



# NATIONAL GEOSPATIAL-INTELLIGENCE AGENCY

Office of Corporate Communications

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**Remarks as Prepared for  
Robert Cardillo  
Director, National Geospatial-Intelligence Agency  
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Thank you, Jack, for that kind introduction and for being such an important partner and member of Team NGA in our mission to protect national security and create geospatial opportunities for our customers.

For more than 35 years, Esri has been a leading pioneer in our profession. You inspire and enable people, communities, and nations around the world to create a brighter future through a deeper, geographic understanding of their rapidly changing world.

At home, your technology enables federal agencies, state and local governments, and non-profit organizations to create sustainable solutions to problems that help them build a more resilient and more productive nation.

Many of you in the audience may not know that Jack learned the guiding principles and priorities which have made Esri so successful when he was a 16-year-old crew chief working for his family's plants nursery.

Jack, when you worked with your crews in your family business, your first priority and most important guiding principle was to take care of customers by focusing on what they need.

At Esri, you have applied those tenets to build a global organization that is dedicated to shaping the future of the entire world for good. At NGA, your team lives up to your principles as they help us to carry out all of our missions. Esri is an invaluable partner.

Thank you, Jack, for your decades of service to the nation and NGA. You are a true pioneer in our profession. Your innovations and your inspiration benefit not only the US, but the world.

NGA subscribes to the same guiding principles of customer service. Like you, we must provide content and context. And, like you, we are squarely focused on customer consequence—the impact our customers achieve with the indispensable discipline of geospatial intelligence or GEOINT. Quite simply, and quite starkly, it is why we exist—it is our only metric.

As some of you may not be aware, NGA is both a combat support agency and a national intelligence agency.

Our customers range from the President for strategic warning to every branch of the military for operations planning to the first responder for disaster relief. Anyone who sails a US ship, flies a US aircraft, makes national policy decisions, goes into harm's way, or responds to disasters, relies on NGA. NGA enables all of these critical missions and shapes decisions that impact our world through GEOINT.

NGA is accelerating our progress to advance the use of geospatial intelligence to build a more resilient nation—and help build more resilient partner nations around the world.

All of us here today come from many different backgrounds and with different perspectives about the value of geospatial information and GEOINT. It is an honor and a privilege to be here with you because beneath our differences, we share a core belief: We believe that geography is at the heart of a more resilient and sustainable future. Geography is our common language and our global platform to understand our world through time and place.

You represent many federal departments and agencies, state and local governments, industry, and academia. Some of you are already partners with NGA in homeland security, humanitarian assistance, and disaster response as well as our combat support and intelligence missions. Those of you who may not be our partner today, I invite you consider what we could do together.

Successful partnerships depend on integrity and transparency. And we at NGA are determined to uphold the highest standards and be as transparent as we can be.

Of our many missions, NGA's disaster relief efforts allow us to be transparent in ways our sister agencies cannot.

One of my bosses, Director of National Intelligence Clapper, has said that geospatial intelligence "has a great advantage in our current environment because it is the most transparent of the collection disciplines." These transparent efforts allow NGA to play a vital role in building the public's confidence in the intelligence community.

I am here today to share with you—and show you—a number of important ways that NGA is using geospatial information:

- First, to serve as the most transparent intelligence agency, and
- Second, by being open and transparent, to save lives and build more resilient nations in the aftermath of catastrophic situations.

I am going to begin by telling you a story about how one NGA geospatial analyst is using open, publicly available NGA content on the World Wide Web to create consequence in the fight against the Ebola epidemic in West Africa.

Then, my teammates, Richard Benjamin and Chris Riopelle, will demonstrate how our open Web site works so anyone anywhere can access our Ebola data.

I will wrap up with a story that demonstrates how our transparency has encouraged innovation in education and the power of partnership in an unexpected, but very welcome way.

First, let me discuss our unprecedented transparency during the Ebola crisis. Since last October, NGA has been playing a vital behind-the-scenes role in the Ebola crisis in West Africa. We are quite adept at supporting military deployers. We have helped, in this case, medical deployers save lives by creating a completely open World Wide Web site and posting as much of our unclassified data as we can. No passwords – no closed groups.

The story about the impact one person can make in this tragic situation begins with an NGA analyst. Embedded with the 101<sup>st</sup> Airborne Division, the analyst is working on the ground in Monrovia, Liberia to help upgrade the country's essential, but out-of-date maps and geospatial content.

Using current unclassified commercial imagery, the analyst and members of the 101<sup>st</sup> Airborne sit directly with Liberian analysts who work for the Liberian Institute of Statistics-Geo-Information Services or LISGIS. LISGIS is Liberia's equivalent of NGA and the US Geological Survey combined.

You can imagine how important it is for the Liberian government to have accurate maps of the areas hardest hit by the Ebola epidemic as well as the medical and transportation infrastructure to combat the disease.

The NGA analyst has downloaded more than a terabyte of up-to-date commercial imagery. The Liberians have added their local knowledge.

Our analyst and Joint Force colleagues have also spent more than 200 hours training and mentoring the Liberians—often in weekend seminars—in new techniques that have saved hours and days of effort.

Working together, they have identified safe helicopter landing zones for supply drops, provided the only up-to-date navigation aids for the pilots, supported the US military in locating hospital sites, and created accurate maps of vital areas. For example, when a key bridge along a main supply route was damaged, the analyst determined three alternative routes from the Buchanan port to a remote Ebola Treatment Unit. The analyst provided two map products with 22 images showing the major turns and bridges for essential supply mission planning.

These small acts are just the beginning of the positive consequences the Liberians will gain. In the future, the Liberians will be able to use their new geospatial content and techniques to build a modern database about their country for a future census, future elections, and future economic development. In short, a more resilient nation.

Now let me invite Richard Benjamin to join me on the stage while Chris Riopelle interacts with our Web site. They will give you a brief demonstration of how NGA's transparent Web site is shaping the future of humanitarian assistance and disaster relief efforts.

By the way, this is NOT a slide show. We are directly accessing our web site. So those of you in the audience with tablets, laptops, and smartphones can follow along if you'd like.

Richard, it's all yours.

[Demonstration performed]

Thank you, Richard and Chris, for that excellent demonstration of the content and capabilities of our public web site. For those of you here, be sure to visit Richard and Chris at the NGA Booth to get a close-up look. Our booth is number A227.

What you have just seen only scratches the surface of the information available to you. As of the end of last week, we had posted 495 data layers, 202 products—including 111 maps of Sierra Leone from the United Kingdom—68 apps, and 100 percent of our unrestricted elevation data. We have conveyed transparent content and context at unprecedented levels on this Web site.

As far as internet traffic – which we're glad we're getting – there have been more than one million views on the website since last October 23<sup>rd</sup>.

But most important is the consequence of our efforts:

Our work with the Liberians and partners like the United Kingdom has guided life-saving decisions by the national security community, the UN World Health Organization, the U.S. Agency for International Development, and many non-governmental organizations – NGOs.

Our work has helped them better understand the human geography and social-cultural issues affecting the spread of Ebola through the region.

Our clear, unclassified graphics have increased their confidence in locating Ebola Treatment Units to save time between symptom, disease, and treatment. That extra time has saved the lives of those with the disease and kept many others from becoming infected. And we have helped the Liberians learn new geospatial skill sets so they can deliver their own content to their own customers. In other words, we have not just given them fish...we have taught them to fish.

Our successful response to the Ebola crisis through the Web means that in the future, NGA will do all we can to be transparent whenever we can, especially in domestic and international disasters.

In short, I have three messages about NGA and transparency: Where we can,

- We are giving you our products and
- We are giving you our tools so you can create your own products.
- And with our products and our tools, we hope to enable you to achieve the consequences that you need.

I know there may be some company representatives and mission partners in the room who might feel a bit anxious about our data releases. Let me assure you that we are releasing data in partnership only under the legal terms of our contracts and agreements with everyone who shares or sells data to NGA.

In fact, although 99 percent of all of our Ebola data is unclassified, most of that is restricted by our agreements. We are negotiating with many sources to release more data. I would urge those commercial and mission partners in the audience to join the United Kingdom, the United Nations, and others to release as much data as possible.

NGA's transparency has become a vital step for us to take in our new world where everything and everyone can be a sensor—with a geolocation. In the future, geospatial information science will lead the way to understanding the world by revealing the unknowns of rapidly changing, complex systems. That world will be more transparent than ever before, and it will require more successful government, industry, academic, and NGO partnerships than ever before as well.

Why? Because we are in the middle of an explosion of innovation across the geospatial community. You are part of this, but you are not alone. I call this explosion the “democratization” of geospatial information. This “democratization” makes geospatial intelligence increasingly transparent because of the huge number and diversity of commercial and open sources of information.

Two factors are driving this “democratization”: the rapidly spreading geography of the Internet and the “darkening of the skies” by small satellites and new airborne collectors.

First, the geography of the Internet – and the emerging Internet of Things – are spreading rapidly as more people carry more handheld devices to more places. They depend on their georeference to work so that makes what we do – spatio-temporal analysis – the bridge to the future of commerce, cooperation, transparency, and security.

Second, the skies—really space—will soon darken with hundreds of small sats to be launched by Skybox, Planet Labs, BlackSky, and others. The challenges of taking advantage of all of that data are daunting for all of us. Moving forward will be less about the amount of images and more about the derived information—the context, the analytics, and the consequence we can enable with that data.

My team just returned from visiting Silicon Valley and the In-Q-Tel CEO Summit. The combined possibilities of an emergent commercial space market, the small satellite revolution, and a vibrant community of companies already mining the possibilities of geospatial data has inspired us to seek new opportunities.

Let me reiterate—NGA wants to be the partner of choice for advancing our craft and enabling consequence by cooperating—not competing with industry.

Let me share another story that combines the transparency of our Ebola data with a transparent partnership that is having a major positive consequence for global education and outreach. Since 2011, NGA and Penn State University have had an active Cooperative Research and Development Agreement – CRADA to help us improve our Geospatial Analytics.

NGA College has provided the Principal Investigator from our end. And Dr. Todd S. Bacastow (Bach-uh-sto), Professor of Practice for Geospatial Intelligence at Penn State University, is the Principal Investigator from Penn State. Our ongoing research has helped both of us identify ways to improve analyst training and education.

Together, our CRADA partnership and a joint initiative with three commercial and non-profit partners have produced an online course that is reaching thousands worldwide.

First, let me recognize Dr. Bacastow because he has developed this online course. Dr. Bacastow, please stand and let us thank you for this remarkable initiative.

By the way, Dr. Bacastow, I am now one of your 12,100 active participants. I signed up and began taking the course over the weekend. I have passed all the levels and am now working on lesson 5.

Penn State has teamed with NGA, Esri, the US Geospatial Intelligence Foundation – USGIF – and Digital Globe to use our Ebola web site to create a Massive Open Online Course or MOOC. It studies “Geospatial Intelligence and the Geospatial Revolution.”

The MOOC, offered through Coursera, is an introduction to geospatial intelligence. It has attracted more than 12,100 active participants from 183 countries around the world. Approximately 1,000 of these students are from Africa.

The Ebola Map course Website gives students the same ArcGIS Online mapping capabilities, Digital Globe satellite imagery, and human geography data layers as the operational NGA Ebola Map website. Students engage in a simple but realistic scenario to analyze possible sites for an Ebola treatment clinic in Monrovia, Liberia for the MOOC’s capstone project.

Penn State anticipates that about 10,000 students will use the parallel version to participate in the capstone exercise. USGIF volunteers will mentor the participants in this exercise.

Of the participants, 39% are from North America, 29% from Europe, 18% from Asia, 7% from South America, 5% from Africa, and 3% from Oceania.

The global reach of this course demonstrates two critical points:

- NGA’s unique position to demonstrate the positive value of intelligence to the global public, and

- The power of partnership. Every sector in the geospatial community—academia, government, industry, and non-profit—joined to make this course a success.

NGA's successful, open disaster response partnerships with national, international, state, and local first responders have led to the ground-breaking initiatives in transparency and open sourcing that you have seen today.

In addition to the Ebola web site and the Penn State course, NGA has taken other steps that are the first ever in the Intelligence Community to make our content and our applications more openly available and more transparent.

Let me cite just two examples:

First, through our partnership with FEMA and state and local first responders—again that word 'partnership'—we are "crowd sourcing" our applications development on disaster response. Through the GitHub open sourcing and crowdsourcing platform, we have invited the public to help us improve our disaster response applications on 16 different topics.

In fact, we have joined with Digital Globe to release on GitHub our 16<sup>th</sup> app called MrGEO—MapReduce GEO. This toolkit leverages the power of cloud-based architecture to solve geospatial problems. For example, first responders can use MrGEO to plan the best ways in and out of dangerous areas by taking into account terrain, land use, and weather.

Second, we are the first IC agency to publish a free safety of navigation app on iTunes and Google Play. We released the Anti-Shipping Activity Message, or ASAM, interactive, database on iTunes and Google Play. The ASAM mobile app includes the geographic location and reported accounts of hostile acts – piracy, robbery, hijacking and kidnapping – against maritime ships, crews, and passengers.

Now, every sailor, whether a captain of a ship or a private yacht, can know where pirates are active and whether they could be sailing into dangerous waters.

Also, coming soon is our latest app – DICE. This app will allow NGA to easily provide consistent access to GEOINT for consumers operating in disconnected environments. DICE is tailored for use by disaster response personnel, urban search-and-rescue teams and others that require interactive content, but may not be where internet is available.

But NGA will not be able to continue to improve its service as a transparent agency without the next generation of well-trained and highly skilled geospatial professionals that we need now more than ever. Frankly, I hope the Penn State course encourages many students to become geospatial professionals—and I invite qualified graduates to join NGA.

You and we at NGA have an enormous opportunity to help grow and sustain the next generation of geospatial professionals.

At NGA, we take our responsibility seriously with many venues for collaboration in education. In fact, NGA and the U.S. Geological Survey have recently established the Centers for Academic Excellence in Geospatial Sciences Program.

Together, we are encouraging two- and four-year institutions, including research universities, to participate in this program. NGA and USGS work with the institutions to design curricula and develop capabilities that improve their education and training for a geospatial workforce.

This program is one way to build, strengthen, and cultivate the current and future geospatial sciences workforce that the NGA, USGS, and many branches of the U.S. government so desperately need.

NGA also supports elementary, high school, and college programs; recruit actively at historically black colleges; and support Science, Technology, Engineering and Mathematics – STEM – education programs.

Although I know many of your organizations are already taking steps, I encourage everyone here to increase your sense of urgency to address this growing need.

In closing, I ask you to remember three key points:

- Through the indispensable discipline of GEOINT, NGA enables a variety of critical missions. We shape decisions that help build not only a more resilient nation, but also a more resilient world.
- NGA's widely respected disaster relief efforts uniquely position us to lead the Intelligence Community in transparency and to play a vital role in building the public's confidence in the Community.
- Lastly, partnerships – government, industry, academic, and non-governmental – can unleash the power of transparent geospatial information and have enormous, positive consequences on serious crises.

Thank you, and I hope you will visit with Rich and Chris at our booth A227 to see the power of transparency.

**END**