OPENING STATEMENT
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NTSB SAFETY FORUM ON UNMANNED AIRCRAFT SYSTEMS

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Good morning and welcome to the NTSB Conference Center.

I'm Kitty Higgins and I am a Board Member with the National Transportation Safety Board. I am serving as chair of this 2-day forum on the Safety of Unmanned Aircraft Systems. I am joined today by two of my fellow Board Members: Debbie Hersman and Steve Chealander. While three Board Members are here today, we will not deliberate on any matters, and therefore the Government in the Sunshine Act, under title 5 of the United States Code section 552b, is not implicated.

Also with me this morning is Tom Haueter, Director of our office of Aviation Safety, and Dr. Vern Ellingstad, Director of our office of Research & Engineering. Dana Schulze, the chief of the major investigations division in the office of Aviation Safety will introduce the members of the Technical Panel at the conclusion of my remarks.

We have a very full schedule for the next two days, with short morning and afternoon breaks and an hour for lunch. Restrooms are just off the lobby. I hope you picked up a program in the lobby. It includes the agenda and background information on our panelists, staff and Board Members. The panelists' presentations will also be available on our website in the near future. Before we begin, please silence your cell phones and pagers and all other electronic devices.

For more than 40 years, the NTSB has served our nation's transportation community and the public by investigating accidents and making recommendations to prevent similar accidents from happening again. We have now investigated two (2) accidents involving unmanned aircraft. It was the first accident that prompted us to convene this forum. We realized we needed to know more about the current and future operation of these vehicles in our national aviation system. We also decided that a national dialogue about the safest way to operate these vehicles would benefit everyone.

While the impetus for this forum comes from an accident, I see these two days as a rare opportunity to look ahead…to prepare for the future. We will learn about the important contributions UASs are making in times of war, in protecting the homeland and in other, very important missions that serve the public good. We will hear about current safety oversight for vehicle operations and vehicle airworthiness. We will gain a better understanding of the potential for human and mechanical error. We will listen to the perspectives of UAS operators as well as other users of the National Airspace System. This forum is not intended to in any way inhibit the development or use of unmanned aerial vehicles. Our goal is to understand the benefits as well as the risks and learn what can and is being done to minimize those risks.

I've learned that aviators like to claim "firsts" and "bests". UASs don't have on-board pilots to tell their stories but they, too, have an impressive list of accomplishments and records:

- Fastest flight: mach 4
- Highest flight: 96,500 feet
- Longest flight (duration): 52 hours
- Longest flight (distance): 8,580 miles
- Biggest UAS: 246 feet (wingspan)
- Smallest UAS: 6-inch diameter, 2 ounces
- Heaviest UAS: 25,600 pounds
- Most expensive: $40 million

I would like to see another accomplishment added to this list: fewest incidents and accidents in our national airspace.

Unmanned aircraft – with their strange and unique silhouettes and extraordinary capabilities – seem to come straight back from the future. But they actually have a long and storied history. Before the Wright Brothers flew their historic manned flight, primitive UASs – looking much like kites and balloons – were used for combat and surveillance. During World War I, UASs were recognized for their potential in combat despite erratic success in test flights. The armistice interrupted development of UASs. During World War II, Germany demonstrated the threat of UASs and the United States laid the groundwork for post-War programs. During the Vietnam War, UASs began as target drones and remotely piloted combat vehicles, and took on a new role of stealth surveillance as the war continued. The 1970s and the 1980s saw rapid domestic and international development and use of UASs. Today, UASs are a known and valued commodity in high-tech military arsenals. And, like jet airplanes before them, UASs are getting smaller. Under development now are micro-UASs that can be carried in a backpack and launched with a bungee cord. Some are so small they can take off and land from the palm of your hand.

As you probably noticed, a number of interesting UASs have moved into our lobby. They will be on display for the next two days and I encourage you to stop by. The National Air and Space Museum has just opened an exhibit on unmanned aerial vehicles that you may want to visit.

In just a bit, Dana Schulze will provide details about our ambitious agenda. We have five panels today and three tomorrow. Each panelist will provide a short presentation, followed by questions from the NTSB technical panel. I will then lead additional questioning from the Board Members, Mr. Haueter and Dr. Ellingstad. We also invite questions from the audience – both those here in the Board's Conference Center and those watching the webcast. For those of you in the Board Room, write your questions on 3x5 cards – available at the back of the room or from NTSB employees who will collect them and bring them to us. Those of you watching on the web can e-mail your questions to **UnmannedAircraftSystems@ntsb.gov**. We have a lot to cover so we will be keeping close track of the time for presentations, questions, and breaks.

I would like to thank our presenters for joining us today and tomorrow. You are making an invaluable contribution to the current and future safety of aviation. I welcome our live and web audience, and invite your participation. I also want to thank the staff who've worked so hard to put this forum together.

The safe operation of UASs in the NAS must be assured if their full potential is to be realized and supported by the public and Congress. The Defense Department's Unmanned System's Roadmap says it well: "The OSD vision is to have "File and Fly" access for appropriately equipped UASs by the end of 2012 while maintaining an equivalent level of safety to aircraft with a pilot on board." Manufacturers and the military are no longer the only champions of UASs. Local police

departments want to use UASs in neighborhoods and communities for a range of law enforcement activities. First responders want to use UASs for rescue and recovery reconnaissance. Farmers want to use them for agricultural spraying and pest control. And, there are those who have looked even further into the future who believe that our pizza deliveries will someday be made by a UAS. While that cargo may not be expensive or precious, it will be important to those waiting that it arrive safely, warm, and on time. We can't make guarantees about time or temperature but we can make sure that when that day comes, those pizzas will get there safely.

Now, to begin the forum, we will hear from our first presenter – Mr. Andrew Hahn, from the NASA Langley Research Center, who will discuss "Current and Future Unmanned Aircraft Systems Applications." I doubt that pizza delivery is on his list of future applications, but I have no doubt that his presentation will open our eyes and spark our interest and our debate.

Ms. Schulze, will you please introduce the technical panel and Mr. Hahn?

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