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INTRODUCTION

Chairman Rogers, Ranking Member Cooper, and distinguished members of the Committee, thank you for the opportunity to appear before you today as the Commander of United States Northern Command (USNORTHCOM) and North American Aerospace Defense Command (NORAD). As the Commander of two unique but complementary commands, I am honored to lead a truly remarkable team of professionals and patriots committed to defending our nations against an ever-expanding array of threats. I am also deeply grateful for this Committee's support, especially in light of the wide range of threats and challenges addressed by USNORTHCOM and NORAD.

As USNORTHCOM and NORAD look to the future, it is increasingly necessary to assess the potential for seemingly far-flung events to unfold in ways that have a direct effect on our homeland defense missions. Adversaries such as North Korea continue to field advanced weapons systems, often at an unexpectedly rapid pace of development, while China and Russia have expanded their military presence into areas outside their traditional areas of operations. The long-term consequences of these developments remain to be seen, but in an environment in which the only constant is change, it is certain that defending our homelands increasingly relies on a modern, ready, and well-trained force, along with innovative thinking and close collaboration across borders, agencies, and boundaries.

STRATEGIC ENVIRONMENT

The threats our nations face continue to evolve. An increasing number of foreign states are developing new ways to hold our homeland at risk in an effort to offset Western military advantages and limit our options in a crisis.

NORTH KOREA

Over the last year, Kim Jong Un's pace of weapons testing, defiance of international norms, and deliberate efforts to reduce our indications and warning have established North Korea as the most immediate strategic threat to the United States. I testified last year I was concerned Kim Jong Un's willingness to fail in public would eventually enable him to develop a viable weapon system that could threaten the continental United States. That development has continued at an extraordinarily rapid pace, and in 2017, North Korea successfully flight tested such an intercontinental ballistic missile on three occasions, demonstrating for the first time a credible capability to hold the United States at risk.

Kim Jong Un's possession of a viable intercontinental ballistic missile represents an obvious threat to the United States, and close collaboration with the intelligence community, the Missile Defense Agency, and fellow combatant commands remains essential to outpace North Korea's technological development and deception programs. I am grateful to the members of this Committee for your continued investment in the technology and capabilities necessary to defend the United States against a North Korean threat that is only increasing with time. Adding to the capabilities that provide advanced indications and warning of missile launches will continue to be a priority for USNORTHCOM as North Korea adds capability and capacity and improves its denial and deception programs.

RUSSIA

With a full suite of delivery platforms and weapons systems capable of ranging targets throughout the United States and Canada, Russia remains the only existential air domain threat our two nations face. Russian leaders regularly exercise conflict with the United States and are

investing heavily to modernize their forces and develop novel weapons to ensure their ability to hold the United States and Canada at perpetual risk.

Russian out-of-area flight activity has declined since the record levels we observed during the 2014 Ukraine crisis, but Russian heavy bombers continue to fly off our coastlines on a periodic basis, including the series of patrols that NORAD fighters intercepted near Alaska last April and May. Russia has also been cycling its aging bombers through a modernization program that enables them to carry a new generation of advanced cruise missiles that have been proven in combat against targets in Syria.

Russia also launched next-generation cruise missiles against targets in Syria from ships and submarines in 2016 and 2017 and is fielding stealthy new naval platforms, including the Severodvinsk-class guided missile submarine and new Dolgorukiy-class ballistic missile subs. Together, these advancements represent a significant investment by the Russian government in their strategic fleets that are likely to hold targets at risk in the United States and Canada for years to come.

CHINA

China is pursuing a comprehensive military modernization program that includes a rapid expansion of its strategic forces intended to deter an attack from the United States by holding our homeland at risk. Over the last decade, China has supplemented its modest silo-based ballistic missile force with dozens of road-mobile intercontinental ballistic missiles and operationalized its first class of ballistic missile submarines. As part of an effort to demonstrate global reach and influence, China's navy has developed a pattern of sending ships to "distant oceans," and in July of this year, we saw the first Chinese intelligence collection ship operate near the United States.

This followed the transit of a small group of Chinese ships through the Aleutian Islands in September 2015, the first-ever instance of Chinese naval vessels operating in the Bering Sea.

IRAN

Iran is not yet able to strike the United States with strategic weapons. Nonetheless,

Tehran has expended significant resources on its ballistic missile, space launch, and civil nuclear
capabilities and could develop an intercontinental ballistic missile relatively quickly if its leaders
chose to do so. Currently, Iran retains the ability to conduct attacks in our homeland via covert
operations and terrorist proxies.

USNORTHCOM AND NORAD

USNORTHCOM and NORAD are separate commands with common purpose, as
USNORTHCOM defends the United States against land- and sea-based threats and
intercontinental ballistic missiles, while NORAD defends the United States and Canada against
threats in the air domain.

Established in the aftermath of the 9/11 attacks, USNORTHCOM is the U.S. geographic combatant command responsible for operations in North America, to include The Bahamas. For over 15 years, USNORTHCOM has defended the United States through the execution of no-fail missions such as intercontinental ballistic missile defense and defense support of civil authorities.

NORAD is the bi-national United States and Canadian command responsible for aerospace warning, aerospace control, and maritime warning in the United States and Canada. In May of this year, we will celebrate the 60th anniversary of NORAD's establishment and honor the proud legacy of a unique organization that has drawn its strength from the unbreakable bond

between our nations. U.S. and Canadian personnel work side-by-side in the combined USNORTHCOM and NORAD headquarters and in each of the NORAD regions in the United States and Canada.

NORAD represents the gold standard for military collaboration, and its mission continues to be of vital importance to the defense of the United States and Canada as our adversaries continue to modernize their arsenals and develop advanced weapons systems, to include upgraded bombers and advance cruise missiles capable of holding the United States and Canada at risk.

HOMELAND DEFENSE

BALLISTIC MISSILE DEFENSE

In light of the strategic threat presented by North Korea, defending the United States against intercontinental ballistic missiles remains USNORTHCOM's highest priority mission. The rapid advancement of the North Korean intercontinental ballistic missile is my primary focus, although I also continually monitor Iranian technology programs that could present a threat in the future.

I am confident the Ground-based Midcourse Defense system can currently defend the United States from the threats posed by North Korea, but we must take prudent steps to remain in a position of relative technological advantage. I support the Department of Defense's efforts to improve the ballistic missile defense enterprise, and I continue to prioritize improvements to the intercontinental ballistic missile defense sensor architecture to enhance system resiliency and target discrimination, followed by improvements to interceptor reliability and lethality, along with continued reassessment of our interceptor capacity.

As our adversaries develop and field more sophisticated intercontinental ballistic missiles, improved target discrimination will improve the likelihood of a successful engagement. Upgrades to our ability to distinguish re-entry vehicles from non-lethal missile components will significantly improve engagement efficiency while maintaining required effectiveness.

Improved discrimination capability will increase the likelihood of a successful intercept, and the Missile Defense Agency is developing additional radars such as the Long Range Discrimination Radar in Alaska and a persistent radar on Hawaii, both of which will provide improved target discrimination and a more survivable sensor network. In November, the Missile Defense Agency emplaced the last of the 44 ground-based interceptors in our inventory, while continuing their important efforts to improve interceptor reliability in the fielded fleet while developing new variants for future deployment.

In light of the mounting challenges of defending the United States against intercontinental ballistic missile attack, I am grateful to the defense committees for approving the Department's FY17 above-threshold reprogramming and supporting the budget amendment that will increase the Ground-based Midcourse Defense system's capacity and capability. That investment in improved target discrimination and more reliable kill vehicles will improve our ability to defend the homeland. I will continue to work with my mission partners in the Missile Defense Agency, the intelligence community, and fellow combatant commands to identify and prioritize additional initiatives that will keep us on or ahead of the threat.

As part of that effort, USNORTHCOM supported the Office of the Secretary of Defense in updating the Missile Defense Review. This foundational review will provide overarching policy direction for the missile defense enterprise, and I support its near- and long-term initiatives to ensure we remain ahead of our adversaries. As the warfighter responsible for the

defense of the United States, USNORTHCOM will continue to work with our fellow combatant commands to integrate offensive and defensive capabilities as part of a coherent strategy to defeat the missile threats facing our nation.

AEROSPACE WARNING AND AEROSPACE CONTROL

Since its establishment in May of 1958, NORAD has defended Canadian and U.S. airspace against an ever-evolving range of threats. Originally focused on preventing Soviet bombers from reaching targets inside the United States and Canada with nuclear gravity bombs, this unique bi-national command has kept our airspace secure and monitored our maritime approaches while constantly looking to the future in order to adapt to new technologies and outpace emerging threats. From the Cold War, through the aftermath of 9/11, and into the modern era, Canadians and Americans have stood shoulder-to-shoulder in defense of our skies, our cities, and our citizens.

NORAD's original mission remains as important as ever, as seen on 20 April 2017, when United States F-22 Raptors and Canadian CF-18 Hornets conducted a textbook intercept of two Russian TU-95 BEAR-H bombers that had penetrated the North American Air Defense Identification Zone and the Canadian Air Defense Identification Zone. That safe and professional intercept was the direct result of constant planning, coordination, and training between various NORAD commands over the course of many years.

The ability to deter and defeat threats to our citizens, vital infrastructure, and national institutions starts with successfully detecting, tracking, and positively identifying targets of interest approaching and within U.S. and Canadian airspace. As part of an ongoing effort to defend the United States and Canada against a wide range of airborne threats—from modern strike aircraft and advanced air- and submarine-launched cruise missiles to small drones—

NORAD planners continue to develop a modern three-phase Homeland Defense Design that links advanced sensors capable of detecting and tracking potential threats with weapons systems capable of neutralizing targets identified as hostile.

LOW RADAR CROSS SECTION THREATS

This Homeland Defense Design will play an ever-more important role in defending the homelands against modern cruise missiles and other unmanned aerial systems. Small commercial drones, light aircraft, and advanced cruise missiles each present challenges to our air defense systems due to their low radar cross sections and corresponding ability to evade detection by legacy radars. Whether those technologies are purpose-built or are unintentionally exploitable by bad actors, the potential threat from airborne platforms with small radar signatures will become commonplace in the coming years as advanced missile technology proliferates and commercial unmanned systems become ever more readily available. From a threat-assessment perspective, low radar cross section systems are of particular concern as they have the potential to hold our vital institutions and infrastructure at risk due to their ability to evade detection, tracking, identification, and, if necessary, engage targets identified as hostile.

CRUISE MISSILE DEFENSE

Russia has prioritized the development of advanced cruise missiles capable of holding targets within North America at risk from distances not previously seen. These systems present an increasing threat to North America due to their long range, low radar cross section, and the limited indications and warnings likely to be seen prior to a combat launch. While the likelihood of a Russian kinetic strike against the United States and Canada is currently low, it is prudent to invest in advanced sensors and defensive weapons systems to protect our nations' vital assets.

I have confidence in the layered approach provided by overlapping air defense systems. However, I am concerned about the potential for those advanced cruise missiles, which can be launched from bombers or submarines at much greater ranges than legacy systems, to penetrate our air defense network due to their expanded range, low visibility, and limited radar cross section. The significantly improved range of these missiles has reduced the indications and warnings we are likely to receive prior to a combat launch, and their low radar cross section has required NORAD to adapt new tactics, techniques, and procedures to counter them.

We must continue to invest and innovate to stay ahead of this emerging threat, and we have made significant advancements as part of those ongoing efforts. To that end, I would like to thank the defense committees for fully funding the Department's request for funding the procurement of Active Electronically Scanned Array radars to significantly improve the ability of our fighter aircraft to detect and engage advanced cruise missiles. Active Electronically Scanned Array radars and the network of ground-based sensors integrated under the Homeland Defense Design will provide important improvements to our ability to counter an expanding set of airborne threats.

CANADA

The United States and Canada share the longest undefended international border in the world, and our collaborative relationship is one of the closest and most extensive in history. This relationship reflects a unique friendship, underpinned by common values, that has evolved over the course of the last century.

In May 2018, NORAD celebrates its 60th birthday defending the United States and Canada in the air domain. We continue to evolve this venerable relationship to keep pace with evolving threats to ensure our bi-national defense can deter, and if necessary, defeat potential

future attacks. NORAD prioritizes interoperability and command and control through regular operations, combined training and exercises, combined planning, information and intelligence sharing, and personnel exchanges to ensure we are capable of conducting operations together, across the spectrum of conflict.

A critical component of our operational defense framework is the tri-command relationship between USNORTHCOM, NORAD, and the Canadian Joint Operations Command. Together, we are working to further integrate our operational framework into an adaptive continental defense arrangement that can function across multiple domains to defend the United States and Canada that preserves each nation's ability to conduct unilateral national missions such as disaster response.

CONCLUSION

Above all, I am proud to serve alongside the remarkable men and women of USNORTHCOM and NORAD as they stand guard over our homelands against a rapidly evolving and increasingly complex set of threats. Their proud histories and future successes are deeply rooted in a shared, unshakable commitment to protecting our citizens and defending our common values. Together with our allies and partners, I am confident we will continue to adapt, innovate, and fulfill the sacred responsibility of defending our great nations.

"We have the watch"