

KC-46

CONVERSION STUDY

134th Air Refueling Wing
McGhee Tyson Air National Guard Base
KNOXVILLE, TENNESSEE



JUNE 2022



134th Air Refueling Wing

McGhee Tyson Air National Guard Base
134 Briscoe Drive, Knoxville, Tennessee 37777



McGhee Tyson Air National Guard Base (Knoxville, TN) is uniquely qualified to receive and employ the Air Force's next-generation air refueling aircraft ... The KC-46 Pegasus! The combination of strategic location, robust infrastructure, and highly proficient Volunteer Airmen make McGhee Tyson the **Right Choice** for KC-46 basing.

McGhee Tyson home of the 134th Air Refueling Wing enjoys a unique geographic centrality. Whether responding to time critical homeland defense missions, providing routine training, or delivering Rapid Global Mobility to the Joint Force and our allies, McGhee Tyson is perfectly situated to provide proximity to air refueling demands while remaining clear of the nation's busiest airspace. **Right Place.**

This KC-46 conversion study capitalizes on the infrastructure, mission support capabilities and synergistic partnerships already in place at McGhee Tyson. Recent improvements include a \$134M newly constructed 10,000ft runway and completion of a \$32.4M aircraft maintenance hangar that will house a KC-46. Additionally, this plan highlights existing base communication capabilities and mission support facilities that represent a significant tax payer cost savings for KC-46 beddown. **Right Cost.**

McGhee Tyson boasts 66 years of Volunteer excellence and service to the United States Air Force. The unit has received a remarkable 16 Air Force Outstanding Unit awards and most recently the Air Force Meritorious Unit award for direct support of combat operations. Additionally, the 134th has been awarded the Airlift/ Tanker Association's Major General Stanley F.H. Newman award in 2016 and 2020 for the most outstanding Air National Guard wing contributing to the overall success of the Mobility Air Force mission. **Right People.**

You will find this study illustrates that McGhee Tyson and the surrounding East Tennessee community possess an unequalled combination of people, location and infrastructure that cannot be duplicated at any other Air National Guard installation. I endorse this initiative and welcome the opportunity to discuss any aspect of its implementation. We are Volunteer Ready for the KC-46 Pegasus!

McGhee Tyson: Right Place, Right Cost, Right People Right Choice!

M. Lee Hartley, Jr., Colonel, TNANG

Commander



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EXECUTIVE SUMMARY

Right Place, Right Cost, Right People for the KC-46 Pegasus. Strategic location, robust infrastructure, and exceptional airmen - McGhee Tyson Air National Guard Base is the ready and responsible choice to receive and employ the Air Force’s next-generation air refueling aircraft. Key facilities and infrastructure are already in place to support the KC-46. The 134th Air Refueling Wing is eager to continue its tradition of executing the Air Force’s “Fly, Fight and Win” mission through the enhanced capabilities afforded by the next-generation tanker.

Right Place

- Largest ANG tanker base in the southeast US occupying 363 acres with **100 acres available for development** (27% growth potential). Current Lease Term 2061, executing lease extension to 2110
- **Strategically located.** One hour reach of more than 80% of U.S. Air Refueling tracks, 57% of U.S. population, and the National Capital Region
- Low Cost of Living Index and High Quality of Life with abundant employment opportunities
- Strong Health Care Facilities led by the University of Tennessee’s Medical Center, level 1 trauma center
- Award Winning Education opportunities including Primary, Secondary and Post-Secondary Education opportunities led by The University of Tennessee Knoxville
- Ranked #5 state in U.S. for ease of reciprocal licensure

Right Cost

- National Guard Bureau investments exceeding \$117 million in the last 8 years eliminate conversion costs
- Two existing KC-46 compatible runways. **Primary runway is 10,000 feet long** (Completed 2021)
- Existing parking apron with Type III hydrant fueling system capable of supporting 8 KC-46 aircraft
- **New Consolidated Maintenance Hangar capable of housing the KC-46** (Completed June 2022)
- Maintenance Support Facilities construction scheduled for FY23
- 66% of all base facilities are new or have been renovated since 2004
- Unparalleled Communications Infrastructure including: Region 2 Operations Security Center, Joint Worldwide Intelligence Communications System (JWICS).
- 13,100+ SqFt of accredited Sensitive Compartmented Information Facility (SCIF) space
- 100% Resilient. Electrical Power backed up by natural gas/diesel generators. PV-Array (solar) construction FY23
- On-base housing including 351 dorm rooms – 582 Bed Spaces
- 29,000 SqFt exercise and fitness facility augmented by a track and artificial turf infield
- Total Force Integration ready. On-Base Dining, Medical Group, Armed Forces Club, and Base Exchange. Currently supports 80 active duty airmen. Existing facilities will support additional active duty airmen

Right People

- Exceptional recruiting history exceeding **105% end strength** for the last 17 years. Currently **115% overall manning**
- Current retention rate 96% and effective manning at 96% of authorized manning
- **Highly decorated Wing:** 16-time Air Force Outstanding Unit Award, two-time winner of Maj. Gen. Stanley F. H. Newman Outstanding Unit Awards, recognition as top ANG Wing in entire Air Mobility Command, Gen Thomas White Environmental Award – 2019, Number 1 ANG Wing by US STRATCOM Task Force 294 - 2016
- Community invested in Citizen Airmen: state/local leadership including Mayors, City Officials, Development Agencies, the Airport Authority (Leaseholder), and the State of Tennessee. Citizen Airmen invested in Community: >1000 of 1142 Airmen and their families work and live in 13 East Tennessee Counties
- Home of the ANG Training and Education Center (TEC), Premier Leadership Training for the Total Force.



INTRODUCTION

For more than 66 years “Volunteers” from McGhee Tyson Air National Guard Base, Tennessee have proudly served the citizens of the United States and East Tennessee. Boasting 16 Air Force Outstanding Unit Awards and 2 Major General Stanley F.H. Newman Awards, the 134th Air Refueling Wing has cemented itself as one of the most decorated air refueling units in U.S. Air Force history. Additionally, the unit exemplifies Flight Safety, bolstering more than 199,000 Class A mishap-free flying hours,



The 134th Air Refueling Wing is co-located with McGhee Tyson Airport, where the Tennessee National Guard conducts military operations and training across 363 acres of leased property.

dating back to 1963. From its inception on 15 December 1957 to present day, the men and women of McGhee Tyson have served in every major crisis and military operation including: The Berlin Crisis, Vietnam Conflict, The Cold War, and numerous military operations to include, but not limited to Operations:

JUST CAUSE	DESERT SHIELD	DESERT STORM
DELIBERATE GUARD	JOINT FORGE	NORTHERN WATCH
SOUTHERN WATCH	ENDURING FREEDOM	IRAQI FREEDOM
NEW DAWN	NOBLE EAGLE	UNIFIED PROTECTOR
INHERENT RESOLVE	FREEDOM'S SENTINEL	ODYSSEY DAWN
DEEP FREEZE	ALLIES REFUGE	JUNIPER SHIELD

The 134th Air Refueling Wing is co-located with McGhee Tyson Airport, where the Tennessee National Guard conducts military operations and training across 363 acres of leased property. The long-term lease associated with this property is currently scheduled to be extended from 2061 to 2110. Its strategic location relative to the U.S. Atomic Energy Commission's facilities, vital dams and power generation plants of the Tennessee Valley Authority, and proximity to the ARCONIC aluminum plant, made the base a natural choice

Every conversion to a new aircraft or mission has been embraced by the Volunteers and pursued with vigor in the unit's tradition of excellence.



to host fighter-interceptor aircraft during the Cold War. In 1964, the 134th took possession of the KC-97 Stratofreighter, achieving combat ready status in a record setting eight months. This marked the beginning of an era for air refueling for the 134th Air Refueling Group. In 1976, the 134th completed another aircraft conversion from the KC-97L to the KC-135A. With this aircraft conversion, the 134th Air Refueling Group transitioned from Tactical Air Command (TAC) to Strategic Air Command (SAC). During this time, the Group was tasked with a 24/7 alert mission and has sustained this readiness posture for more than 46 years. By 1982 the 134th Air Refueling Group had converted from the KC-135A to the KC-135E, which was flown throughout the remaining duration of the Cold War. On 01 October 1995, the 134th Air Refueling Group became the 134th Air Refueling Wing. In 2007 the KC-135E was officially retired and replaced by the KC-135R, which continues to be operated at McGhee Tyson today. Every conversion to a new aircraft or mission has been embraced by the Volunteers and pursued with vigor in the unit's tradition of excellence.



...the success of the air refueling mission is determined by the proximity of the aircraft to the location of the requirement.

MISSION CAPABILITIES
AIR REFUELING

Whether responding to Air Defense Emergencies, Homeland Defense missions, domestic operations, or other time critical contingencies, the success of the air refueling mission is determined by the proximity of the aircraft to the location of the requirement. **McGhee Tyson's ideal location provides the DoD with an unrivaled combination of strategic presence and immediate response capability to the eastern half of the United States.** This unique centrality ensures that any KC-46 aircraft based at McGhee Tyson will be located to achieve maximum effectiveness and enhanced cost savings.

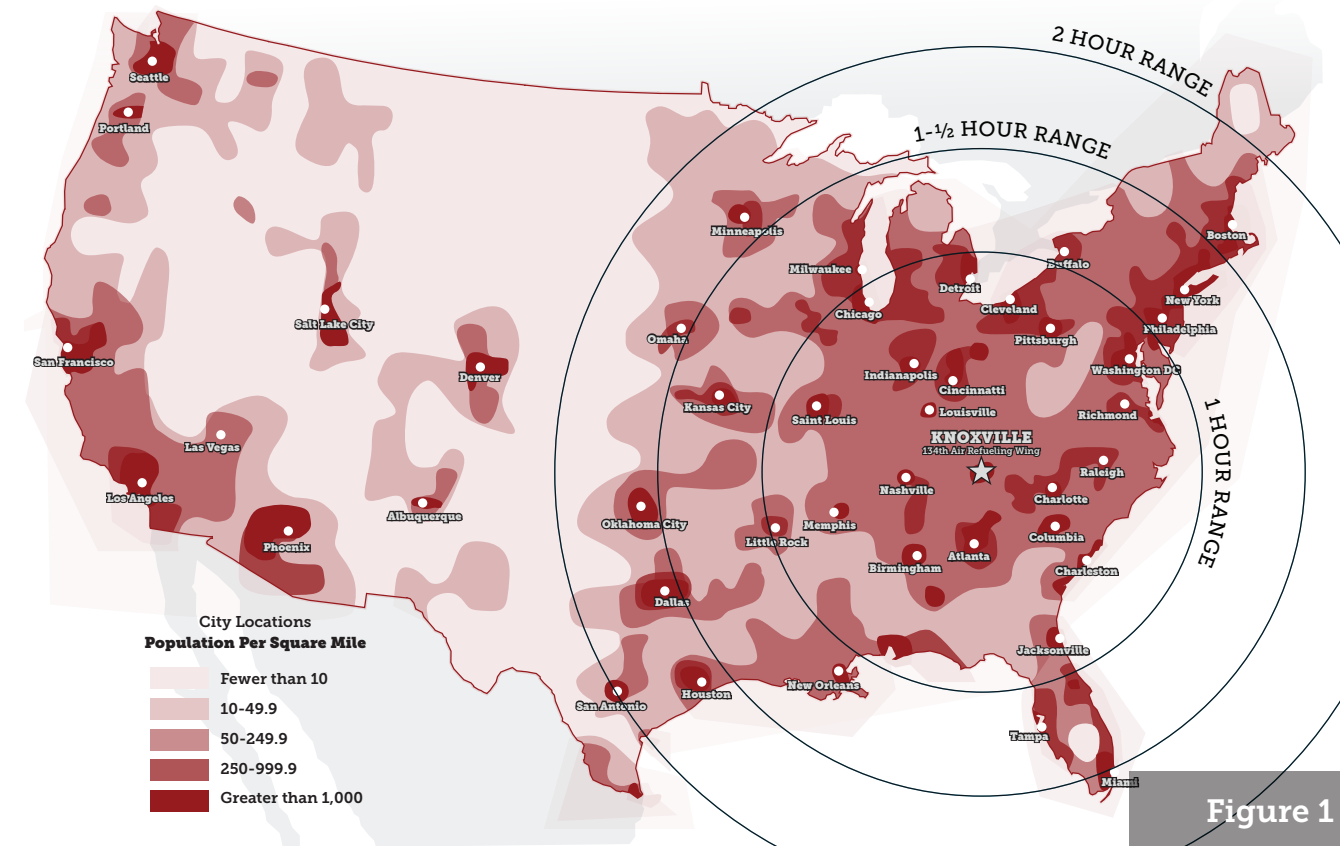


Since air sovereignty is crucial to the success of homeland defense, and mission success depends heavily upon the timely availability of airborne fuel, the location of air refueling assets is critical.

Location – Alert Response

Since the September 11, 2001 attacks there has been a renewed emphasis on protecting the airspace, infrastructure, and population of the United States. Additionally, the 2022 National Defense Strategy sets the number one priority as DEFENDING THE HOMELAND.

The 134th Air Refueling Wing is distinguished among its peers, performing an alert mission for United States Strategic Command (USSTRATCOM) for more than 46 years. The ability to perform these missions is enhanced by the base’s unrivaled communications and network infrastructure. Air Sovereignty is crucial to the success of homeland defense. It is predicated on the ability of fighter/interceptor aircraft to rapidly establish and maintain a presence in the area of concern, often in high density airspace or over dense population centers. These responding aircraft most often require airborne fuel within one hour of launch. **Basing the KC-46 at McGhee Tyson ensures air refueling can reach more than 57% of the U.S. population within one hour flight time and 77% of the population within two.** Figure 1 illustrates the proximity of Knoxville and the 134th Air Refueling Wing to the U.S. population.



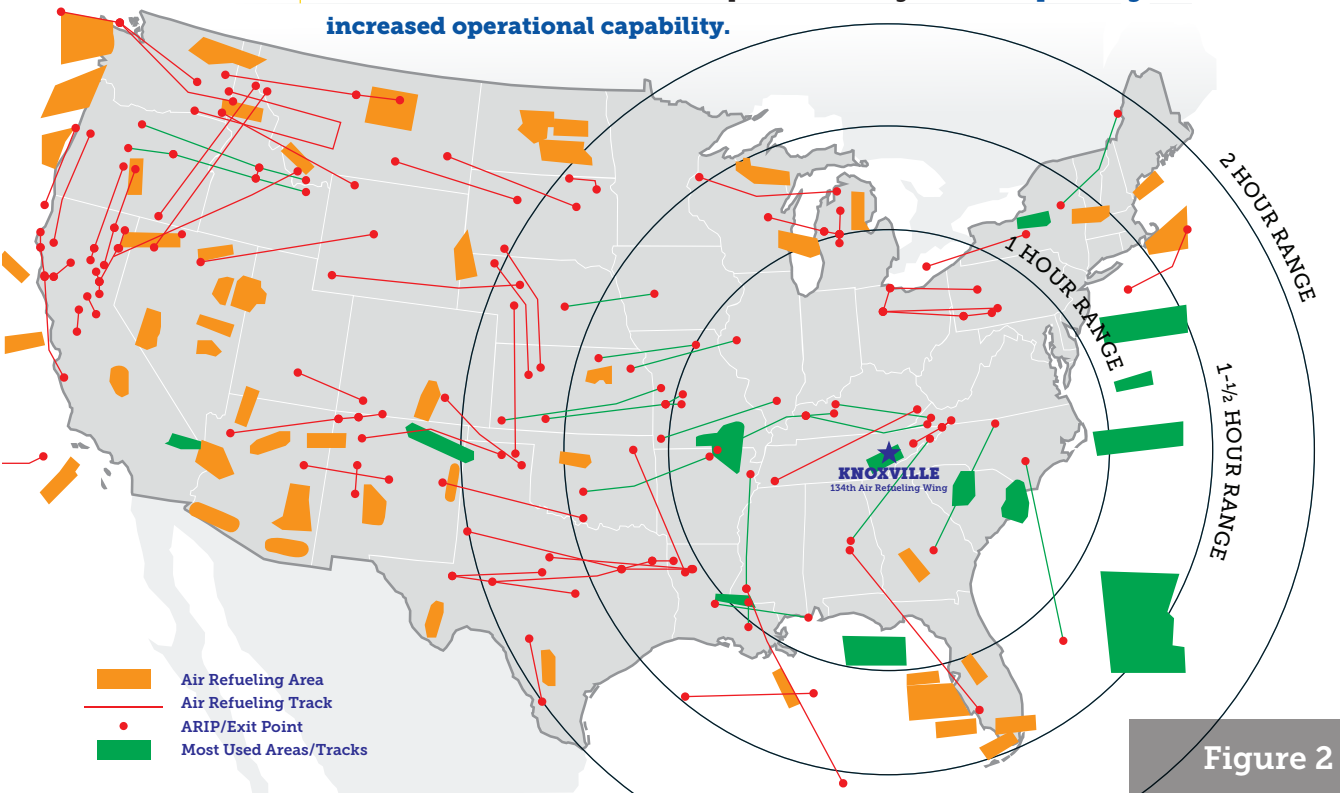
- MCGHEE TYSON:
- Reduced response time
- Minimum fuel consumption
- Lower operating costs
- Increased operational capability

Location – Air Refueling Airspace

McGhee Tyson is situated in a prime geographic position for homeland defense. The most important factor relative to the efficiency of the air refueling mission is the proximity to refueling demand. Air Mobility Command (AMC) has prepared studies through its Air Refueling Optimization Program and identified high-usage air refueling areas within the continental United States. Of these high usage areas, 70% are located in the central portion of the eastern United States.



As seen in Figure 2, the 134th Air Refueling Wing is optimally located for more than 80% of these refueling tracks and is capable of providing fuel to receiver aircraft within 90 minutes of launch. **All of the refueling tracks from mid-America to the eastern seaboard fall within a two-hour flight.** This makes McGhee Tyson the most efficient location for optimal operational and training use of the KC-46, saving taxpayer money and creating maximum efficiency. Figure 2 illustrates the proximity of the 134th to the most used tracks and airspace. This strategically important location reduces response times and minimizes fuel consumption, resulting in **lower operating cost and increased operational capability.**



Location – Customer Service



The proximity of tanker aircraft to operational areas and refueling customers is critical to identifying optimum KC-46 basing. In the tanker community these customers are known as receivers and consist of fighter, bomber, and airlift units. McGhee Tyson enjoys an excellent location relative to a great number of these units and their air refueling tracks. **McGhee Tyson is within a one hour flight of 49 locations hosting aircraft receivers, and 1.5 hours of 70.**

The KC-46 can simultaneously complete three missions: air refueling, passenger airlift, and cargo transport. A McGhee Tyson based KC-46 can efficiently execute these missions by flying to a receiver unit's base, loading their personnel and cargo then refueling their aircraft enroute to a deployed location. Figure 3 emphasizes the strategic location of the 134th and its proximity to receiver aircraft bases.

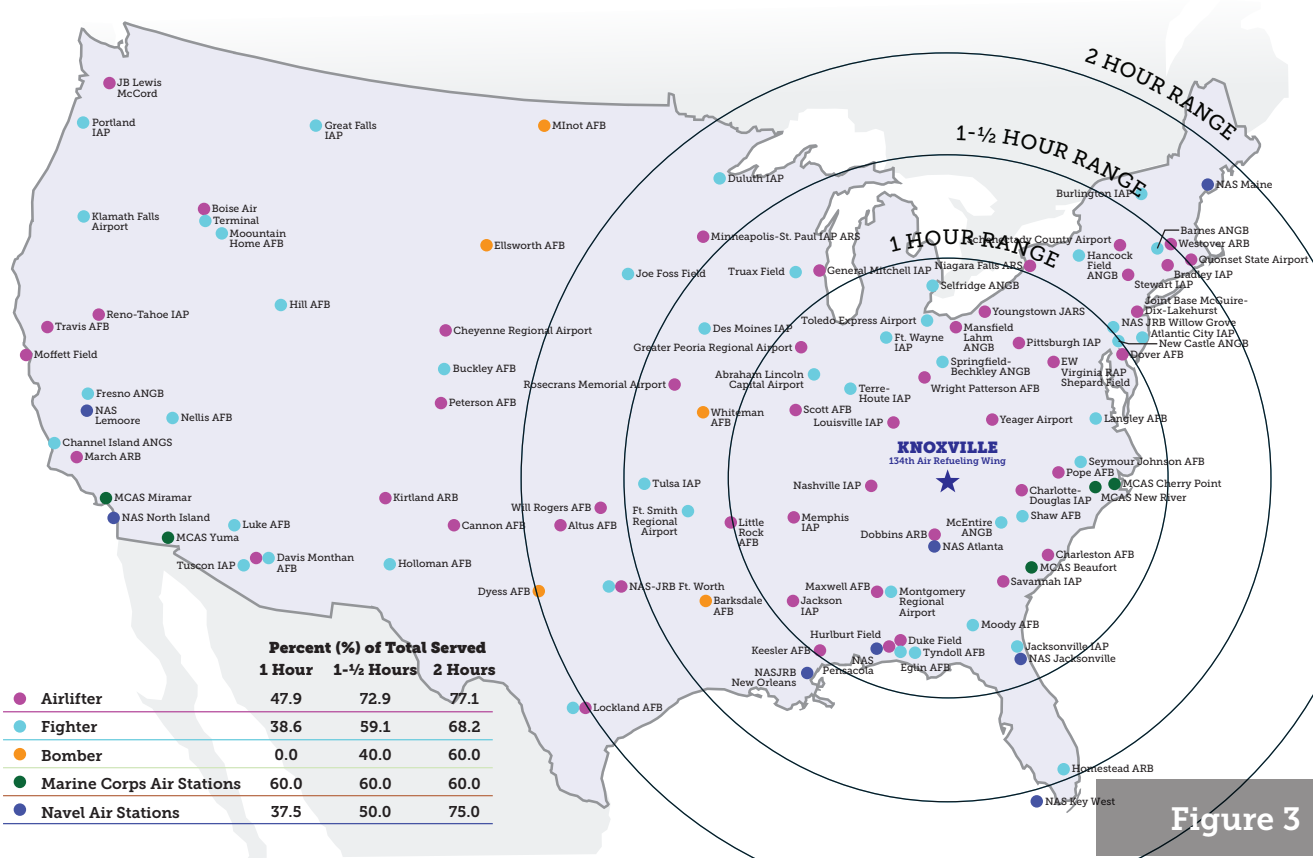


Figure 3

Airlift (Cargo and Passenger Transport)

In addition to the proximity to air refueling demand, McGhee Tyson is a premiere location to establish large scale cargo and passenger terminals to support military operations. The KC-46 platform can utilize **existing base infrastructure**, to include large transient aircraft parking aprons adjacent to the passenger terminal to perform these operations. The Federal Highway Administrations Office of Operations has identified Knoxville as one of the most heavily utilized Freight Corridors in the nation. Figure 4 illustrates this strategically important fact. Interstate-40 connects the east and west coasts while Interstate-75 connects Florida to Canada serving as a critical juncture in our nation's interstate highway system. Attributable to these vital junctions and Knoxville's location, **50% of the US population is within an 8-hour drive of the installation**. Additionally, nearby railroads operated by CSX and Norfolk Southern allow access to the nation's railway network, enabling transport of outsized and bulk cargo, integrating Knoxville into the overall national transportation infrastructure. Furthermore, Knoxville rests on the banks of the Tennessee River flowing into the Ohio and Mississippi Rivers forming a vital artery in the nation's inland waterway system. Thanks to these critical junctions Knoxville is ideally positioned to execute additional cargo and passenger transport operations.

McGhee Tyson is a premiere location to establish large scale cargo and passenger terminals to support military operations.

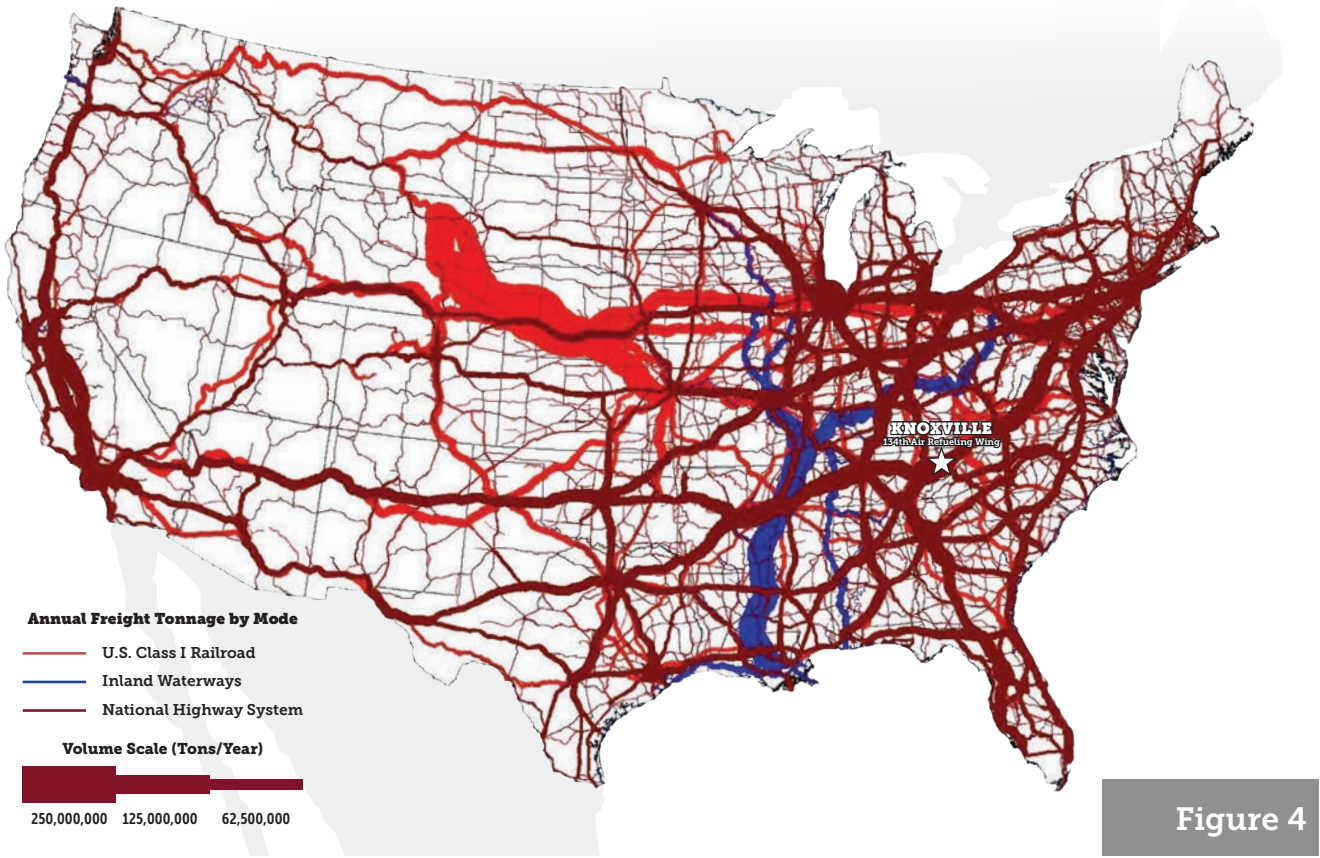


Figure 4

McGhee Tyson is also positioned perfectly to provide Homeland Defense to support the U.S. Department of Energy (DOE) and its subsidiary facilities, transporting passengers and sensitive cargo via secure military airlift. Currently the 134th successfully supports the Oak Ridge National Laboratory (ORNL) and Y-12 National Security Complex operated by the DOE. ORNL is the DOE’s largest science and energy laboratory while Y-12 is the linchpin for maintenance and refurbishment of our nation’s nuclear stockpile. A cargo shipment traveling via one of these other modes of transport could easily be converted to an air shipment for worldwide delivery further extracting value from a McGhee Tyson based KC-46.



FACILITIES AND INFRASTRUCTURE

Recommended Basing Plan

The KC-46 Basing Plan on page 6 illustrates the beddown of new aircraft at the 134th Air Refueling Wing. The existing primary aircraft parking apron provides optimal parking for 8 KC-46 aircraft while utilizing the existing Type III fuel hydrant system. Parking is available to accommodate an additional 4 KC-46 Active Duty Associate Unit aircraft. Existing apron and taxiway space is available to support a total of 18 KC-46 aircraft. Substantial facility and infrastructure cost savings are realized at the 134th due to an abundance of recently completed construction and capital improvement projects base-wide, to include but not limited to:

- > Newly constructed 10,000 ft Runway, completed 2021—\$134 million
- > Newly constructed KC-135 Maintenance Hangar capable of housing a KC-46, completed 2022—\$32.4 million
- > Existing Aircraft Parking Apron & Taxiways can support 18 KC-46 aircraft—\$28 million
- > Scheduled to Construct KC-135 Maintenance Support Shops in 2023—\$23.8 million

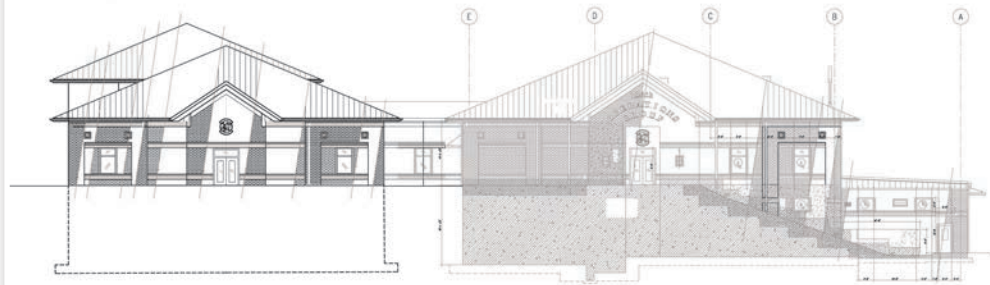
Total Facility & Infrastructure Cost Savings: \$218.2 million

Initial investment required to beddown KC-46 aircraft at McGhee Tyson is estimated to cost \$6 million. This investment will provide a simulator facility to conduct the minimum required training to support KC-46 operations.

- > Construct KC-46 Simulator Building— \$6 million

Total Initial Investment: \$6 million

KC-46 Simulator Building



On 17 December 2021 the MKAA completed a \$134 million Runway Modernization project on runway 5L/23R, consisting of a full depth reconstruction of the runway and adjacent taxiways, increasing the takeoff and landing surfaces to 10,000 feet.

Long term investment required to meet KC-46 Facility Space Standards includes modification of existing maintenance and operations facilities, and associated pavements/infrastructure to accommodate the new aircraft and addition of an active duty associate unit. This investment will provide one new fuel cell maintenance hangar, modify two existing facilities, and expand one aircraft parking apron at an estimated cost of \$98 million:

- Construct KC-46 Fuel Cell Maintenance Hangar—\$50 million
 - Expand Phase Maintenance Hangar—\$22 million
 - Expand Aircraft Parking Apron for aircraft movement—\$18 million
 - Expand Squadron Operations to support Associate Unit—\$8 million:
- Total Initial Investment: \$98 million**

Runways/Taxiways/Aprons

The Metropolitan Knoxville Airport Authority (MKAA) currently operates two parallel runways. Runway 5L/23R is primarily dedicated to the 134th Air Refueling Wing. On 17 December 2021 the MKAA completed a \$134 million Runway Modernization project on runway 5L/23R, consisting of a full depth reconstruction of the runway and adjacent taxiways, increasing the takeoff and landing surfaces to 10,000 feet. The pavement is designed and constructed to accommodate the KC-46 aircraft and both ends of the runway are designed with full blast pads and full safety areas meeting the latest FAA design criteria.

The 23R approach end of the runway is equipped with a new Cat II ILS. The 5L approach end of the runway is equipped with a new Cat I Instrument Landing System (ILS). Both runway approaches are equipped with new Area Navigation (RNAV) equipment and Localizer Performance with Vertical Guidance (LPV) minima. The runway is also equipped with new Precision Approach Path Indicator (PAPI) lighting. New paved taxiway shoulders and LED edge lighting were also installed to maximize efficiency and cost savings. As an added measure of safety, the Airport Authority installed a new backup generator to power their state of the art lighting vault, providing redundant equipment and system resiliency to ensure operability during contingency operations.



The 134th maintains a robust fuel storage and Type III fuel hydrant system, utilizing ten fuel pits on the primary aircraft parking apron.



In addition to the new runway, the 134th enjoys an abundance of aircraft parking aprons, capable of supporting more than 20 KC-135s and up to 18 KC-46 aircraft. The primary aircraft parking apron is large enough to provide 10 KC-135 parking spots, equivalent to 8 KC-46 parking spots with associated Type III fuel hydrant systems. Existing transient parking areas are also available to support a variety of military aircraft, to include C-5s/C-17s for large cargo and troop movements and temporary protection of receiver units during weather events, such as hurricanes along the eastern seaboard and Gulf Coast.

An airfield pavement evaluation was completed August 2021 and assessed the surface condition of all airfield pavement at McGhee Tyson ANGB to have an overall area-weighted average Pavement Condition Index of 92 out of 100. All of the airfield pavement sections are performing well and are well maintained. The team assessed the airfield pavements at McGhee Tyson to be structurally capable of supporting KC-135 and KC-46 aircraft at high pass intensity levels, exceeding 50,000 passes.

Fuel Storage and Delivery

The 134th maintains a robust fuel storage and Type III fuel hydrant system, utilizing ten fuel pits on the primary aircraft parking apron, capable of delivering 108,000 gallons

of fuel per hour while maintaining simultaneous refuel/defuel operations. A total of 672,000 gallons of Jet A fuel is available on base to serve the fuel hydrant system on the primary apron and fuel truck delivery on the maintenance and transient parking aprons. The existing fuels distribution system is capable of receiving up to 500,000 gallons of fuel daily. Additionally, all aircraft parking aprons have been surveyed and are “hot pit refuel certified”.



Consolidated Aircraft Maintenance Hangar which was recently completed in 2022 at a cost of \$32.4 million.

Aircraft Hangar Facilities

The 134th has three KC-135 aircraft maintenance hangars: a Phase Dock Inspection Facility, an Aircraft Fuel Cell Maintenance, and the Consolidated Aircraft Maintenance Hangar which was recently completed in 2022 at a cost of \$32.4 million. This new hangar was constructed to serve as the catalyst to modernize aircraft phase maintenance for KC-135 aircraft, and is fully capable of housing the KC-46 today. In addition, Aircraft Maintenance Support Facilities are currently 95% designed and scheduled for construction in 2023. These new facilities will encompass non-destructive inspection, aircraft ground equipment, munitions, and engine maintenance, as well as consolidating maintenance support staff and leadership with the new Consolidated Aircraft Maintenance Hangar. The KC-46 Basing and Conversion plans on page 6 illustrates the location of the hangar, the support facilities, and the location of the converted fuel cell hangar.



Communications Infrastructure

McGhee Tyson is serviced by a premier communications fiber optic routing system which provides two diverse physical pathways to the area’s local central office. This topology provides redundancy to critical circuits on base. Due to its location, regional and national level communications and data services are based here with one of the largest bandwidth data services in the Air National Guard, providing up to 10 Gbps.

McGhee Tyson is serviced by a premier communications fiber optic routing system which provides two diverse physical pathways to the area’s local central office.

The entire vehicle inventory has undergone a life-cycle replacement, resulting in a new, upgraded fleet of response vehicles.

Also, located at McGhee Tyson is the ANG Component Enterprise Data Center (CEDC). This facility represents the ANG’s only registered Enterprise-level Data Center that supports cloud and data servers. This allows ANG Enterprise applications such as GeoBase, Wireless systems, Reserve Travel Systems (RTS) and Voice over SECURE Internet Protocol (VOSIP) to be located inside the Air National Guard network, reducing bandwidth utilization of external circuits, resulting in a substantial cost savings to the Air National Guard. The CEDC coverage area is Puerto Rico, the US Virgin Islands, Guam, Alaska and the Continental United States.

Additionally, the 134th maintains a Special Purpose Processing Node (SPPN), providing failover capability for all Air National Guard wings in the event of circuit outages.

Communication infrastructure includes 13,100+ SqFt of accredited Sensitive Compartmented Information Facility (SCIF) Space. Furthermore, the 134th hosts a variety of capabilities to include:

- › **NGB Component Enterprise Data Center (CEDC), houses all applications for ANG Enterprise cloud and data servers.**
- › **Special Purpose Processing Node (SPPN2), responsible for network boundary protection including firewalls and intrusion detection for the Air National Guard.**
- › **Two DISA (Defense Information Systems Agency) site nodes provide circuit consolidation and routing to multiple government agencies.**
- › **Mission Defense Team (Defensive Cyber Operations), provides cyber defense for critical computer weapons systems (i.e. KC-135R) at McGhee Tyson ANG base.**
- › **JWICS / SCIF Space**

Fire/Emergency Response

A twelve bay, 25,000 SqFt fire station was completed in 2007. This facility is centrally located on the base premises for rapid response to the airfield and base facilities. It is operated twenty-four hours a day in support of flying operations as well as fire protection and prevention for over 67 Air and Army National Guard facilities. A fleet including specialized aircraft rescue fire fighting vehicles, water tankers, structural engines, and rescue vehicles are housed within the station. The entire vehicle inventory completed a life-cycle replacement, resulting in a new, upgraded fleet of response vehicles.

Additionally, the 134th ARW Fire and Emergency Services are utilized to augment the resources of the civilian firefighters of the Metropolitan Knoxville Airport Authority (MKAA), resulting in robust firefighting capability throughout the airfield. Mutual aid agreements also allow the MKAA, City of Alcoa Fire Department and the 134th ARW Fire and Emergency Services to assist one another should the need arise.

Security

In early 2009 the 134th spearheaded a construction project involving the Tennessee Department of Transportation, Blount County, the City of Alcoa, AT&T and local property owners culminating in a new front gate for the installation. This new entry point includes the latest in anti-terrorism and force protection measures to include a reinforced gate house, overwatch position, serpentine entry loop, pop up barriers, vehicle arresting cables in the perimeter fence, and a covered shelter to obstruct visitors from viewing vehicle search procedures. The project enhanced Wing security as well as adjacent Army National Guard and Federal Aviation Administration (FAA) assets by securing them behind a single-entry control point. Furthermore, the Defense Biometrics Identification Database System (DBIDS) is utilized to vet personnel entering the base. DBIDS allows Security Forces to run individuals through all National Criminal Databases including the Terrorist Watch List, bolstering security by increasing situational awareness to potential threats requesting entry.

The 134th Security Forces Squadron (SFS) provides an experienced integrated defense force, enabling a secure operating environment for up to Protection Level 1 national security assets. They have been recognized by the AMC Inspector General as “Outstanding” and “Best Seen to Date” for their performance in a command directed penetration exercise and nuclear operational readiness exercise and inspection. The 134th SFS is also a four-time winner of the “Security Forces Unit of the Year” award for the entire Reserve Component and specifically selected by USSTRATCOM to develop and standardize security policy and procedures for new National Command and Control Assets.



The 134th Security Forces Squadron (SFS) provides an experienced integrated defense force, enabling a secure operating environment for up to Protection Level 1 national security assets.

Land Use

The 134th is situated at the west end of the McGhee Tyson Airport airfield. The commercial airport operation is located on the eastern side of the airfield. Adjacent land uses include the civilian airport to the east and north. Surrounding land use includes residential, agricultural, light commercial, industrial, and open space and is compatible with the base’s current and future mission.

Current Design and Future Growth



The 134th Air Refueling Wing operates the largest ANG Tanker Base in the southeast US, occupying 363 acres of land on long-term lease from the Metropolitan Knoxville Airport Authority. Approximately 100 acres of land are unoccupied and available for future development and mission growth. Airfield operations are concentrated on the southern end of the base including the newly expanded aircraft parking apron, new Consolidated Maintenance Hangar, POL facility and Squadron Operations building. The aircraft parking apron is situated such that it could be further expanded to accept additional and/or larger aircraft as dictated by future mission requirements.

The core of the base hosts the headquarters building and command and control functions. The bulk of support facilities and functions are also centrally located to include dining, medical, logistics, communications, vehicle maintenance, and Civil

Approximately 100 acres of land are unoccupied and available for future development and mission growth.



Engineering. On the northern side of the base are the ANG’s Training and Education Center (TEC), the Base Exchange, and the recently renovated Armed Forces Club. The TEC conducts professional military education courses, such as NCO Academy and Airmen Leadership School, as well as provide skill enhancement classes ranging from explosives safety orientation to food services, recruiting, security and expeditionary medical support. **On average the TEC trains and educates 9,500 students annually.**

The 134th has maintained a robust construction program for the last two decades. Since 2004, **more than \$170 million has been invested resulting in new buildings or major renovations for 66% of all base facilities.** Additionally, every major utility service, all leased airfield pavements, and roadways have been renovated. Future projects include modernization of dormitories, renovation of the Fuel Cell Maintenance Hangar, construction of new Maintenance Support Shops, and completion of a newly renovated Dining/Medical building, which is currently underway. The environment at McGhee Tyson is dynamic, forward looking, and immediately ready to execute future missions.

The 134th enjoys a robust construction program, projecting future modernization of dormitories, renovation of the Fuel Cell Maintenance Hangar, construction of new Maintenance Support Shops, and completion of a newly renovated Dining/Medical building, which is currently underway.



Utilities

Water / Sanitary Sewer System

The 134th receives its water supply from the City of Alcoa Water Treatment Plant, which is capable of producing up to 16 million gallons per day utilizing the latest micro-filtration technology, currently operating at 55% of its capacity.

The base’s water distribution and storage system includes a 210,000-gallon above ground storage tank with amplified fire pump capabilities and a looped distribution system. The capacity of this tank allows the base to meet instantaneous potable water demands and supplement firefighting requirements. Under typical usage scenarios this would allow the base to function while completely isolated for multiple days.

The wastewater collection system has also undergone major rehabilitation including replacement of critical components and installation of a new 350 gallon per minute sewage lift station. This station removes sewage and wastewater transporting it to the City of Maryville’s Waste Water Treatment Plant.

Natural Gas

In 2008, the base underwent a comprehensive upgrade to its natural gas distribution system. As a direct-serve customer from its natural gas provider Enbridge Gas Inc., the base distributes natural gas at 46 psi and has a secure delivery point protected within the confines of the base perimeter.

Electric

Electricity for the 134th comes from power generated by the Tennessee Valley Authority which is provided through the City of Alcoa’s primary electrical distribution system. The system supplying the base has been recently modernized and is fully capable of supporting expansion. The primary electrical system is now owned and operated by the City of Alcoa electric department.

Four separate 600 kilowatt generators provide 2.4 megawatts of power to energize the entire base in the event of contingencies or the unlikely event that electrical service is interrupted. These generators can operate exclusively on diesel fuel or a mixture of natural gas and diesel, extending power generation an additional 26 hours before resupply is required. Mission-critical buildings also contain stand-alone emergency power genera-

tion capability, providing a further layer of reliability for continued operations. Additionally, the 134th is scheduled to complete installation of a Ground Base PV Array/ Solar Field in 2023. This Solar Field will produce up to 2 megawatts of power, providing reliable, sustainable, and resilient power during contingency operations.

The 134th underwent a comprehensive upgrade to its natural gas distribution system.

The 134th has designed and constructed reliable, redundant, and resilient utility infrastructure.



ECONOMIC FACTORS

Economic Impact

The Knoxville area’s military installations and activities generate an estimated \$2.98 billion in economic impact each year, according to the 2021 East Tennessee Military Affairs Council Economic Impact Report. Specifically, McGhee Tyson contributes greatly to the overall economic impact to East Tennessee, providing over 1,625 indirect jobs and \$254.4 million annually.

In addition to the current economic impact, it is anticipated that the installation would receive an additional 150 active duty Air Force personnel as part of the Air Force’s initiative to establish active associate units at Air National Guard bases who are selected to receive the KC-46 aircraft. Active personnel would include aircrew, command, maintenance, and support staff. The impact on the local economy due to the increase in personnel and their families is estimated to provide an additional \$29 million annually.

Capital Expenditures

Locating the KC-46 at McGhee Tyson provides the most cost-effective placement available in the DoD due to infrastructure currently in place to support KC-46 operations, including:

- › **A new 10,000ft runway with CAT II Approach Capability – Completed 2021**
- › **A new consolidated maintenance hangar capable of housing a KC-46 – Completed June 2022**
- › **Existing aircraft parking aprons capable of supporting up to 18 KC-46 aircraft**
- › **A modern squadron operations building – Completed 2011**
- › **Newly renovated dormitories providing more than 350 rooms**
- › **Newly renovated dining and medical facilities**
- › **A 29,000 SqFt fitness and recreation facility**
- › **Modern 24/7 fire station and security forces facilities**

Operating Costs

Proximity to receiver units and air refueling tracks is a critical consideration when evaluating future tanker basing. High transit times between operating base and air refueling area yield inefficient use of tanker operating costs. **Basing the KC-46 at McGhee Tyson could produce more than 10,000 hours of additional on-track refueling time than other basing alternatives** over an estimated 40,000 hour aircraft lifespan. As illustrated on Figure 2 (page 11), the 134th Air Refueling Wing is strategically located to maximize refueling operations while maintaining reduced flight time to receiver units.

ENVIRONMENTAL CONSIDERATIONS

Noise Impact

The last Air Installation Compatibility Use Zone (AICUZ) for McGhee Tyson was analyzed in 2005 as a part of the requirements associated with the DoD report to the Base Realignment and Closure Commission. No negative results were found while converting from the KC-135E to the KC-135R model aircraft. It is therefore not anticipated that noise issues would arise during a conversion to the KC-46 aircraft, since it has a smaller noise footprint.

The noise analysis completed for McGhee Tyson Airport in 2014 analyzed the impact of moving all air traffic to 5R/23L due to the parallel runway reconstruction. A new analysis in conjunction with the updated Airport Layout Plan is due in mid-2022. No negative impacts are expected.



Endangered / Threatened Species and Wetlands

KC-46 conversion poses no significant environmental impacts at McGhee Tyson. Potential impacts to endangered or threatened species are typically the result of destruction or adverse modification of their habitat. No known endangered or threatened species are located within the proposed development areas of McGhee Tyson. There are also no wetland habitats that would be affected by any proposed development.

Encroachment

External land development (encroachment) is minimal and assessed as not an immediate concern for the 134th to the north, south, east, or west of the installation. The surrounding land uses are compatible with the base’s mission and are not anticipated to change in the near future.

KC-46 conversion poses no significant environmental impacts at McGhee Tyson.

TOTAL FORCE INTEGRATION

East Tennessee is THE place for an Active Duty Associate Unit. The 134th maintains an abundance of resources and facilities ideal for integrating an Active Duty Associate Unit into Wing operations. Facilities and accommodations include:

The 134th maintains an abundance of resources and facilities ideal for integrating an Active Duty Associate Unit

- > The ANG's only fulltime Dining Facility (3 meals/day, 350 days/year)
- > Fulltime Medical Group w/Independent Duty Medical Technicians
- > Base Recreation Center / Exercise & Fitness Facility
- > Outdoor Track w/Turf Athletic Field
- > Base Exchange
- > Armed Forces Club
- > On-base housing facilities consisting of 351 dormitory rooms / 582 bed spaces
- > Additional Aircraft Parking Apron for Associate Unit

Off-Base Hotel/Housing Opportunities

There are currently 74 hotels within 15 miles of the installation. 47 of these hotels are within 10 miles of the installation, with a total of 4,146 rooms available. The 134th has the capability to execute bulk purchase agreements with these facilities to rent rooms/floors on a monthly or annual basis.

There are 8,654 Apartment Units in the greater Knoxville area and 2,190 units in the Alcoa/Maryville/Louisville area (less than 30 miles from the installation).

- > Average monthly rental fee for 1BR, 2BR and 3B units in this area are:
 - > 1-BR 1 Bath = \$912
 - > 2-BR 1 Bath = \$1375
 - > 3 BR 2 Bath = \$2150
 - > Efficiency = \$595
- > Current housing market information for dwelling listings (square feet of 750-2400)
 - > Average home price is \$286,525
 - > Average square feet 1,676



On-Base Recreation & Fitness

The 134th maintains a 29,000 SqFt multi-purpose building that serves as the installation's primary fitness facility. Along with physical fitness this facility is utilized to support mass formations, large scale training events, banquets and graduations. Its unique features include areas for volleyball, basketball, aerobic training, strength training, locker/ shower facilities and a dry sauna. Outdoor fitness areas include Artificial turf football field, sand volleyball court, 1/4 Mile Running Track, and tennis/pickle ball courts.

In addition to the on-base fitness facility, there are 38 fitness facilities within 12 miles of the installation. These include YMCA, Gold's Gym, National Fitness, Planet Fitness, Workout Anytime, and numerous others.

Childcare Facilities

Currently McGhee Tyson has 20 childcare facilities within 12 miles of the installation. These include Little Sprouts, Cozy Kids, KinderCare, Children's Academy's, just to name a few.

Chaplains

The 134th has a large Chaplains Corps who build a culture of spiritual care and facilitate the free exercise of religion for members and their families. The 134th maintains a part time Chaplain to provide base support in conjunction with the fulltime Chaplain at the Training and Education Center.



Quality of Life

There are a great number of statistics available relative to cost of living in the Knoxville area. By any measure Knoxville is ranked in the top ten of affordable major US Cities. While enjoying a low cost of living, Tennessee residents also benefit from the lack of a state income tax. According to the latest data reported by salary.com in its analysis of cost of living you will find Knoxville compares favorably.

Expense Category	Knoxville vs. National Avg.
Energy	-16.7%
Food	-17.4%
Healthcare	-28.5%
Housing	-20.6%
Transportation	-16.7%

East Tennessee offers a variety of seasons where people can take advantage of a wide variety of activities. It's less than an hour's drive from Knoxville to the Great Smoky Mountains National Park, which is more than 500,000 acres of wilderness, home to the most diverse population of plants and animals in the United States. Knoxville sits at the center of 9 lakes formed by the Tennessee Valley Authority system of dams built for flood control and power generation. These lakes include:

- > Douglas Lake
- > Cherokee Lake
- > Fort Loudoun Lake
- > Watts Bar Lake
- > Tellico Lake
- > Fontana Lake
- > Calderwood Lake
- > Chilhowee Lake
- > Norris Lake



Education Opportunities

For airman and their family members seeking higher education, Knoxville is home to the University of Tennessee's (UT). UT Knoxville is the state's land grant university, educating more than twenty-eight thousand students and offering a wide variety of graduate programs including a unique, fully accredited, "Aerospace and Defense MBA" sponsored in part by the Air Force, Army, and Navy. Additionally, within 5 miles of the 134th Air Refueling Wing is Maryville College, a nationally ranked institution of higher learning that successfully joins liberal arts and professional preparation. Pellissippi State Community College is located nearby for those interested in an Associate Degree or technical learning transferable to other colleges and universities.

Knoxville is ranked in the top ten of affordable major US Cities.



For families relocating to the area the local public-school systems in both Knox and Blount Counties for K-12 are among the best in the State of Tennessee. There are also a number of excellent private school opportunities including the Clayton Bradley Academy, an award-winning STEM school located in Alcoa, Tennessee less than 5 miles from the 134th. According to U.S. News and World Report, eight of the top 40 High Schools in TN are located in Knox and Blount County.

Other Economic Factors

For dependents relocating to this area the local economy has many employment opportunities in business, manufacturing, health care, local/state/federal government, education, retail and service sectors including:

- > United States Department of Energy-Oak Ridge Operations
- > Covenant Health
- > University of Tennessee
- > University of Tennessee Medical Center
- > DENSO Manufacturing
- > Clayton Homes and Vanderbilt Mortgage
- > Blount Memorial Hospital
- > Pilot Corporation
- > East Tennessee Children's Hospital
- > Arconic
- > Tennessee Valley Authority
- > Smith & Wesson
- > Amazon

Eight of the top 40 High Schools in TN are located in Knox and Blount County.

The 134th ARW has an exceptional recruiting history, maintaining over 105% of authorized end strength requirements for the last 17 years.

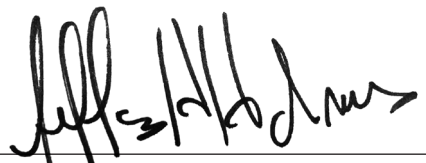
In addition, **Tennessee enjoys a very favorable track record for reciprocal licensing. The State is currently ranked 5 in the nation in this important factor.** The Blount Partnership’s Chamber of Commerce stands ready to assist service members and their families with relocation to the East Tennessee area.

Recruiting History

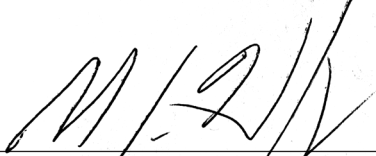
The 134th ARW has an exceptional recruiting history, maintaining more than 105% of authorized end strength requirements for the last 17 years. **Currently the 134th maintains an authorized end strength of greater than 115%,** with the #2 effective manning rate in the nation, at more than 96% (as of May 12, 2022). The picturesque surroundings in East Tennessee, coupled with the affordable living area, and the exceptional work environment at the 134th Air Refueling Wing combine to make the recruiting and retention efforts at the Wing nearly effortless. Further, the 134th ARW has a history of meeting and exceeding manpower requirements, while leading the nation in end strength percentages in support of the mission.



ENDORSEMENTS


JEFFREY H. HOLMES, Major General
The Adjutant General


JASON W. GLASS, Colonel
Assistant Adjutant General—Air


M. LEE HARTLEY, JR., Colonel
Commander, 134th Air Refueling Wing


JASON M. BROCK, Colonel
Vice Commander, 134th Air Refueling Wing

ACKNOWLEDGEMENTS

- Col Ronald L. Selvidge, Jr.
- Lt Col Brian C. Austin
- Lt Col J. David Barrett
- Lt Col Bryan L. Hooks
- Major Travis B. Vaughn
- Mr. Christopher J. Soro
- Mr. Artie Yarlett



EXECUTIVE SUMMARY

Right Place, Right Cost, Right People for the KC-46 Pegasus. Strategic location, robust infrastructure, and exceptional airmen - McGhee Tyson Air National Guard Base is the ready and responsible choice to receive and employ the Air Force's next-generation air refueling aircraft. Key facilities and infrastructure are already in place to support the KC-46. The 134th Air Refueling Wing is eager to continue its tradition of executing the Air Force's "Fly, Fight and Win" mission through the enhanced capabilities afforded by the next-generation tanker.

Right Place

- Largest ANG tanker base in the southeast US occupying 363 acres with **100 acres available for development** (27% growth potential). Current Lease Term 2061, executing lease extension to 2110
- **Strategically located.** One hour reach of more than 80% of U.S. Air Refueling tracks, 57% of U.S. population, and the National Capital Region
- Low Cost of Living Index and High Quality of Life with abundant employment opportunities
- Strong Health Care Facilities led by the University of Tennessee's Medical Center, level 1 trauma center
- Award Winning Education opportunities including Primary, Secondary and Post-Secondary Education opportunities led by The University of Tennessee Knoxville
- Ranked #5 state in U.S. for ease of reciprocal licensure

Right Cost

- National Guard Bureau investments exceeding \$117 million in the last 8 years eliminate conversion costs
- Two existing KC-46 compatible runways. **Primary runway is 10,000 feet long** (Completed 2021)
- Existing parking apron with Type III hydrant fueling system capable of supporting 8 KC-46 aircraft
- **New Consolidated Maintenance Hangar capable of housing the KC-46** (Completed June 2022)
- Maintenance Support Facilities construction scheduled for FY23
- 66% of all base facilities are new or have been renovated since 2004
- Unparalleled Communications Infrastructure including: Region 2 Operations Security Center, Joint Worldwide Intelligence Communications System (JWICS).
- 13,100+ SqFt of accredited Sensitive Compartmented Information Facility (SCIF) space
- 100% Resilient. Electrical Power backed up by natural gas/diesel generators. PV-Array (solar) construction FY23
- On-base housing including 351 dorm rooms – 582 Bed Spaces
- 29,000 SqFt exercise and fitness facility augmented by a track and artificial turf infield
- Total Force Integration ready. On-Base Dining, Medical Group, Armed Forces Club, and Base Exchange. Currently supports 80 active duty airmen. Existing facilities will support additional active duty airmen

Right People

- Exceptional recruiting history exceeding **105% end strength** for the last 17 years. Currently **115% overall manning**
- Current retention rate 96% and effective manning at 96% of authorized manning
- **Highly decorated Wing:** 16-time Air Force Outstanding Unit Award, two-time winner of Maj. Gen. Stanley F. H. Newman Outstanding Unit Awards, recognition as top ANG Wing in entire Air Mobility Command, Gen Thomas White Environmental Award – 2019, Number 1 ANG Wing by US STRATCOM Task Force 294 - 2016
- Community invested in Citizen Airmen: state/local leadership including Mayors, City Officials, Development Agencies, the Airport Authority (Leaseholder), and the State of Tennessee. Citizen Airmen invested in Community: >1000 of 1142 Airmen and their families work and live in 13 East Tennessee Counties
- Home of the ANG Training and Education Center (TEC), Premier Leadership Training for the Total Force.



134TH AIR REFUELING WING RECENT AWARDS

The 134th Air Refueling Wing has a proud history of outstanding achievements and looks forward to future opportunities where the men and women of the Wing can continue to demonstrate their commitment to excellence. Below are just some of the awards in recognition of the Wing and its Airmen for outstanding performance.

16 time Air Force Outstanding Unit Award Winner

2019, 2018, 2016, 2014, 2010, 2008, 2006, 1998, 1991, 1989, 1987, 1985, 1983, 1976, 1975, 1968

Air Force Meritorious Unit Award

2020

Major General Stanley F.H. Newman Award

2020, 2016

Air Force Blue Suit Awards (Recruiting)

2020, 2019 (Two Awarded)

Civil Engineering Squadron - Awarded Gen. Thomas White

2020

Air National Guard Environmental Quality Award

2020

Medical Group - Awarded 4 National Guard Bureau Awards (Best Dental Clinic, Bioenvironmental team, Human Resource team, and Bioenvironmental Services)

2020

Force Support Squadron – Air National Guard Military Personnel Flight and Force Development Flight of the Year

2020

Air Field Equipment – Awarded ANG Small Program of the Year

2019

Force Support Squadron – ANG Force Support Services Flight of the Year, Education and Training Manager of the Year

2019

Civil Engineering Squadron – Air Force Architectural Design Award

2018



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134th Air Refueling Wing
McGhee Tyson Air National Guard Base
Knoxville, Tennessee

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