACTURING-AND%20DEFENSE-INDUSTRIAL-BASE-AND-SUPPLY-CHAIN-RESILIENCY.PDF>

**A map of where  
Abrams tank suppliers are located.**



# suppliers

*The largest concentrations are in Michigan, Ohio and Florida, but as the map reflects there are tank suppliers scattered across much of the nation's industrial heartland. Many of the jobs sustained by the Abrams program are located at subcontractor sites rather than at the final assembly facility in Lima, Ohio.*







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