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**SENATE ARMED SERVICES COMMITTEE STRATEGIC SUBCOMMITTEE**

STATEMENT OF  
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AND  
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BEFORE THE UNITED STATES SENATE ARMED SERVICES COMMITTEE  
STRATEGIC SUBCOMMITTEE  
11 JULY 2001

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Mr. Chairman and members of the Committee:

It is an honor to appear before you again representing the outstanding men and women of North American Aerospace Defense Command (NORAD) and United States Space Command (USSPACECOM). Over the last year, I have observed first hand the pride, dedication and excellence of the professionals who work in our commands. Their efforts have contributed to the freedom and security North America enjoys today, and the United States continues to lead the world in space. We are proud to be part of the national security team.

For 43 years NORAD has met the changing threat--transitioning from an initial "air" defense orientation to a broader aerospace dimension--one that provides surveillance and warning of ballistic missile attacks and space events and ensures our air sovereignty against an expanding range of potential threats. NORAD missions remain as vital as ever and constitute a critical component of the defense of North America.

USSPACECOM, established in 1985, is charged with the missions of space support, force enhancement, space control, planning for force application and, most recently, computer network defense (CND) and computer network attack (CNA). Ten years after the Gulf War, we see the huge advantage space brings to our warfighting capabilities. Our efforts to "operationalize" space have enabled us to move time-critical information to front-line commanders and to troops in the field. These efforts were crucial to our success during U.S. and allied air operations over Serbia. Space-based capabilities have become an integral part of our American military operations.

As our reliance on space increases, we believe more attention should be devoted to protecting our access to, and use of, space. In a similar way, we must protect our critical information infrastructure to assure information superiority and develop appropriate strategies to

exploit the vulnerabilities of our adversaries' space and computer network capabilities. To meet the unique challenges of our evolving national security environment, we must remain the world leader in space and computer network operations.

For fiscal year 2002, the President's budget includes funding to cover our most pressing priorities. However, the programs discussed in this statement and their associated funding levels and schedules may change as a result of the Secretary of Defense's strategy review, which will guide future decisions on military spending.

### **Our People Are Fundamental to Our Success**

Execution of our National Military Strategy hinges on our ability to attract and retain high quality, motivated servicemen and women and civilian employees. Our tremendous warfighting capability depends on our people. If we take care of them, they will take care of our mission. Without them, even our most effective weapon systems are of little value. Congress' initiatives to improve military and civilian pay, health care and housing for our professionals in uniform are a step in the right direction. We are very grateful for your continued support in these areas. However, we still have work to do.

Our biggest challenges continue to be retention and recruiting. Both NORAD and USSPACECOM are struggling to keep the quality people we need to perform our critical missions. Our commands are feeling the pressure that stems from the combination of a strong economy and industry's demand for the unique technical skill and work ethic found in our people. High-paying civilian jobs that offer stability and exceptional benefits continue to lure our people away from the military.

Last fall, Congress made significant progress in helping us turn the tide by authorizing targeted pay raises for our mid-career enlisted members and extending the Thrift Savings Plan to members of the Armed

Services. We are most grateful for this support. As noted in the Commission to Assess United States National Security Space Management and Organization's report, the Nation as a whole must place a high priority on the development of a cadre of highly competent and motivated military and civilian space professionals. Specifically, we must cultivate the talents of our people, pique their interest, develop their core space expertise and expand their knowledge base through Joint and Service-specific professional development programs.

For USSPACECOM, recruiting is also important as we seek a balanced mix of military and civilian talent to meet our space mission requirements and new obligations with CND and CNA. Finding this talent continues to be a difficult job as we compete with industry for people with high-demand space and information technology skills.

Finally, last year, we asked Congress to repeal the FY00 congressionally mandated 15% reduction in staff personnel at our Unified Headquarters. In USSPACECOM, we remain concerned about the possibility of losing 79 billets after we have just assumed our new CND and CNA missions. The FY01 National Defense Authorization Act offered some relief to this mandate by reducing the personnel cuts to 7.5%. Given our current plans, as we establish the infrastructure to support our new assignments, any manpower reduction will adversely affect our ability to fulfill our unified command duties.

#### **Readiness**

It is encouraging to see how our Nation's warfighting capabilities have improved over the last decade. As mentioned earlier, space systems are now integrated into virtually every aspect of our military operations and are essential to our success, whether in peace, crisis, or armed conflict. Our increasing dependence on space dictates the need to continue modernizing our space systems, which, in turn, will have a

direct effect on our overall military readiness. In addition, we must leverage the benefits associated with partnerships--both within the government and with industry. Finally, we must improve the way military space is organized and managed in order to realize the full potential of our Nation's space power.

**Missile Warning.** For NORAD and USSPACECOM, missile warning continues to be "Job 1." With the development and proliferation of theater ballistic missiles, it is clear we need the improved detection capabilities of the Space-Based Infrared System (SBIRS) soonest. This system-of-systems will enhance our early warning and space surveillance capabilities, support future ballistic missile defense systems and provide commanders with better battlefield situational awareness.

SBIRS will serve as a combat multiplier for our Nation's military and our allies. The SBIRS High satellites will improve theater missile launch point and impact point predictions and will provide data that assists in performing missions such as real-time battle damage assessment. As for SBIRS Low, we believe the system should be designed to support missile defense. However, we also believe we need to implement "smart upgrades"--supported by cost-benefit analysis--that will maximize both the SBIRS High and SBIRS Low inherent capabilities to support technical intelligence, battlespace characterization and space surveillance.

Because our theater forces are already at risk and because we expect proliferation of more accurate theater ballistic missiles, we strongly advocate SBIRS as our top priority new system. We appreciate the congressional support we have received for this very important program. We remain committed to a launch of the first SBIRS High geosynchronous orbiting satellite in fiscal year 2005, followed by the first SBIRS Low launch in 2006.

**Fusion.** SBIRS is the foundation of our future missile warning capabilities. However, we must not overlook the value of fusion technology. The Theater Airborne Warning System and the Enhanced Early Warning System will work in conjunction with the space-based Defense Support Program and SBIRS to provide our theater warfighters enhanced protection from theater ballistic missile attacks. These systems will fuse information from space, airborne and ground-based assets to improve warning times dramatically and increase launch and impact point accuracy. We appreciate your continued support for these important programs.

**Air Sovereignty.** The traditional NORAD mission of aerospace control, or more specifically airspace sovereignty, remains a fundamental priority. The United States must maintain the radar systems, aircraft and command and control capabilities, which serve as pillars for homeland defense. In addition, we must continue to pursue improved space-based surveillance, intelligence and communications capabilities as essential contributions for NORAD mission success.

**Force Enhancement.** Our force enhancement efforts over the last decade have helped us "operationalize" space. Global Positioning System (GPS) navigation satellites and our Satellite Communications (SATCOM) systems are fully integrated into the warfighting capabilities of all our Services and Unified Commands. The readiness of our military forces depends on the modernization of these systems.

GPS has become a way of life for both our military and commercial industry around the world. From precision farming to financial transactions to surveying remote parts of the earth's surface, every sector of our society relies on the timing and navigation services provided by this system. As a result, we have initiated a modernization program that will provide a more robust anti-jam capability for our warfighters and additional civil signals for aviation, safety-of-life

services and other commercial enterprises. We appreciate Congress' continued support in sustaining and modernizing this national resource.

Reliable and secure SATCOM systems are also key to our military's readiness. We continue to exploit our current SATCOM fleet while developing new, technologically advanced systems. Over the past year, we worked with the other Commanders in Chief to revalidate SATCOM requirements. We reaffirmed the need to modernize our capabilities with a blend of military, civil and commercial systems. As we update our satellites, we cannot forget the user terminals. All aspects of SATCOM must be synchronized for maximum utility. We need your continued support to make this critical modernization effort a reality.

Over the past decade, a significant amount of radio frequency spectrum has been reallocated from the DoD to the Federal Communications Commission for auction to the private sector. Our space and air systems depend upon the spectrum to perform our missions. In order to maintain our state of readiness, we need to carefully consider the national security implications of spectrum reallocations. The FY99 Defense Authorization Act restored some of the spectrum previously reallocated. We appreciate Congress' help; however, we face continued requests for expanded non-federal civil and commercial use of this limited spectrum. For instance, there is a proposal being considered to accelerate the reallocation of the Space Ground Link Subsystem frequency, which supports our on-orbit satellite systems. If this proposal is implemented without adequate alternative spectrum for critical military functions, it will limit our ability to effectively command and control our space assets.

**Space Support.** Our space support missions focus on launching satellites and then operating and maintaining them once on orbit. The Evolved Expendable Launch Vehicle (EELV) is our next generation launch vehicle that will provide assured access to space with quicker response

and greater flexibility at a significantly reduced cost. We are pleased to report this program is on track with the first launch scheduled for 2002.

In addition to modernizing our launch vehicles, we are upgrading the ranges that support our Nation's military, civil and commercial space launches. Our Range Standardization and Automation program will standardize launch interfaces, replace obsolescent technology and help reduce operations and maintenance costs while increasing operational flexibility.

**Force Protection.** Members of our Commands serve in virtually every location where U.S. forces operate; therefore, force protection is critical. To the best of our ability, we must proactively safeguard our people and facilities by continuing to conduct regular anti-terrorism training, assessing and correcting our own vulnerabilities, and finally, educating our people to be constantly on guard. We do not view force protection as a mission unto itself but inherent in all that we do.

**Partnerships.** With the ever-increasing demand for space support, we recognize the need to expand relationships with our "space partners" to leverage existing systems and national level expertise. USSPACECOM and the National Reconnaissance Office continue to explore the possibility of common space systems and seek new avenues to better support both the warfighter and national decision makers. In addition, we are working with the National Imagery and Mapping Agency to develop imagery requirements and with the National Aeronautics and Space Administration to better predict the location of space objects and improve human spaceflight safety. Finally, through our partnerships with other agencies, we are investigating ways to collectively support our CND and CNA missions.



Similarly, we recognize the need to partner with industry. To sustain our readiness, we need to balance the advantages of commercial partnerships with the inherent risks associated with expanding our use of commercial systems. We do this by continually assessing our vulnerabilities and ensuring protected military systems are available for our most critical military missions.

**Space Commission.** The Commission to Assess United States National Security Space Management and Organization submitted its report in January 2001. We are pleased with the findings and believe the Commission made solid recommendations to improve the way military space is organized and managed. We are working on an implementation plan for these recommendations.

#### **Our Accomplishments in 2000**

Our people remain focused and continue to accomplish the mission despite our high operations tempo. In calendar year 2000, our space wings successfully executed 27 launches and deployed all payloads to their respective orbits for a 100% success rate. In addition, we recently activated two new squadrons with space control missions. We have made significant strides in establishing the framework for our CND and CNA missions and have conducted several space and information operations-based exercises to demonstrate our adversaries' capabilities and to identify our own vulnerabilities. Finally, our NORAD forces have been actively involved in homeland defense. The following provides a more detailed description of our activities during the past year:

**Space Control.** Our people need to train as they fight. To ensure our forces are fully prepared to defend against attacks on our space-based infrastructure, we have recently activated two new squadrons--the 527<sup>th</sup> Space Aggressor Squadron and the 76<sup>th</sup> Space Control Squadron. The 527<sup>th</sup> Space Aggressor Squadron's mission is to replicate the known

capabilities of potential adversaries and play the role of the "red team" in exercises like Schriever 2001. The 76<sup>th</sup> Space Control Squadron's charter is to explore future space control technologies by testing models and prototypes of counterspace systems with the goal of rapidly achieving space superiority.

**Computer Network Defense and Computer Network Attack.** The threat to DoD computer networks and systems continues to grow. If used properly, a cyber attack offers less militarily capable nations an asymmetric means to degrade the effectiveness of our military forces. As a result, protecting the DoD's critical information infrastructure continues to be USSPACECOM's main focus in the cyber arena.

We are working hard to normalize our CND mission. We established a command and control structure, initiated efforts to improve the dissemination of critical CND information and established reporting and tracking procedures for protecting and defending critical national security information systems. Our challenge is to stay ahead of evolving threats to our computer networks, keep abreast of rapidly changing technology and continue coordinating closely with other government agencies.

On 1 October 2000, the Unified Command Plan designated USSPACECOM the "military lead" for DoD's CNA activities. Our initial focus has been on the development of a CNA concept of operations that addresses the process needed to integrate CNA capabilities into existing operation and contingency plans. Our challenge is two-fold. First, we must understand the CNA needs of the other CINCs and determine the best way to address them. Second, we need to continue developing CNA strategies through simulations and wargaming to improve our understanding of the potential collateral effects associated with such actions.

On 2 April 2001, we transitioned our CND and CNA missions to an organizational construct we call the Joint Task Force for Computer Network Operations (JTF-CNO). Combining our newest missions under a single operational commander enables unity of command and effort. In addition, the JTF-CNO makes more efficient use of available resources, eases coordination with the intelligence community and other partners and establishes a clear cross-agency coordination process. We see the JTF-CNO as a "pathfinder" organization that will adapt to changing threats and mission parameters.

**Space and Information Operations Exercises.** Over the past year, we have continued to focus on integrating space and information-based capabilities into Service and Chairman of the Joint Chiefs of Staff-sponsored exercises and experiments. Last year's Joint Warrior Interoperability Demonstration showed how space has become an integral part of all we do. Space-based capabilities are not a luxury anymore; they are now fundamental to military operations.

In January 2001, the Air Force sponsored its first-ever Air Force wargame dedicated to space. The Schriever 2001 Wargame explored space warfare issues and investigated the military utility of our future space systems. The preliminary analysis of the results reinforced several key points we have known for some time: a robust "blue" space capability serves as an effective deterrent; the "blue" team is very dependent on space and, as a result, is potentially vulnerable to "red" counterspace actions; and finally, commercial space serves as a powerful force multiplier.

**NORAD Deployments.** In 2000, we once again demonstrated we are prepared to protect our airspace sovereignty. Our aircraft and personnel deployed to forward operating locations, and, in one instance, our forces

stood alert at bases in Alaska and Northern Canada for several weeks to ensure an appropriate response.

### Our Way Ahead

As we prepare for an uncertain future, we must focus our attention on protecting and advancing our interests in space and information-based operations or run the very real risk of a "Space Pearl Harbor" or another "Sputnik" that catches us off-guard and unprepared. In addition, we must remain vigilant in protecting and defending our homeland.

Space Control. Since the activation of U. S. Space Command in 1985, we have focussed on integrating space with warfighting: bringing space to the warfighter. Setting our "integration throttle" high has served us well. Today, nearly every endeavor across the spectrum of military operations utilizes space to succeed.

However, our reliance upon space has become a vulnerability. Potential adversaries are watching and responding. They see space as an asymmetric method for leveling the playing field. Not only are threats emerging on a daily basis, but cheap access to advanced commercial space services continues to chip away at our information superiority edge.

Therefore it is time to push up the "space superiority throttle." We have left this throttle at a low power setting for too long. We must ensure our continued access to space, to deny space to others when directed and to carefully address our reliance on the Nation's \$60B commercial investment in space.

Space is important enough to warrant a significant investment--it is not just a higher hill. This is a medium crucial to our American military operations and one we'll have to fight for in the future.

Space-Based Laser. The Space Based Laser (SBL) could provide worldwide, continuous, boost-phase intercept across a wide range of ballistic missile defense scenarios. Warfighting CINCs recognize SBL's

inherent capability to support other DoD missions such as air defense, global surveillance, space control and target detection. We must continue to pursue the technologies associated with systems like the SBL. The mere fact that the United States is developing means to employ force in space may serve as a significant deterrent.

**Space-Based Radar.** Space-Based Radar (SBR) is a force enhancement system we must explore. The requirement for SBR capability remains high. Our national and military strategies are based on global engagement. As such, our military operations require the day, night, and all weather broad-area surveillance capabilities this system could offer. We were moving forward with an SBR demonstration system, Discoverer II, until it was terminated last fall. In response to the FY01 DoD Authorization Conference Report, the National Security Space Architect is leading a multi-service, multi-agency effort to develop an SBR Roadmap, which brings together requirements for both the DoD and national users. As part of the Roadmap development, we are heavily involved in an analysis of alternatives that will allow the DoD leadership to make SBR decisions considering other intelligence, surveillance and reconnaissance needs.

**Computer Network Defense and Computer Network Attack.** We will continue to facilitate and lead the DoD-wide effort for CND and CNA. We intend to fully integrate these options into all military plans and operations, focusing on positive command and control, integrated planning and deconfliction, fully coordinated intelligence support and execution of assigned missions.

**Ballistic Missile Defense.** With the proliferation of missile technology, one of our primary concerns is the threat of strategic ballistic missiles. A defensive capability is required to protect North America. As part of our unified command responsibilities for ballistic missile defense, we continue our work to establish clear system

requirements and develop the necessary procedures and command and control options for an operational capability.

**Cruise Missile Defense.** In addition to ballistic missile defense, we must also be prepared to defend North America against cruise missile attack. NORAD advocates a three-pronged approach to counter this evolving threat. First, we must develop effective wide-area surveillance around the perimeter of North America. Second, we support an Advanced Concept Technology Demonstration to look at alternative surveillance technologies. Finally, we should leverage others research and development efforts to help counter the cruise missile threat--whenever and wherever we experience it.

#### **Conclusion**

I assure you, NORAD and USSPACECOM are prepared to provide aerospace defense to the people of North America and space support to U.S. and allied armed forces. We continue to find new ways to improve our warfighting capabilities by integrating space capabilities into all aspects of our military missions; we are working to do the same for computer network operations. As we develop our next generation systems, we must invest the necessary resources and intellectual capital to protect our vital interests and sustain our lead in space. We appreciate Congress' continued support to maintain our high state of readiness. With your help, we will ensure space forces play a key role in our Nation's future defense.

Again, I am honored to appear before you and look forward to your questions.