STATEMENT OF

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COMMANDER

UNITED STATES NORTHERN COMMAND

AND

NORTH AMERICAN AEROSPACE DEFENSE COMMAND

BEFORE THE

SENATE ARMED SERVICES COMMITTEE

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Introduction

Chairman Inhofe, Ranking Member Reed, and distinguished members of the Committee: I am honored to appear before you today and to serve as the Commander of U.S. Northern Command (USNORTHCOM) and North American Aerospace Defense Command (NORAD).

Our commands are driven by a single unyielding priority: defending the homeland. In the years following the Cold War, our nation enjoyed the benefits of military dominance as well as geographic barriers that kept our homeland beyond the reach of most conventional threats. Our power projection capabilities and technological overmatch allowed us to fight forward, focusing our energy on the conduct of operations overseas.

However, our key adversaries watched and learned, invested in capabilities to offset our strengths while exploiting our weaknesses, and have demonstrated patterns of behavior that indicate they currently have the capability, capacity, and intent to hold our homeland at significant risk below the threshold of nuclear war. Eroding military advantage is undermining our ability to detect threats, defeat attacks, and therefore deter aggression against the homeland. This is emboldening competitors and adversaries to challenge us at home, holding at risk our people, our critical infrastructure, and our ability to project power forward.

The threats facing our nations are real and significant. The Arctic is no longer a fortress wall, and our oceans are no longer protective moats; they are now avenues of approach for advanced conventional weapons and the platforms that carry them. Our adversaries' capability to directly attack the homeland has leapt forward, and they are engaged in overt, concerted efforts to weaken our national technological, economic, and strategic advantage. To address this reality, our two distinct but complementary commands are taking significant, vigorous steps to ensure

our homeland defense enterprise is ready to deter, detect, and defeat threats now and well into the future.

Today, USNORTHCOM and NORAD stand more united than ever and are laser-focused on our vital mission to defend the homeland. Just as our adversaries have signaled their intent to hold the United States at risk, we are making it equally obvious that an attack against our country is destined to fail and will result in an unacceptable cost to our adversaries. Even so, we must be clear-eyed about the challenges ahead of us and steadfast in our resolve to defend our nation against committed and well-resourced adversaries.

Threats to the Homeland

The strategic threat to the homeland has entered a new era. Key adversaries Russia and China have deployed and continue to advance a range of capabilities to hold the homeland at risk with nuclear, conventional, and cyberspace weapons, believing it to be an effective means of offsetting Western military advantages and limiting our options in a crisis. These adversaries are also increasingly willing to challenge the United States in the international arena and take actions below the level of armed conflict to erode our global influence. While our adversaries seek to avoid a direct military conflict with the United States, their growing assertiveness increases the risk of miscalculation and gives rise to a threat environment more complex and dynamic than we have seen since the end of the Cold War.

Our adversaries have spent the last 30 years observing our global military operations and forming strategies to negate our conventional military advantages, especially the foundational benefits afforded by our strategic deterrent. A key element of our adversaries' strategy is to develop and demonstrate increasing capabilities to hold the homeland at risk below the nuclear threshold and in multiple domains, believing a credible threat to our homeland will undermine

our diplomats' ability to negotiate from a position of strength and degrade our ability to project military force from our homeland into other theaters.

Russia

Over the last decade, Russia has sought to influence the security environment by developing and deploying conventionally armed cruise missiles capable of reaching targets in the homeland. Russia has spent considerable money and effort to develop a new generation of highly precise cruise missiles that Russian leaders believe will be a credible means of threatening unacceptable damage on our homeland during a conflict. Having demonstrated the utility of these weapons during combat operations in Syria, the Russian military is now working to modernize their air- and sea-based launch platforms.

The Russian air force modernized five BEAR H heavy bombers in 2019, according to the country's Defense Minister, upgrading the aircraft's communications and navigation systems and enabling them to launch the new AS-23 cruise missile. The minister claimed that Russia's heavy bomber force conducted 48 air patrols in 2019 "to ensure a military presence in strategically important areas." Several of these flights approached the homeland and were intercepted by NORAD fighters. The Russian air force demonstrated new levels of cooperation with international partners, including the first-ever deployment of BLACKJACK heavy bombers to South Africa in October and an unprecedented combined air patrol with Chinese medium bombers over the Sea of Japan in July. The Russian air force has announced that its goals for 2020 include the modernization of an additional six BEAR-H bombers and a return to Cold War-era readiness levels for its heavy bomber fleet.

The Russian navy also expanded its operations of cruise-missile capable platforms in 2019, both on and below the ocean surface. In October, foreign press reported that multiple

Russian submarines conducted an exercise in the North Atlantic intended to practice penetrating the West's anti-submarine barrier between Greenland and the United Kingdom. Also in October, President Putin oversaw the Grom-2019 strategic command-staff exercise, which featured live launches of advanced cruise missiles by Russia's heavy bombers and its most capable naval platforms like the Severodvinsk multi-role submarine and the Admiral Gorshkov guided missile frigate. Earlier in the year, the Gorshkov deployed to the Caribbean Sea and made a port call in Havana, well within land-attack cruise missile range of the southeastern United States. President Putin announced in December that Russia plans to double its number of cruise missile-capable vessels by 2023.

Meanwhile, 2019 also saw continued expansion of Russia's military infrastructure in the Arctic. Throughout the year, Russia lengthened existing runways and built new ones at multiple airfields in the high north. In September, Russia deployed a Bastion coastal defense cruise missile unit to the Chukotka Peninsula, opposite the Bering Sea from Alaska, for a first-ever training launch from that region. The missile successfully struck a sea-based target more than 200 kilometers away, according to the Russian Defense Ministry. When deployed to the Russian northeast, this system has the capability not only to control access to the Arctic through the Bering Strait, but also to strike land targets in parts of Alaska with little to no warning.

Finally, Russia continues to modernize its strategic nuclear forces, which it views as the ultimate means to guarantee its sovereignty and survival. Russia made significant progress in 2019 on several of the "invincible" weapons that President Putin unveiled to the world during a landmark March 2018 speech depicting Russia's response to U.S. missile defense developments. In April, Russia launched the experimental Belgorod submarine, which is intended to serve as the launch platform for the Poseidon transoceanic nuclear torpedo. Despite a deadly accident in

August, Russia also continued development work on the extremely long-range Burevestnik nuclear-powered and nuclear-armed cruise missile. In December, a Russian general announced that the Kinzhal air-launched ballistic missile had been placed on "experimental combat duty" in the Russian Arctic. Also in December, Russia announced that its first regiment of Avangard-equipped intercontinental ballistic missiles (ICBMs) had assumed alert duty, marking the world's first operational ICBM armed with a hypersonic glide vehicle payload designed to challenge our missile warning systems.

China

China's rapid military modernization and efforts to extend its military's global reach demonstrate a growing willingness to challenge the United States. Of particular concern to USNORTHCOM and NORAD, China is developing many of the same technologies that the Russians have deployed and may seek to hold portions of the homeland at risk with long-range, conventionally armed precision-strike weapons. In a future crisis, China could use these weapons—along with its world-class offensive cyber capabilities—to attack our logistics nodes in an attempt to frustrate our force flows across the Pacific.

In the meantime, China is also investing heavily to improve the survivability and penetrability of its nuclear forces in an effort to guarantee its ability to retaliate following a strategic first strike. Among the novel weapon systems China is testing is an intercontinental-range hypersonic glide vehicle—similar to the Russian Avangard—which is designed to fly at high speeds and low altitudes, complicating our ability to provide precise warning.

Like the Russians, China also continues to invest heavily in the Arctic, determined to exploit the region's economic and strategic potential as a self-proclaimed "near Arctic" nation. In the last few years, Chinese survey vessels have conducted several deployments to the Bering and

Chukchi Seas, providing familiarity and experience that could eventually translate to Chinese naval operations in the region.

Finally, in the past year we have observed signs of a nascent but growing strategic cooperation between China and Russia—including the combined bomber patrol last July and Chinese participation in multiple Russian exercises.

North Korea

Kim Jong Un has demonstrated the capability to threaten the U.S. homeland with nuclear-armed ICBMs. In 2017, North Korea successfully tested an apparent thermonuclear weapon as well as two ICBM designs capable of ranging most or all of North America—feats only the five permanent members of the UN Security Council had previously achieved.

Following North Korea's last ICBM test in November 2017, Kim declared that the country had completed the research and development phase of its strategic weapons program and would now begin serial production and deployment of these new systems. In the last year, North Korea has tested several new short-range missile systems, demonstrating advancing technologies that could eventually be incorporated into its strategic systems.

During the December 2019 plenary meeting of North Korea's ruling Workers' Party Central Committee, Kim stated it was time for North Korea to take offensive measures to ensure the sovereignty and security of the country and claimed that he would soon unveil a new strategic weapon. While Kim did not specify what this new weapon would be, recent engine testing suggests North Korea may be prepared to flight test an even more capable ICBM design that could enhance Kim's ability to threaten our homeland during a crisis or conflict.

Iran

The Iranian regime has grown increasingly brazen in its strategic competition with the United States, as demonstrated by the ballistic missile attacks on Iraqi military bases hosting U.S. personnel in Iraq in January 2020. While Iran is not currently able to strike our homeland with strategic weapons, it has expended significant resources on ballistic missile and space-launch capabilities and could develop an ICBM capable of ranging the contiguous United States quickly if its leaders chose to do so. In the meantime, Iran retains the ability to conduct attacks in our homeland via its terrorist proxies and its growing cyber capabilities.

Violent Extremist Organizations

Terrorists remain committed to attacking the United States, either directly or by inspiring homegrown violent extremists to act in their stead. Foreign terrorist groups—hardened by military experience in the Middle East—continue to adapt their tactics to identify and exploit seams in our security. Commercial aviation persists as a preferred target due to the high casualties and disproportionate economic impact that such attacks can engender.

Capable Defense—Credible Deterrence

The international security environment and the threats arrayed against our homeland have evolved extraordinarily quickly over a short period of time, and there is every reason to believe this trend will continue for the foreseeable future. Our adversaries have invested heavily in advanced weapons and highly capable delivery platforms, and they have shown indications of their intent to target our homeland if necessary to achieve their strategic objectives. In order to defend against these 21st century threats, our homeland defense enterprise must reflect the fact that the threats to the homeland have expanded beyond the violent extremist threat that led to USNORTHCOM's establishment. Both USNORTHCOM and NORAD have refocused our

efforts on deterring and defeating the complex nation-state threats and adversarial strategies that have eroded our military advantage, and our defense priorities should continue to evolve to stay ahead of current and emerging threats identified in the National Defense Strategy.

Our adversaries have the ability to threaten our homeland in multiple domains and from numerous avenues of approach. Whether an attack originates in cyberspace or from the physical approaches to the homeland, we cannot deter what we cannot defeat, and we cannot defeat that which we cannot detect. In order to effectively defend the homeland, USNORTHCOM and NORAD have developed a Homeland Defense Design (HDD) consisting of three main elements: a layered sensing grid for domain awareness, an adaptive architecture for joint all-domain command and control (JADC2), and new defeat mechanisms for advanced threats, including cruise missiles, ballistic missiles, hypersonic weapons, and small unmanned aerial systems. These three elements are vital to deterring and defeating advanced threats to the homeland, and USNORTHCOM and NORAD are moving with a sense of profound urgency to bring these capabilities into the fight.

Our need to improve our domain awareness begins with developing and integrating advanced sensors capable of detecting and tracking threats no matter where they originate. In order to defend the homeland in all domains, we need a sensing grid with undersea, maritime, land, air, near-space, space, and cyber layers that reach from the seafloor to outer space. These sensors must be able to detect, track, and discriminate advanced cruise missiles, ballistic missiles, hypersonics, and small unmanned aerial systems at the full ranges from which they are employed. The sensors must also detect and track the platforms—aircraft, ships, and submarines—that carry those weapons. A robust and resilient space layer is increasingly critical to provide the earliest possible detection and fidelity of data required.

Stovepiped transmission of data from non-compatible sensors presents a significant impediment to our ability to defend against advanced threats. To overcome this issue, we need a robust architecture for JADC2 to effectively gather data from a myriad of sensors across all domains and share it seamlessly. The architecture must facilitate rapid data fusion, processing, and analytics to feed decision makers at all levels with accurate, decision-quality information at the speed of relevance. Data from any sensor should feed any defeat mechanism, and rapid data fusion and analysis should provide faster, more precise solutions to all shooters. This architecture will facilitate high-tempo decision cycles for agile, resilient, redundant, and joint command and control. By leveraging a cloud architecture, big data analytics, edge computing, artificial intelligence, and machine learning, this network should sense a threat from one node and engage it precisely and expeditiously from another across vast distances and across all domains.

Finally, we require new defeat mechanisms for cruise missiles, ballistic missiles, hypersonics, and small unmanned aerial systems. As adversary threat systems, employment doctrine, and operational competencies become more numerous, multi-modal, and complex, our current defeat mechanisms will become increasingly challenged. Additionally, the cost ratio of adversary threat missiles to our missile defeat mechanisms is not in our favor. We must flip the cost ratio back in our favor with deep magazine, rapid fire, and low-cost defeat mechanisms.

Homeland Defense in the Digital Age: Leveraging American Ingenuity

Given the number and complexity of threat systems arrayed against the homeland today, we cannot afford the prohibitive costs or extensive time required to develop high-end, custom built, stove-piped systems provided through current acquisition practices. Instead, USNORTHCOM and NORAD have fundamentally changed how our commands engage with defense and commercial industry, and we are proactively seeking out and collaborating with

private-sector partners who offer innovative and viable solutions to our most immediate challenges.

Specifically, our commands are collaborating with large and small companies from the commercial tech sector in order to leverage emerging technologies and digital-age approaches with potential homeland defense applications. Under this iterative approach, our commands and our commercial partners have developed a common understanding of our shared challenges and opportunities over time. In turn, we are allowing our nation's innovators to apply their expertise and propose advanced, innovative solutions using new but proven technology that can be rapidly incorporated into the homeland defense ecosystem in order to improve our domain awareness, JADC2 architecture, and defeat mechanisms.

We are also adapting and evolving how we work with traditional U.S. defense industry. Rather than prescribing specific materiel solutions to the challenges facing our commands, USNORTHCOM and NORAD are engaged in ongoing two-way dialogue with defense industry innovators to share our perspective on the changing strategic environment, emerging threats to the homeland, and operational requirements. We are working with our industry partners to ensure they understand our specific challenges and needs. In turn, our partners are identifying ways to bring new and existing systems into the homeland defense architecture and provide tailored solutions to our unique challenges.

This approach has already shown game-changing potential. Over the last several months, USNORTHCOM and NORAD have collaborated with defense industry, commercial tech partners, and the military Services on successful field demonstrations of emerging sensor, information fusion, and satellite communications technologies. I am excited and encouraged by

the results of these demonstrations, and we will continue to lead these experiments and to solicit innovative proposals from established defense industry and emerging tech partners.

As we defend the homeland against complex threats in all domains, our commands absolutely understand that the status quo is not acceptable and that we must act now to build a capable defense that provides a credible deterrent. In an age of rapidly advancing technology, rising strategic competition, and extraordinary innovation, we simply cannot afford to rely on antiquated technology and outdated approaches. To reverse our eroding military advantage, we are bringing new thinking, new approaches, and new technologies to bear against our adversaries in order to defend our nation and our way of life.

Thanks to the ingenuity and innovation of American defense industry, our nation has fielded the most advanced and capable military in the world. The technical challenges we currently face are significant, but the extraordinary advancements in global commercial logistics and communications over the last decade are clear evidence those challenges are not insurmountable. USNORTHCOM and NORAD will remain engaged with our defense and commercial industry partners to address our most pressing challenges in ways that are proven, adaptable, and affordable.

Cruise Missile Defense

In concert in the National Defense Strategy, homeland defense is the number one priority and focus of USNORTHCOM and NORAD. Advanced cruise missiles now carried by Russian aircraft and submarines present a growing challenge to our current sensor networks and have the range and accuracy to strike military and civilian targets throughout the United States and Canada. As a result, our two commands are actively working to improve our ability to detect, track, and defeat potential cruise missile attacks against the homeland.

At my direction, USNORTHCOM and NORAD have shifted substantial manpower to this critical effort. With the cruise missile threat at the forefront of our minds, our commands are working closely with industry partners to develop a layered sensing grid, build an adaptive architecture for JADC2, and field advanced defeat mechanisms.

Investments in improving our CMD capabilities are necessary to defend our vital facilities and infrastructure, preserve our national ability to project power abroad, and help to safeguard our citizens and vital institutions. We do not need a force field over the entire nation, but we also cannot present a soft target. We need a sufficiently capable steady-state defense to present a credible deterrent.

And, because the same cruise missiles that hold targets in the United States at risk also threaten our bases, personnel, and allies overseas, improving our defenses at home will have far-reaching impacts both in the homeland and for our forces, allies, and partners abroad. Aligning our defense investments with the stated priorities of the National Defense Strategy will profoundly improve our ability to defend our citizens and our way of life while strengthening each of the elements of our national power.

This is not the first time that a peer competitor has elected to hold our homeland at risk. Early in NORAD's history, when nuclear-armed Soviet bombers first presented an existential threat to the United States and Canada, our nations faced down that daunting challenge by establishing the Distant Early Warning line of radars and the Semi-Automatic Ground Environment (SAGE) command and control system in less than three years. That stunning achievement demonstrated the power of shared resolve and innovation by our great nations and had an immediate deterrent effect. We hear echoes of that era in today's strategic environment,

and while the challenges before us are significant, history makes clear that innovation and resolve will allow us to bolster our strategic advantage.

While I am concerned by the limitations of some of our older sensors, recent advancements show great promise toward improving our ability to detect, track, and defeat advanced cruise missiles. In one key example, USNORTHCOM and NORAD partnered with the U.S. Air Force, U.S. Navy, U.S. Army, U.S. Marine Corps, and industry in December 2019 at Eglin AFB, Florida, on a demonstration that successfully showcased elements of JADC2 and the Advanced Battle Management System for cruise missile defense of the U.S. homeland.

Thanks to the outstanding support and collaboration by each of the Services, we were able to bring air, sea, and land domain forces together to demonstrate technology with significant potential for meeting our most urgent homeland defense requirements. USNORTHCOM and NORAD will continue to build on the momentum established with our Service partners so that we are capable of deterring, detecting, and defeating any potential threat to the homeland.

Specifically, the demonstration combined capabilities from across the Joint Force to detect, track, identify, and simulate the intercept of ground and air-launched subsonic cruise missiles. While still in the early stages of development, these efforts also demonstrated an “every sensor, fused data, best shooter capability” that incorporates machine learning and artificial intelligence to gather and act upon sensor data far more quickly and accurately than ever before.

By demonstrating the potential for these low-cost, multi-domain systems to defend critical targets, USNORTHCOM and NORAD are actively establishing and pushing hard on efforts with innovative industry partners in ways that break down slow-moving stovepipes between warfighters, acquisition agencies, and industry. Together with our partners, USNORTHCOM and NORAD will continue to ensure that we have the means to fulfill our

essential homeland defense priorities and outpace the threats to our homeland by actively pursuing the National Defense Strategy objective to establish a national security innovation base that supports DOD operations and sustains security and solvency.

Our commands have taken an aggressive leadership role in identifying and evaluating potential solutions to the significant technical challenges associated with our cruise missile defense mission. Over the summer of 2019, USNORTHCOM and NORAD sponsored a test of over-the-horizon radar (OTHR) capabilities to evaluate their potential application to detect cruise missiles launched against the United States and Canada from the far north. This important test, conducted in close collaboration with the U.S. Air Force Research Laboratory and Defence Research and Development Canada, allowed USNORTHCOM and NORAD to evaluate the ways in which OTHR can help to provide persistent surveillance of our northern approaches.

The OTHR test, using test arrays in Ottawa, Ontario and at Camp Grafton, North Dakota demonstrated outstanding collaboration between our U.S. Air Force, Canadian military, and industry partners in a shared effort to mitigate the cruise missile threat to the United States and Canada. That same spirit of common commitment was on display in October 2019 during a USNORTHCOM-sponsored homeland defense demonstration at Ft. Carson, Colorado. This event successfully demonstrated the potential for a mesh network and artificial intelligence to detect, identify, and track a cruise missile threat in realistic field conditions.

The Arctic

The Arctic affords our adversaries a direct avenue of approach to the homeland and is representative of the changing strategic environment in our area of responsibility. More consistently navigable waters, mounting demand for natural resources, and Russia's military buildup in the region make the Arctic an immediate challenge for USNORTHCOM, NORAD,

our northern allies, and our neighboring geographic combatant commands, U.S. European Command and U.S. Indo-Pacific Command.

The Arctic is the new frontline of our homeland defense. Russia has steadily expanded its military presence in the region and, by fielding advanced, long-range cruise missiles—to include land attack missiles capable of striking the United States and Canada from Russian territory—Russia has left us with no choice but to improve our homeland defense capability and capacity. In the meantime, China has taken a number of incremental steps toward expanding its own Arctic presence. In turn, USNORTHCOM and NORAD are strengthening the four pillars of our defenses in the high north: domain awareness, communications, infrastructure improvement, and sustainable presence in our own Arctic territory.

I want to take this opportunity to thank the Congressional defense committees for your constant support as USNORTHCOM and NORAD have met our homeland defense challenges in the Arctic head-on. There are no easy solutions to the challenges presented by the extreme climate, terrain, and distances inherent in Arctic operations. However, due in no small measure to your continued attention and advocacy for our commands' requirements, we have seen significant attention, expertise, and resources brought to bear on the homeland defense mission in the Arctic from throughout the Department of Defense.

Over the last year, our commands have worked alongside the military Services and the Office of the Secretary of Defense to ensure that our warfighting requirements are met, with particular emphasis on improving joint domain awareness and communications. In order to reclaim our strategic advantage in the high north, it is critical that we improve our ability to detect and track surface vessels and aircraft in our Arctic approaches and establish more reliable secure communications for our joint force warfighters operating in the higher latitudes. This

focus is now apparent in the 2019 DOD Arctic Strategy, which reflects my command priorities and makes it clear that DOD must defend the homeland against threats emanating from our northern approaches.

As stated in the National Defense Strategy, a core Department of Defense objective is to ensure that common domains remain open and free. In pursuit of that objective, USNORTHCOM and NORAD are very proud of our work with allies and partners to improve our shared presence and interoperability in the region and update our information sharing agreements with our Arctic allies and partners. Of note in the last year, USNORTHCOM and NORAD leaders also conducted engagements with the Danish Joint Arctic Command in Greenland and joined the United Kingdom Ministry of Defense in direct staff talks. These collaborative efforts help to reaffirm our commitment to our international partners while enhancing USNORTHCOM and NORAD's defense capability.

We are leveraging the on-the-ground experience and expertise of our warfighters in USNORTHCOM's Alaska Command along with leaders, planners, and combatants from USINDOPACOM and USEUCOM as we prepare for ARCTIC EDGE 20—the nation's premier Arctic exercise. ARCTIC EDGE 20 will take full advantage of the unsurpassed capabilities of the Joint Pacific Alaska Range Complex (JPARC) and allow us to test our capability to fight, communicate, and win in the harsh terrain and climate of the high north. I am personally placing significant emphasis on this important exercise, as the lessons we learn from ARCTIC EDGE 20 will play an important role in validating the requirements that will allow us to deter, detect, and defeat potential adversaries along the front line of our nation's defenses.

Ballistic Missile Defense

USNORTHCOM's ballistic missile defense (BMD) mission remains a no-fail mission. North Korea continues to openly threaten the United States with nuclear-capable ICBMs, and it is essential that our ballistic missile defense system continues to provide a reliable and lethal defense against a potential missile attack by North Korea or Iran, should Iran decide to develop ICBM technology.

Fielding modernized radars capable of discriminating between a lethal warhead and the debris, non-lethal components, and potential countermeasures associated with an inbound ICBM remains my top BMD priority. Improved discrimination capability will provide a higher probability of intercept and, therefore will deliver greater confidence in the successful defeat of an inbound nuclear armed re-entry vehicle. Improved persistent discrimination capability is even more necessary given the cancellation of the Redesigned Kill Vehicle (RKV).

While I understand the issues that led to the August 2019 decision by the Missile Defense Agency (MDA) to cancel the RKV, and I ultimately concurred with that course of action, I want to make it clear that I am deeply concerned with the resulting delay in adding to our ground-based interceptor capability and capacity. As we progress toward a next-generation interceptor (NGI) capability, USNORTHCOM remains responsible for defending the homeland from missile attacks. It is therefore necessary to swiftly develop and field a lower-tier missile defense capability as a complement to NGI to intercept current and emerging missile threats. Given the nature of the ballistic missile threat, I am a strong advocate for bringing a layered capability on board for the warfighter well before NGI is fielded.

From a warfighter perspective, a reliable and lethal follow-on system must be fielded as soon as practicable as our adversaries continue to pursue advanced missile technologies to

threaten our homeland. I retain confidence in the current ground-based interceptor fleet and the ballistic missile defense system as a whole; however, to remain ahead of emerging threats, the timely fielding of improved discriminating sensor technology and an NGI is crucial. As our adversaries rapidly advance their capability and capacity to threaten the United States, USNORTHCOM is working side-by-side with MDA to ensure that USNORTHCOM's warfighter requirements are met, and I remain in close contact with VADM Hill to ensure our priorities remain aligned.

USNORTHCOM and NORAD's ability to accurately detect, discriminate, and track individual inbound ICBM warheads in the event of a ballistic missile attack from North Korea or potentially Iran is critical to the successful intercept of those weapons. With current and emerging threats in mind, improved terrestrial sensors are a necessary and cost-effective step in the evolution of our missile defense system. However, the urgency of taking steps now to develop and field a future space-based sensing layer as soon as technology allows cannot be overstated.

As cruise, ballistic, and hypersonic missile threats evolve at an extraordinarily rapid pace, space-based sensors will become a necessity in the near future, and as we have seen with other adversary threat technologies, we cannot wait until a new weapon system is in the field before starting work on new technology to mitigate that threat.

Countering Unmanned Aerial Systems

Events involving unmanned aerial systems in the Middle East, Venezuela, and the United Kingdom provide clear examples of how new technologies can be developed, proliferated, and exploited by nefarious actors much faster than our institutions can react. We must be prepared to defend our nation against potential threats from Unmanned Aerial Systems (UAS), but the

complexity and diversity of these recent attacks underscore the challenges of our homeland defense mission. This is a difficult problem set, one that will not be solved with simple, silver bullet solutions or in isolation. While USNORTHCOM and NORAD play a key role in interagency counter-UAS (C-UAS) efforts, actions to mitigate the threat have proven to be complex. Therefore, extensive collaboration and cooperation at all levels and across a wide range of agencies is critical to our shared success.

Only a few years after commercial drone technology became readily available in the commercial marketplace, small UAS (sUAS) are being employed in ways that test the seams in our physical defenses, legal authorities, and jurisdictional boundaries. The capabilities and authorities inherent to NORAD's aerospace warning mission enable us to provide our partners with increased airspace awareness, and we are striving to establish a common operating picture with our partners. By establishing real-time warning and information sharing between interagency partners, we will significantly increase our shared ability to limit a potential attacker from exploiting sUAS technology in an attack against the homeland.

Together with partners from inside and outside the Department of Defense, to include the Department of Homeland Security (DHS), the Department of Justice, the Office of the Director of National Intelligence, the Department of Transportation, and numerous other agencies in the United States and Canada, USNORTHCOM and NORAD is championing a whole-of-government approach to overcoming the potential threats presented by the nefarious use of UAS. Over the last year in particular, we have made significant progress toward leveraging existing DOD and DHS mitigation investments made possible by the enhanced authorities granted by Congress.

The expanded use of sUAS in the national airspace is inevitable and has clear benefits that exist alongside ways in which this emerging technology can be exploited to cause harm. With those parallel facts in mind, we, along with all of our interagency partners, are fundamentally committed to improving our collective capability to defend our citizens and infrastructure from being targeted by sUAS, without compromising safety, civil liberties, or legitimate commercial enterprise.

Defense Support of Civil Authorities

Nested under our homeland defense responsibilities, USNORTHCOM provides for the safety and support of our citizens through our defense support of the civil authorities mission. Acting in support of lead federal agencies following disasters, such as during the response to Hurricane Dorian in the eastern United States, allows USNORTHCOM to demonstrate our resilience and test our response to unplanned domestic contingencies. These include natural disaster relief efforts or following a manmade disaster such as an attack by a peer adversary or a terrorist organization. When circumstances overcome the abilities of federal, state, or local public safety officials to respond effectively—and when we are asked to help—USNORTHCOM is prepared to provide trained, ready, and capable active duty forces when and wherever they are needed to protect the life, health, and safety of our citizens and neighbors.

Hurricane Dorian's impact on The Bahamas was nothing short of devastating, and USNORTHCOM was proud to support the U.S. Agency for International Development (USAID) and our Bahamian partners by providing defense coordinating officials, strategic airlift, and rotary wing airlift in the early days following the storm. Working in support of USAID, the Command and our Service partners were able to expedite the deployment of military and non-governmental organization relief personnel and equipment to Abaco.

Although this was the first time that USNORTHCOM has directly supported a USAID-led relief effort, we and our interagency partners were able to build on lessons learned from previous disaster relief and recovery efforts. Those hard-earned lessons, in turn, ensured that the correct mix of assets and personnel were ready to deploy as soon as they were requested by The Bahamian government.

Homeland defense and homeland security are inseparable, and USNORTHCOM also recognizes the significance of our work and relationships with our DHS partners. USNORTHCOM's role in synchronizing DOD's support to Customs and Border Protection (CBP) on the southwest border has helped to increase the level of coordination and cooperation at all levels of our organizations. That mission has bolstered USNORTHCOM's relationship with our partners throughout the DHS enterprise, and the shared lessons learned have led us to adopt new tactics, techniques, and procedures that have improved communications and interoperability up and down our chains of command. These improvements will continue to pay dividends for future USNORTHCOM and DHS collaborative efforts. For example, in 2020, USNORTHCOM will join DHS in a national exercise that will assess our collective response to a cyber event, and we will continue to prioritize our work with DHS to defend our citizens, infrastructure and vital institutions.

Over the last year, USNORTHCOM has continued to provide military-unique capabilities to federal law enforcement, including operations and intelligence along the southwest border and supporting federal prosecutors' case development with counter-threat finance analysts. With 69,000 overdose deaths in 2018, illegal drugs are just one of many revenue streams for the cartels that present a significant threat to the health and safety of our citizens. USNORTHCOM supports these efforts to stem the flow of illicit narcotics and other illicit commodities into our

country. We are also working with non-DOD partners across the U.S. interagency community and in Mexico to develop a whole-of-government strategy to counter transnational organized crime.

Supporting Cyber Defense in the Homeland

In addition to the physical risks posed by natural disasters and potential kinetic strikes, our nation faces ongoing significant threats in the cyber domain. Our adversaries—including state and non-state actors—continue to actively target military networks, civilian critical infrastructure, and our democratic processes through network-based intrusions. USNORTHCOM places a high priority on our active and vital role in supporting DHS, U.S. Cyber Command (USCYBERCOM), and other government partners in the defense of U.S. critical infrastructure.

In January 2019, USNORTHCOM welcomed the command's first liaison officer from the newly established DHS Cybersecurity and Infrastructure Security Agency (CISA) into our headquarters as it stood up on day one. Meanwhile, USNORTHCOM assigned two of our cybersecurity experts to serve as liaison officers in the CISA Integrated Operations Coordination Center (IOCC) and in the CISA headquarters in Washington, D.C. The establishment of these liaisons immediately led to a significant improvement in interagency communications and information sharing, as our collective experts have been able to identify and remedy communications stovepipes and bureaucratic obstacles to timely exchanges of intelligence and other key information.

As part of the whole-of-government effort to ensure that our elections are free from foreign interference, USNORTHCOM is working closely with DHS, the Office of the Secretary of Defense, USCYBERCOM, and the National Guard Bureau to support DHS if needed to

defend critical elections cyber infrastructure. On request, USNORTHCOM is prepared to provide the expertise of these network specialists to DHS as the lead federal agency.

Cyber attacks and attempts by our adversaries to penetrate our nation's sensitive networks continue at an extraordinary pace. If successful, these intrusions could result in significant harm to our national security. The collective efforts by USNORTHCOM and our partners to improve the security and resiliency of our critical networks and infrastructure is moving forward rapidly in order to remain well ahead of our adversaries efforts. Due in large part to the lines of communication that have been opened by our collaborative efforts with CISA, USNORTHCOM now participates in daily secure synchronization events with the CISA IOCC. This ensures that we and our DHS partners are sharing the very latest intelligence, indicators, and threat assessments regarding past and potential attacks on U.S. military and civilian critical infrastructure.

In December 2019, USNORTHCOM hosted a cyber forum that brought together USNORTHCOM, NORAD, and DHS leaders, CDRUSCYBERCOM GEN Paul Nakasone, The Adjutants General from 51 states and territories, alongside partners from numerous other federal agencies and the intelligence community in order to ensure that our respective commands, departments, and agencies are aligned and ready to defend our networks, critical infrastructure, and our democratic processes. These complex technical efforts are made possible by detailed planning, year-round coordination, and close personal interaction with our interagency partners at every level. While USNORTHCOM is not in the lead for these missions, we are proud to support our federal partners and to help coordinate DOD efforts to the fullest extent possible.

Theater Security Cooperation

Defending the homeland and advancing our strategic objectives requires strong relationships with our military partners throughout our area of responsibility, and USNORTHCOM continues to enjoy close collaboration and mutually beneficial ties with our partners in Canada, Mexico, and The Bahamas. In this era of great power competition, each of our international partners faces significant and complex challenges that can only be mitigated through open and frequent communications and a shared commitment to identifying common security objectives and implementing measures that strengthen individual national defenses while contributing to enhanced regional security.

The strong relationships we share with each of our international partners provide a range of benefits for the entire region, enhancing domain awareness along our northern and southern approaches, and impeding the ability of transnational criminal organizations to transport illicit drugs and smuggle migrants into the United States. The training, equipment, and other defensive capabilities provided through USNORTHCOM's theater security cooperation initiatives have direct, tangible benefits for our partners and for the safety and security of the United States by providing effects-based capabilities to reduce illicit trafficking from Mexico and The Bahamas. In one key effort, USNORTHCOM was proud to support our Mexican partners' fight against the drug cartels by delivering a radar to Hermosillo, Mexico that immediately improved the government of Mexico's ability to monitor air trafficking routes, forcing the cartels to change their tactics and procedures.

In September 2019, I was joined by CDRUSSOUTHCOM, Admiral Craig Faller, as we met with the secretaries of Secretariat of the Navy (SEMAR) and Secretariat of National Defense (SEDENA) in Mexico City to emphasize our shared commitment to regional security

cooperation. Following that productive engagement, ADM Faller and I traveled together into USSOUTHCOM's area of responsibility to tour the northern border of Guatemala. That boots-on-the-ground experience provided a valuable firsthand understanding of the security challenges and opportunities that exist along the rugged international border and in the seams between USNORTHCOM and USSOUTHCOM operational boundaries. The visit highlighted the importance of frequent, open communication between USNORTHCOM and our partners—to include our sister combatant commands—in order to ensure that we are operating from the same set of expectations in pursuit of common strategic objectives.

Partnerships

Our homeland defense mission relies on strong, ongoing collaboration between our commands and a long list of DOD, DHS, and federal interagency partners. With that fact firmly in mind, USNORTHCOM and NORAD are constantly working to increase integration with our partners, from the initial phases of the planning process to the execution of missions that invariably cross over geographic and jurisdictional boundaries—and frequently across warfighting domains.

Our adversaries have demonstrated their ability to exploit our institutional boundaries. These threats are deliberately designed to take advantage of the existing seams across combatant commands, federal agencies, and their associated legal authorities. We recognize that we cannot wait until a contingency plan is finalized to fill in those seams; it is essential that we collaborate across the national security enterprise to develop playbooks that prevent those seams from forming from the outset.

For example, NORAD's maritime and aerospace warning missions require tightly knit collaboration with U.S. European Command, U.S. Pacific Command, U.S. Strategic Command,

the intelligence community, the U.S. Coast Guard, and a host of others to ensure we have constant, global situational awareness of potential threats, from ballistic missile launches to out-of-area deployments by Russian and Chinese aircraft, submarines, and surface vessels. USNORTHCOM and NORAD are then able to make notifications, deploy forces, and implement contingency plans as necessary.

Given the realities of today's security environment, we no longer view issues as purely regional. Global integration is at the forefront of our planning efforts, and alongside our fellow combatant commanders, USNORTHCOM and NORAD have worked diligently to reduce the seams, stovepipes, and outdated mindsets that previously hampered communication and coordination between DOD partners. In 2019, USNORTHCOM and NORAD, our sister combatant commands, and DOD senior leaders participated in a globally integrated exercise that placed a strong focus on threats to the homeland and illustrated how the successful execution of the homeland defense mission underpins our combat missions abroad. I am optimistic that the valuable lessons learned from this event will inform our planning, budgeting, and future plans and exercises for years to come.

Conclusion

As we enter a new decade, USNORTHCOM and NORAD remain laser focused on defending the homeland. Working side by side with our DOD, federal, industry, and international partners, our commands are committed to protecting our nations, our citizens, and our way of life from threats in all domains. The challenges facing us are daunting, but our adversaries and allies alike should never doubt our resolve.

While the weapons that threaten our homeland today are stealthier and more precise than those we faced during the Cold War, the hard-earned lessons of the past continue to echo today.

The spirit of innovation and shared commitment to a common cause that brought our nation safely through previous conflicts will serve us well again during this period of strategic competition and uncertainty. Guided by our history of shared commitment and sacrifice, honored by the trust our citizens have placed in us, and profoundly committed to our sacred responsibility, the men and women of USNORTHCOM and NORAD are ready to deter and defeat any threat.

It is my profound honor to lead the airmen, soldiers, sailors, Marines, Coast Guardsmen, and civilians of USNORTHCOM and NORAD, and on their behalf, I want to thank the Committee for your steadfast support of our essential mission.

We Have the Watch.