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Committee on Environment
and Public Works Washington, D.C.

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AMERICA'S WATER INFRASTRUCTURE NEEDS AND CHALLENGES

Wednesday, January 10, 2018

United States Senate

Committee on Environment and Public Works

Washington, D.C.

The committee met, pursuant to notice, at 11:00 a.m. in room 406, Dirksen Senate Office Building, the Honorable John Barrasso [chairman of the committee] presiding.

Present: Senators Barrasso, Carper, Inhofe, Capito, Boozman, Wicker, Fischer, Rounds, Ernst, Sullivan, Whitehouse, Merkley, Gillibrand, Markey, Van Hollen.

Also present: Senator Cassidy.

STATEMENT OF THE HONORABLE JOHN BARRASSO, A UNITED STATES
SENATOR FROM THE STATE OF WYOMING

Senator Barrasso. Good morning. I call this hearing to order.

Today we are holding a hearing to highlight the importance of passing a new Water Resource Development Act, or WRDA, during the 115th Congress. WRDA is the bill that authorizes funding for the Army Corps of Engineers' Civil Works Program. In order to write good legislation, we must consider the effectiveness of past WRDA provisions, the status of their implementation, as well as our Country's future water infrastructure needs.

The Senate Environment and Public Works Committee has jurisdiction over much of our Nation's water infrastructure, including locks and dams, inland waterways and ports. Prior Congresses have traditionally passed WRDAs on a bi-annual basis, going back to, Jim, what, 1986?

Senator Inhofe. Yes.

Senator Barrasso. Unlike other contentious issues, historically Republicans and Democrat members of the Senate Environment and Public Works Committee have been able to work together and pass WRDA legislation. To put it another way, this is legislation that moves. Regardless of party affiliation, we understand that these kinds of investments are far too important to our economy and security to fall victim to partisan politics.

The members of this committee represent a diverse group of communities with different needs. Our committee has members that represent Baltimore, Maryland and Anchorage, Alaska; Des Moines, Iowa and Mobile, Alabama; Greybull, Wyoming, Wilmington, Delaware. The citizenry and millions of other Americans expect Congress to do its job by passing WRDA legislation to grow their economies and to keep them safe.

When it comes to rural areas in particular, many communities depend on Corps projects for their existence. Congress must act to make it easier for the Corps to prevent flooding and to modernize levees. We must find better solutions to minimize ice jams, such as those that caused the Big Horn River to flood small, rural communities such as Worland and Greybull, Wyoming. Ice jam are a major public safety concern for towns which can't afford the out-of-control costs that come with severe flooding.

In Wyoming and other western States, rural communities still face challenges associated with providing long-term water supply and storage. Federal water storage facilities out west continue to lose existing space as a result of sediment build-up. This is a major problem for western State economies, which have rapidly growing populations, significant ranching and farming communities, and enlarging energy industries. I believe the Corps and the Bureau of Reclamation need to work together to

address this challenge.

It is my hope that this committee will work forward to find solutions in a bipartisan way to meet our Country's water infrastructure needs for urban areas as well. Our Nation's ports, on our coasts and inland waterways are just as vital to the Country's economic well-being. Goods, commodities and raw materials from the heartland of America go through these ports for export. In Wyoming, our soda ash, the key component of making glass, gets shipped out of the Port of Portland, Oregon. We all have a vested interest in maintaining these ports, which are vital arteries of commerce.

So I urge my colleagues to work with me in a bipartisan way to find these solutions to the enactment of the WRDA bill in 2018.

With now, I will now turn to the Ranking Member of the committee for his comments. Senator Carper?

STATEMENT OF THE HONORABLE THOMAS CARPER, A UNITED STATES
SENATOR FROM THE STATE OF DELAWARE

Senator Carper. Thank you, Mr. Chairman. Thanks very much for pulling this together. Thanks to all of our witnesses for taking time to share with us. This is a really important issue, and encouragingly, an issue that we might actually be able to work on together and get something done. In past years, Senator Inhofe, working with Senator Barbara Boxer, they have been good at showing us how this is done. So hopefully, we won't screw up a good thing. With your help, that will be the case.

I want to say that this is an extremely important authorization that we do about every two years. The most recent authorization expires this December. As we all know, coastal issues are extremely important to Delaware. But as the chairman just said, in what I thought was a very good statement, you don't have to be on a coast, you don't have to be in Massachusetts, you don't have to be in Rhode Island or Delaware in order to have a real strong interest in this issue. It affects us all every day.

Delaware's economic reliance on the Corps' work is not unique. Ninety-nine percent of the U.S. overseas trade volume, over 99 percent, moves through coastal channels that the Corps maintains. Additionally, the Corps inland waterways and locks form a freight network. Think of it, if you will, as a water

highway, connecting waterways and ports and providing direct access to international markets. They also serve as critical infrastructure for the U.S. military.

In addition to navigation, the Corps of Engineers also works to reduce the risk to human safety and property damage from flooding. Flooding alone currently costs the United States billions of dollars annually.

As the 2017 hurricane system illustrated, our Nation needs to be a resilient one that is ready for the next storm or flood or drought event. Because they are coming. In fact, just this week, we were told by NOAA, the National Oceanic and Atmospheric Administration, they announced that in 2017, total costs for extreme weather and climate events exceeded \$300 billion. If that seems like a lot of money, it is. That is a new annual record in the U.S. So it is clearly not a matter of if the next extreme weather event is coming, it is just a matter of when.

Together, the Corps' navigation and flood risk management activities account for more than 70 percent of the agency's annual civil works appropriation. But the Corps has or shares jurisdiction over many other critical civil works programs as well, including environmental stewardship, hydropower, recreation, emergency management and water supply.

Unfortunately, in the mid-1980s, federal funding for new project construction and major rehabilitation began to steadily

decline. With this trend, the Corps' actions have shifted to operations, to maintenance, to rehabilitation of existing infrastructure and a backlog of deferred maintenance has continued to grow ever since.

As a result, much of the Corps' infrastructure is now exceeding its useful lifespan. We have a couple of graphics here. I am looking here at one Christine is holding up for us. It was provided by our friends from the American Association of Port Authorities, a busy chart, but a good one, nonetheless. Everybody should have it at your desk, a copy of this. About \$66 billion in investment in port-related infrastructure is needed over the next decade to ensure U.S. job creation and economic growth, over \$66 billion in investment in port-related infrastructure is needed over the next ten years to ensure that the U.S. job creation and economic growth continues.

We have another graphic also provided by the American Association of Port Authorities. As this graphic shows, investment in our freight network, which is an interconnected network of ships, barges, trucks and trains, is essential to the safe and efficient movement of goods, both into and out of the United States. This freight network serves as the backbone of our economy, it is not just ships, it is not just barges, it is not just trains, it is not just trucks, it is all of the above and more.

With respect to flood damage risk, the American Association of Civil Engineers Infrastructure Report Card tells us an unsettling story, with dams and levees and inland waterways grading out at a D, receiving a grade of D. Deplorable. Representing an overall cumulative investment backlog of nearly \$140 billion and an authorized but unconstructed portfolio of another \$60 billion.

The Corps faces a sizeable math problem as they try to service that roughly \$200 billion, if you have the \$140 billion and add that to the \$60 billion requirement, and more. Match that up, if you will, with an annual budget that hovers around \$4.6 billion. The math just doesn't work, does it?

Clearly, we have a lot of important work to do. We need to work in a bipartisan fashion, if we are to really address these concerns and build consensus on a path forward, in a smart, cost-efficient way, leveraging both green as well as gray infrastructure solutions.

Again, Mr. Chairman, thank you for holding this important hearing. We all look forward to hearing from our witnesses.

I want to submit for the record these letters of acclaim for the newest member of our committee.

[Laughter.]

Senator Carper. I just want to say, Chris, welcome aboard.

Senator Van Hollen. [Remarks made off microphone].

Senator Carper. Senator Harris came up to me yesterday at the Caucus lunch and she said, "I'm moving off your committee." I said, "I know, we are sorry to hear that." She said, "It's not because I'm not interested in the issues, I'm keenly interested in the issues and very much want to be part of your extended family." I thought we could work that out.

But for an attorney general, somebody that is going to be on the Judiciary Committee, if you can get there, I think it is a good thing for her. She will still be part of our team. Thanks very much.

[The prepared statement of Senator Carper follows:]

Senator Barrasso. We would like to welcome Senator Van Hollen to the committee. We now, with you and Senator Cardin, and since my mom grew up in Maryland working in Dundalk, Maryland, a summer job, I can tell you with two of you from Maryland and this history, that now we can make sure that the Chesapeake Bay is fully protected. I know that is an issue.

Senator Van Hollen. Mr. Chairman, I will say no more.

[Laughter.]

Senator Barrasso. Welcome to the committee.

We are now going to hear from our witnesses. We are going to start with an introduction in a second from Senator Inhofe. We have Mr. Scott Robinson, we have Ms. Julie Ufner, who is the Associate Legislative Director of the National Association of Counties. We have Mr. William Friedman, who is the Chairman-Elect of the American Association of Port Authorities; Ms. Nicole Carter, the Natural Resources Policy Specialist for the Congressional Research Services; and Mr. Steven Cochran, who is the Associate Vice President for Coastal Protection, Restore the Mississippi Delta Coalition.

And I believe Senator Cassidy is going to be here in a few moments to introduce Mr. Cochran. But if I could start by asking Senator Inhofe to please introduce our guest.

Senator Inhofe. Thank you, Mr. Chairman. I appreciate that, and also having the presence of Scott Robinson here. He

has spent a lot of time in this business and we have become good friends.

I have to say one thing, though, building a little bit on what Senator Carper just said. It is not just the coastal States that we are interested in. We are, in Oklahoma, America's most inland warm-water port. Now, the problem is, nobody knows it. And I remember back when I was in the State Senate, many years ago, in fact, it was back in the 1970s, we conceived something that we thought, we are going to tell the whole world that we are navigable in Oklahoma.

So the World War II submarine veterans came in, we worked out a deal. They said, if you can procure a submarine, we have figured out a way to get it all the way up from Texas to Oklahoma. Now, we are talking about a submarine, the USS Batfish, it was the length of a football field, a huge thing. And all my adversaries were saying, we are going to sink Inhofe with his submarine.

Nonetheless, we got it up there, and there it is, in your port, Port of Muscogee, a 300-foot submarine that shows the world that we are in fact an inland port. So Scott, it is nice to have you here. You have a tremendous background there. You have been at the Port of Muscogee for 28 years now, with more than 1,000 acres of land within the jurisdiction of the Port that is poised to continue its growth and provide several

transportation options for Oklahoma industries.

Scott has been active in the waterway communities, serving on a variety of related boards and commissions, including the National Waterways Conference, the Marine Transportation System, National Advisory Council, Arkansas-Oklahoma Port Operators Association. So it is great to have you here. You bring a lot of knowledge to this meeting, and I appreciate it.

Mr. Robinson. Thank you very much, Senator Inhofe, for that introduction. It is good to see you. I could spend my five minutes talking about stories about you, but I won't do that.

Senator Barrasso. We will extend your time -

[Laughter.]

Senator Barrasso. Don't feel limited to five minutes if you are going to talk about him. But I do want to remind all the witnesses that your full testimony will be made part of the official hearing records, and except for Mr. Robinson, I would ask you please to keep your statement to five minutes, so that we will have time for questions. Mr. Robinson?

STATEMENT OF SCOTT ROBINSON, PORT DIRECTOR, MUSCOGEE CITY-COUNTY
PORT AUTHORITY

Mr. Robinson. Chairman Barrasso, Ranking Member Carper, members of the committee, it is an honor and a privilege to testify before you here today about America's infrastructure needs and the importance of WRDA 2018. Thank you for this opportunity to contribute my thoughts.

I am, as Senator Inhofe said, Scott Robinson, Port Director, Port of Muscogee. I have been there since 1990. The Port of Muscogee is one of two public ports in Oklahoma and one of five in Oklahoma and Arkansas.

I commend the committee for the work it has accomplished through 2014 and 2016 WRDA legislation. As I hope to illustrate further in my testimony today, the absence of regularly-enacted WRDA legislation during the period 2001 through 2013 caused serious harm to an important infrastructure development project along the McClellan-Kerr Arkansas River Navigation System, which in the interest of time I will refer as NKARNS. The NKARNS is a 445-mile, multipurpose waterway that runs through Arkansas and Oklahoma. Completed in 1970 at a cost of \$1.2 billion, it was the largest federal investment ever made in a civil works project, connecting the two States, Oklahoma and Arkansas, with domestic river ports and terminals along the inland waterways of the United States and with ports all over the world via the Port

of New Orleans and the Gulf of Mexico.

In 2015, there was a regional impact study for the NKARNS conducted and published, documenting the impacts, \$8.5 billion in sales, 55,000 jobs, \$289 million in taxes to the national economy. You will find a copy of that in Attachment A to my testimony. At Attachment D you will find a letter signed by the President of the Arkansas-Oklahoma Port Operators Association, endorsing its priorities for the NKARNS. You will find my briefing that we made to the Congress and to stakeholders and Congressional staffers in Attachment B and C.

I would like to take a few minutes to talk about three infrastructure priorities for the NKARNS and in doing so, hopefully give this committee a glimpse of waterway infrastructure needs of the Nation. Number one priority was modification of an existing structure, the Molenda structure. Near the confluence of the NKARNS and the Mississippi River, the Arkansas River and the White River are trying to come together. Every time it floods, the Corps has to spend money trying to fix the problem. Failure is imminent, and a solution is imperative.

The prominent solution to the problem will soon come out of a Corps study now in progress, that is cost-shared by the State of Arkansas. Once the study is completed, and the chief's recommendation is issued, the Molenda structure will face new start and cost-share hurdles. Until then, the NKARNS is at risk

of failure.

Number two, backlog of critical maintenance. There is a serious and growing backlog of deferred maintenance on the NKARNS, \$143 million of which is deemed critical by the Corps of Engineers. The Corps defines critical maintenance as having a 50 percent chance of failure within five years.

In March of 2017, there were 42 such critical maintenance items on the NKARNS. More alarming than that, the critical backlog is growing rapidly. In his testimony to this committee in 2016, Tulsa Port of Catoosa's Director Bob Porter expressed concern that the critical backlog had reached \$70 million. So that is twice as much today.

The problem on the NKARNS is no different than the problem faced all across the Nation. In order to spread too little funding too far, we are fixing critically important infrastructure as close to failure as possible, and in some cases after it fails and on an emergency basis. This is not an acceptable asset management strategy. It is a prescription for failure.

Number three was the 12-foot channel and the vacuum created by the absence of regularly-enacted WRDA legislation before 2014 and 2016 WRDA. Congress, in Section 136 of the Energy and Water Development Appropriations Act of 2004 authorized the deepening of the NKARNS from nine to twelve feet. In the 2005 Energy and

Water Development Appropriations Act, \$7 million was appropriated for the channel deepening; \$5.5 million was used in 2006 for design and construction activities, which reduced the \$172 million estimated project cost by a like amount. In 2009, the Corps expressed a \$49 million capability, but it never ended up in the President's budget.

In Oklahoma, we call this the WEWOKA switch. I don't have time to explain. Suffice to say, being lost in the WEWOKA switch is not good. The committee can rescue the 12-foot channel and resolve the new start dilemma by including clarification language in WRDA 2018 as follows: Congress finds that the initial funding was provided and construction started on a 12-foot navigation channel of the McClellan-Kerr Arkansas River Navigation System, as directed in Section 136 of the Energy and Water Development Appropriations Act, thereby meeting the new start requirements.

In conclusion, according to the Institute of Water Resources, from 2010 through 2012, the Civil Works Program of the United States Army Corps of Engineers provided an annual estimated national economic development net benefit of \$87 billion and stimulated \$27 billion in returns to the U.S. Treasury. Sixteen to one returns in terms of economic benefits and five to one return in revenue to the Treasury. Waterways investment is a wise investment.

If there is finally going to be a comprehensive infrastructure reinvestment plan, then my plea on behalf of NKARNS stakeholders is that it not be just for roads and bridges, but for waterways too. Not just for deep draft coastal ports and harbors, but inland waterways as well, together with modern, multi-modal connections, truck and rail, for efficient, competitive movement of freight.

To the extent waterway projects are favorably considered in such an infrastructure reinvestment plan and require private investment as leverage, then the Water Infrastructure Finance and Innovation Act Program, created in WRDA 2014, may be just the tool necessary to track such investment in projects for which the Inland Waterway Trust Fund Revenues are not sufficient to share.

Thank you again for the opportunity to testify. I would be happy to answer any questions you may have. I realize I have gone over my time. If you want me to tell some of those stories, I will.

[Laughter.]

[The prepared statement of Mr. Robinson follows:]

Senator Barrasso. Thank you very much, Mr. Robinson.

Before moving to Ms. Ufner, I would like to invite Senator Cassidy, if this is a convenient time for you to introduce your guest here today.

STATEMENT OF THE HONORABLE BILL CASSIDY, A UNITED STATES SENATOR
FROM THE STATE OF LOUISIANA

Senator Cassidy. Steve Cochran is sitting behind me, I gather he is on the next panel. Thank you, Mr. Chairman, for allowing me to introduce him.

Chairman Barrasso, Ranking Member Carper and other members, thank you again for allowing me to introduce Steve Cochran, a dedicated Louisiana public servant. Steve has worked for many years in pursuit of a long-term solution that will restore and protect Louisiana's incredibly fragile coastal ecosystem. He has worked with former Louisiana Congressman, then Governor Buddy Roemer, the Lake Pontchartrain Basin Foundation, the Mississippi River Delta Coalition and the Environmental Defense Fund, which makes him uniquely qualified to speak to the need of an integrated strategy that utilizes innovative approaches to restore wetlands and support coastal ecosystems.

Now, coastal Louisiana is losing land as we speak. As we speak, there is something on a Google map that looks green that if you really had an updated Google map would no longer look green, it would now look like open water. That is the crisis we have. It poses a serious threat to our State, to our communities and upon our State's and Nation's economy. It has required our State to develop, in a bipartisan fashion, a comprehensive plan referred to as the Louisiana Comprehensive

Master Plan for Sustainable Coasts, a \$50 billion over 50 years plan to restore Louisiana's coast, based on sound scientific and modeling principles required to be updated every five years.

While Louisiana is prepared to implement projects detailed in the master plan, the problem is the environmental review and permitting processes challenges that threaten to stop these projects from going forward. Currently, the average time frame for the government to approve a federal project is close to five years. Now, remember I said we are losing coastline like this minute? We get five years to permit something, and by that time, there has been dramatic change.

This time frame is unacceptable given the magnitude of the threat to Louisiana's coastline. Revising the permitting approach for the Corps and for other agencies, particularly where multiple federal agencies are involved, is critical, so that regulations focus on finding ways to expedite consideration of long-term ecosystem projects that restore wetlands and protect communities, rather than maintain the current short-term regulatory focus that again only seems to impede these important projects from moving forward.

The Mid-Barataria Bay Sediment Diversion, a WRDA-authorized project south of New Orleans, offers a textbook example of the need to increase transparency and improve coordination between federal agencies. The Diversion will take freshwater and

sediment from the Mississippi into threatened wetlands on the western side of the river to be able to sustain new and existing wetlands.

Now, the existing regulatory hurdles in multiple federal agencies will likely lead to multi-year permitting delays for this and other large ecosystem restoration projects, resulting in the loss of more Louisiana coast.

I look forward to working with this committee to restore the Mississippi River Delta Coalition, the Corps of Engineers and other interested parties, to update and modernize the federal permitting process in the next WRDA reauthorization bill, so that we are better able to sustain coastal environments and communities in both Louisiana and across the Nation.

I thank you for the opportunity to testify this morning to introduce Mr. Cochran. Thank you.

[The prepared statement of Senator Cassidy follows:]

Senator Barrasso. Thank you very much, Senator Cassidy. I know you have other pressing matters. You are welcome to stay as long as you like. I appreciate your coming here today to introduce Mr. Cochran.

Now I would like to call on Ms. Julie Ufner, who is the Associate Legislative Director for the National Association of Counties. Welcome.

STATEMENT OF JULIE UFNER, ASSOCIATE LEGISLATIVE DIRECTOR,
NATIONAL ASSOCIATION OF COUNTIES

Ms. Ufner. Good morning, Chairman Barrasso, Ranking Member Carper and members of the committee.

I am honored to testify before you today on water infrastructure needs and challenges. My name is Julie Ufner. I am from the National Association of Counties. We represent the Nation's 3,069 counties.

I have been asked to share with you our western counties' experiences with the Water Resources Development Act, how we use WRDA to work with the Army Corps to keep our communities safe. Consider this: counties own 45 percent of the Nation's road miles and close to 40 percent of the Nation's bridges, along with harbors, ports, inland waterways, levees, dams. These play vital roles to keep our economy safe.

This especially plays out in the west, where water issues can be more complex. The Federal Government owns vast tracts of land within counties, which prevents counties from raising property taxes. Yet we are still responsible for law enforcement and emergency services on these lands, while also protecting our residents on non-federal lands.

The Federal Government owns 97 percent of the land in the city-borough of Juneau, Alaska, which leaves the borough of 33,000 with only 3 percent of usable land. They are highly

dependent on tourism, mining and fishing to drive their \$2.6 billion economy. A large part of their success comes from WRDA funding that helps them maintain those navigation channels leading to their port.

In Park County, Wyoming, a community 30,000 residents and comprised of 81 percent public lands, in the last year has had mountain flooding and ice jams. This has resulted in flooding which has destroyed county bridges and roads, many of which lead to the gateways of the national parks. The county is now working with the Army Corps and FEMA to replace these structures.

But WRDA could do more. Counties have aging infrastructure in their communities, some of which is close to 100 years old. We have a limited pot of funds to pay for this. One example, Tuolumne County, California, where the local economy of 54,000 is almost solely dependent on an old wooden flume and ditch system for its water, which was built in the 1850s. This flume is located in a heavily overgrown national forest, which is vulnerable to wildfires. If it were destroyed, the community would be without water for months. It would take over a year to rebuild, devastating the local economy.

Additionally, some Federal regulations slow down construction and significantly increase costs for public safety projects. Orange County, California maintains several hundred

miles of flood control channels that are intended to protect homes, businesses and roads from flooding. But for maintenance activity in these channels, such as cleaning out debris, the county is required to obtain Section 404 permits from the Army Corps of Engineers.

It took the county approximately three years to obtain the permit, which mandated them to clear 13 acres of vegetation and required 20 acres of mitigation at a cost of over \$3.5 million for a permit that is only valid for five years. This is not an isolated example.

Additionally, our counties note that there are challenges within the existing Army Corps structure, which includes cumbersome and complex requirements, the length of time that it takes to complete water studies, limited funding and competing agency requirements. Congress has a unique opportunity to address this issue. We are encouraged by the Senate's stated commitment to complete a WRDA bill this year.

We look forward to working with you to identify ways in which we can address challenges within the Section 404 permitting program for public safety infrastructure. We would also like to address funding needs, because without WRDA and the Army Corps, our counties would not have been able to accomplish the multitude of projects that we have been able to carry out in the past several decades.

Finally, we encourage Congress to provide a framework of meaningful consultation between the Army Corps of Engineers and State and local government partners on pending rules and policies that directly impact those entities. We believe that this will solve many of the conflicts that now exist between the Army Corps and its intergovernmental partners. Simply put, WRDA is a project that works. Together, we can work to make the partnership stronger.

On behalf of NACo, thank you for the opportunity to testify. I would be happy to answer any questions.

[The prepared statement of Ms. Ufner follows:]

Senator Barrasso. Thank you very much, Ms. Ufner. We appreciate your being here today.

I would like to turn now to Mr. William Friedman, who is the Chairman Elect of the American Association of Port Authorities. Thanks so much for joining us today.

STATEMENT OF WILLIAM FRIEDMAN, CHAIRMAN-ELECT, AMERICAN
ASSOCIATION OF PORT AUTHORITIES

Mr. Friedman. Thank you. Good morning, Chairman Barrasso, Ranking Member Carper and members of the committee. I want to thank you for the opportunity to provide remarks to the Environment and Public Works Committee on America's water infrastructure needs and challenges.

I am William Friedman, President and Chief Executive Officer of the Cleveland Cuyahoga County Port Authority, which we usually shorten to the Port of Cleveland, because that full name is a mouthful. The Port of Cleveland anchors northeast Ohio's maritime sector, which is a major economic contributor to our State and local economy. Maritime traffic in excess of 13 million tons annually through Cleveland harbor drives \$3.5 billion in annual economic activity in our community and supports 20,000 jobs in our community as well.

I am also speaking on behalf of the American Association of Port Authorities, AAPA, as the Chairman-Elect of its Legislative Policy Committee that sets policy for our members. My remarks today will provide illustrative examples of water infrastructure needs faced by public ports and recommendations for WRDA legislation to improve the Corps of Engineers navigation program.

AAPA members appreciate that Congress understands the

importance of our seaports' role in the U.S. economy. Constructing and maintaining the Nation's 21st century maritime infrastructure is essential to the Nation's economic future. Public ports and their private sector partners are committed to this challenge, with plans to invest upwards of \$155 billion between 2016 and 2020, in port-related facilities.

It is imperative that related infrastructure be a part of any broad infrastructure investment legislation the committee develops. AAPA has identified \$66 billion in potential waterside and landside investments over the next decade that will help assure the benefits from an anticipated \$155 billion in port-related capital infrastructure investments.

The waterside amount consists of full use of Harbor Maintenance Trust Fund revenues over the 10-year period, use of the \$9 billion Harbor Maintenance Trust Fund surplus to restore federal navigation channels, and \$6.2 billion for the federal share of cost-share channel improvements authorized in WRDA 2014 and WIIN 2016, and projects that are currently being studied that will get authorized in the coming years.

AAPA believes a significant federal investment would grow the U.S. economy, increase family wage-supporting jobs, enhance America's international competitiveness and generate additional tax revenues. I have provided two infographics which Senator Carper had pointed out at the outset of the hearing. Those are

both available to you. They look like this. The first provides details on the \$66 billion needs and the second infographic highlights the types of port-related projects that can benefit from infrastructure investment legislation.

Turning to WRDA, it is vitally important that this legislation be passed on a two-year cycle, as it enables both major and smaller policy changes and improvements to be made and navigation projects to be authorized. I look forward to the next WRDA legislation to continue making these improvements in the legislation.

I would point out AAPA's three key priority issues for the next WRDA as follows. First, WRDA 2014 was landmark legislation establishing a path to full use of the Harbor Maintenance tax revenues for its intended purposes, which is navigation channel maintenance. WRDA 2016 adjusted the annual funding target approach so that progress is made toward full HMT use each year. We are grateful the annual funding targets are currently being met by Congress through the appropriations process.

However, we maintain that the ultimate solution is for full HMT revenues to be provided directly to the Corps of Engineers. We appreciate the bills that have been proposed to address this issue. My fellow AAPA members and I are working on an approach that accomplishes full HMT revenue use that includes an industry-supported spending formula.

Number two, authorize and proceed to construct navigation project improvements recommended in Chief of Engineers' reports. This includes a project authorization change report for the Soo Locks major rehabilitation on the Great Lakes.

Number three, past WRDAs include streamlining of the Corps of Engineers study process for navigation channel improvements. That has worked well. We think that additional streamlining improvements can be made in this upcoming WRDA. AAPA will submit a list of specific streamlining improvements to the committee soon.

I commend the committee leadership for recognizing the nexus between water resources development and economic prosperity. I urge you to develop and pass infrastructure investment in WRDA legislation at the earliest possible time. I would be happy to address any questions you might have for me.

Thank you very much.

[The prepared statement of Mr. Friedman follows:]

Senator Barrasso. Thank you very much for your testimony, Mr. Friedman. We look forward to the questions in a little bit.

I would like to turn first to Ms. Nicole Carter, who is a Natural Resources Policy Specialist for the Congressional Research Services. Thanks for joining us.

STATEMENT OF NICOLE T. CARTER, SPECIALIST, NATURAL RESOURCES
POLICY, CONGRESSIONAL RESEARCH SERVICE

Ms. Carter. Chairman Barrasso, Ranking Member Carper and members of the committee, my name is Nicole Carter. I am a specialist at the Congressional Research Services in Natural Resources Policy. Thank you for inviting CRS to testify.

The committee requested that CRS focus on the legislative process for a Water Resources Development Act, WRDA, and related issues in 2018. I will start with a WRDA primer, then discuss Executive Branch reports relevant to WRDA deliberations, and end with some broader context for water resource authorization and infrastructure deliberations in 2018.

Congress is often involved at the project level when it comes to the U.S. Army Corps of Engineers. Congress authorizes the Corps to perform specific projects to improve navigation, reduce flood damage and restore aquatic ecosystems. Congress typically authorizes new Corps studies and projects in statute in an omnibus Corps authorization bill, a WRDA bill, prior to providing federal funding.

Most authorities for previous WRDAs do not require reauthorization. A small number of time-limited authorities and authorizations of appropriations end in 2018 and 2019. Authorization, however, does not guarantee federal appropriations for a project.

Although Congress does not appropriate funds in a WRDA, WRDA provisions may affect the use of appropriations. For example, WRDA provisions have provided targets for navigation trust funds, and have established the non-federal/federal split of project costs. The timing of enactment of WRDAs has varied. WRDA 1986 marked the end of a decade-long stalemate between Congress and the Executive Branch regarding cost-sharing and user fees.

Since WRDA 1986, Congress has aimed to avoid long delays between the planning and the execution of projects. Biennial enactment of WRDA was roughly followed from 1986 until the early 2000s. Since then, enactment has been less regular. An issue that complicated enactment in the 111th and 112th Congresses was how to develop a bill without Congressionally-directed, geographically-specific activities, commonly referred to as earmarks. In response, the 113th Congress developed new reporting processes that I will discuss later.

The 113th Congress enacted the Water Resources Reform and Development Act of 2014. It expanded non-federal opportunities to lead Corps studies and projects and authorized 34 new construction projects. The 114th Congress enacted the next WRDA in December 2016. It authorized 30 new Corps construction projects, as well as dozens of studies. WRDA 2016 was a title of a broader water authorization bill that covered a range of

water infrastructure issues, including programs and activities of the Bureau of Reclamation and EPA. All 64 new Corps construction projects authorized in WRDA 2014 and WRDA 2016 had a completed report by the Agency's Chief of Engineers.

Since WRDA 2016, five Chief's reports that recommend Congressional authorization of new projects have been completed, two projects in Texas, two in Florida and one in New York. An additional 12 to 18 Chief's reports may be completed by the end of 2018. Congress also uses WRDAs to authorize significant changes to previously-authorized projects. The Corps is completing a report recommending an increase in the authorization of appropriations for the Savannah Harbor Expansion Project.

WRDA 2014 created a new process and requirement for the Secretary of the Army to annually collect and report on publicly-submitted proposals for Corps studies and projects. The most recent annual report was delivered in March 2017. It includes 13 public proposals for new feasibility studies and modifications to existing projects. The deadline for the next annual report to Congress is February 2018.

Many topics may shape deliberations on water resource infrastructure in 2018, such as the use of two navigation trust funds and the safety and operation of Corps dams and levees. Three broad topics of relevance to deliberation in 2018 are

infrastructure initiatives. How may a broad infrastructure initiative relate to authorized Corps projects and reinvestment in aging federally-owned infrastructure?

Two, non-federal expectations and partnerships, what will the Federal Government expect of non-federal project sponsors in coming years? And what can non-federal entities expect from the Federal Government in terms of partnering and financing of projects?

Three, floods. Recent disasters, including the 2017 hurricanes, have raised numerous questions, like how effective and efficient are current processes for identifying priority federal investments to reduce the Nation's flood risk?

Thank you. This concludes my statement.

[The prepared statement of Ms. Carter follows:]

Senator Barrasso. Thank you very much, Ms. Carter. We appreciate your testimony. There may be some questions in a little bit.

I would like to now welcome Mr. Steven Cochran, the Associate Vice President for Coastal Protection, Restore the Mississippi Delta Coalition. Thanks so much for joining us today.

STATEMENT OF STEVE COCHRAN, ASSOCIATE VICE-PRESIDENT FOR COASTAL PROTECTION, ENVIRONMENTAL DEFENSE FUND, AND DIRECTOR, RESTORE THE MISSISSIPPI DELTA COALITION

Mr. Cochran. Thank you, Senator Barrasso, Senator Carper, and members of the committee. I also want to thank Senator Cassidy for coming here this morning. I don't know if you noticed it, but he has a bad cold, so I particularly appreciate him being willing to come out here today. I want to thank Senator Kennedy from our State as well, both of them do diligent work on behalf of our State's vulnerable coastal communities.

For the record I am Steve Cochran, Associate Vice President with the Environmental Defense Fund, and the director of a coalition called Restore the Mississippi River Delta. We are a coalition of three national organizations, the Environmental Defense Fund, the National Audubon Society, and the National Wildlife Federation, and two Louisiana-based organizations, the Coalition to Restore Coastal Louisiana and the Lake Pontchartrain Basin Foundation.

For over 10 years, our coalition has worked together on landscape-scale restoration across the Louisiana coast. In addition to my own written statement, which is submitted for the record, Coalition members National Wildlife Federation and Audubon have also submitted written testimony. I hope the Committee can give them due consideration as well.

This morning, I would like to tell you a little about the challenges in my home State of Louisiana, where, to be blunt, as Senator Cassidy said, we have a coastal crisis. As Congress begins to look at WRDA, I want to focus on possible solutions from what we believe are lessons from the front.

The Louisiana coast, since the 1930s, has lost about 1,900 square miles. As Senator Carper knows, that loss is roughly the size of the state of Delaware. Without action, we are projected to lose up to another 4,000 square miles within the next 50 years.

These losses have dramatic implications for millions of people and their communities along the coast; for nationally significant energy and refining infrastructure, for globally significant port facilities; and for world class habitat that supports countless wildlife species, including a huge diversity of commercial and recreational fisheries.

While the crisis along Louisiana's coast is unique, its challenges are reflected across the Country. As the committee knows, 2017, Senator Carper pointed this out earlier, set the record for weather-related damages across the Country, the majority of which were from hurricanes and floods. As you would imagine, we spend a lot of time in the Delta thinking about solutions. From that perspective, here are some general concepts that we would recommend as you consider WRDA.

First, coastlines are complex systems, and each area requires its own carefully considered measures to adapt to changing conditions.

Second, no engineered or natural structure is 100 percent effective against all storms, but structural solutions can be rendered far more effective in concert with restored natural features and processes.

Third, in many cases our Nation's wetlands and floodplains are themselves critical infrastructure that needs to be restored so that, in addition to their ecological benefits, they can be used specifically to reduce the impacts and costs of floods and storms.

In Louisiana, the State and its partners have used these concepts in constructing their own approach. Louisiana's Master Plan for a Sustainable Coast is a document which guides comprehensive State planning initiative based on cutting edge science and modeling. It is driven by priorities, recognizes finite funding, and enjoys quite remarkable bipartisan support. This Plan is iterative, which means it is updated every five years to incorporate the latest science and reflect progress. Each update must be approved by the State legislature, and each of its three iterations over 15 years have all been unanimously approved.

This plan is also informed by an exceptional and growing

public engagement process, giving communities a voice in their own future. We strongly recommend that other States facing significant flooding challenges examine the Master Plan's approach as a useful guide.

As for details, gray projects like rocked shorelines or levees are complemented with restored wetlands, barrier islands, and oyster reefs, as well as non-structural approaches. A combination of these measures are organized to create a "multiple lines of defense." As you can see, my colleague Shannon is holding here, you see the array of various approaches that can be married together, both structural and natural, to really provide multiple lines of defense. That is true along rivers, it is true along coastlines. It is this kind of thinking that we would strongly recommend to the committee in thinking about the kinds of projects that it encourages and supports, incentives that it builds into the system going forward.

This next chart is just simply a specific version, done specific to Louisiana, where you can actually see how it works in our setting. These charts are in the written testimony and you can look at them in more detail that way.

Now, the natural aspects of these are really beneficial, because they have so many co-benefits. Oyster reefs, which help reduce wave problems, also grow oysters. Storm surges that can

be stopped by wetlands, wild wetlands maintain significant habitat. The maritime, swamp and mangrove forests can lower wind speeds from storms, while also supporting vast numbers of wildlife and commercial species. So it is these things together that we think really make the most sense, particularly as we have limited assets and finite resources going forward.

One final element I want to tell you about that Senator Cassidy mentioned is the Mid-Barataria Sediment Diversion. It is a unique and innovative approach. This was originally authorized, I will make this point, in WRDA 2007 under a different name. It will take up to 75,000 cubic feet of fresh water and sediment from the Mississippi River and, at strategic times in the river's cycle, deliver it to the threatened wetlands on the western side of the river. In doing so, it will use the power of nature to build and sustain tens of thousands of wetland acres, including those created through separate projects. These wetlands will in turn provide buffering for the levees, inside of which are our communities and the industry that we depend upon. So you get the mix of natural infrastructure, protecting built infrastructure, protecting our communities and coasts. It is that combination that we think makes the most sense.

It is a wonderful approach for us, but I have to add here that these kinds of projects are not without challenges. In

this case, because of the project's essential nature for our work, the State has decided to fund it entirely on its through resources that came through the Deepwater Horizon penalties. Those of course are subject to federal agency permitting, as they should be. I want to underscore the importance from our perspective of environmental review, and frankly, even our opposition to some of the forms of streamlining that we have seen.

However, the federal permitting timeline of nearly five years for this urgent, already long-studied project is unacceptable, given the urgency that we face. In this case, some delays stem from several factors, including the challenges some agencies confront in accounting for what happens if no action is taken at all.

Given the urgency of the crisis in Louisiana and the challenges associated with it, it may be that a targeted legislative solution is required, which if done carefully and without damage to the underlying statute, we support. Here and elsewhere, we are encouraging permitting agencies, including the Corps and NOAA, to work cooperatively and expeditiously to find ways to consolidate the permitting timelines.

In summary, Louisiana is deploying multiple lines of defense and pursuing innovation to address a coast in crisis. But to be successful, it needs a reliable, effective federal

partner that can provide timely and appropriate resources, and stay focused on solutions. As the Committee moves forward with this authorization, we encourage you to think about that formula for the rest of the Country as well.

I went a little long. Thank you for your patience.

[The prepared statement of Mr. Cochran follows:]

Senator Barrasso. Thank you very much for your testimony. We appreciate all of you being here. We are now going to move on to a series of questions from members.

I will start with you, Ms. Ufner. Many stakeholders who work with the Corps of Engineers have commented and maybe complained a little bit about the process that it follows to get from identifying a water resources problem to implementing a solution, and that there can be long and costly delays. For example, in the arid west, there are many water supply challenges that have not yet been solved, such as removing sediment from reservoirs, to providing more water supply capacity and effectively managing multiple water supply needs, such as flood risk management, drinking water, irrigation, all from a single reservoir.

So as a result, the water supply is becoming scarce and more expensive. Could you please share any thoughts you might have as to how to improve the Corps' processes, so that the water resource projects are operated more efficiently?

Ms. Ufner. Thank you, Senator. We actually have a number of suggestions, but in the interest of time, I am going to limit it to two. First, improve the intergovernmental collaboration between the Corps and local governments. The Corps has a lot of technical assistance that is very valuable to local governments. But the processes and permits they have often prohibit or slow

down projects from moving forward.

Secondly, Congress may want to consider requiring the Corps to do a regulatory efficiency assessment of Corps processes, and have the Corps submit to Congress the results of this with potential alternatives on how they are going to address it.

Thank you.

Senator Barrasso. You said you were just going to share two. If there are some additional ones you would like to add in writing, we would be happy to receive those.

Ms. Ufner. We would be happy to do so.

Senator Barrasso. Thank you.

Mr. Robinson, as well as Mr. Friedman, ports and inland waterways are very important to the lifeblood of the American economy and our economic activity. Every year, over a trillion dollars worth of goods moves through the ports and inland waters, and to every basic corner of the United States and around the world. Can you talk a little bit more about the importance of ports and inland waterways and how their management impacts your ability to transport goods, allowing us to keep jobs at home and help us to more effectively complete globally?

Mr. Robinson. Senator Barrasso, just speaking on behalf of the NKARNS, from Tulsa, Oklahoma, to Muscogee, just in that segment of the waterway, 53 miles, there are more than 8,000

jobs, there has been \$5 million invested. Annual payrolls to the counties and to the cities are \$320 million annually.

In Muscogee, which is a community of 39,000 people, most of the manufacturers in that community, and Muscogee is a manufacturing town, depend on the waterway. So they depend on the reliability of the waterway. They depend on the transportation cost savings for delivering and receiving goods on the waterway. It is critically important to the economy of rural America. We are not investing in the system like we should be. Therefore, we are encountering delays, and it is not a good situation in rural America.

Senator Barrasso. Mr. Friedman, would you like to add?

Mr. Friedman. Yes, thank you for the question, Senator Barrasso. I will address that from the perspective of the Great Lakes and the St. Lawrence Seaway, which is a unique waterway system, where we are all interconnected as ports, and we trade with one another, both within the system domestically. There is also of course the international waterway, St. Lawrence Seaway, where we connect to all parts of the globe.

The partnership that we have with the Army Corps under WRDA to keep our harbors fully dredged is a critical lifeline for big cities like Cleveland, Detroit, Chicago, as well as a number of rural communities. It is critical for agriculture, for heavy manufacturing, for steel-making, which takes place in Cleveland,

based on iron ore, which comes down from Minnesota. That is one of the primary examples of the types of trade in our region.

Then we have many cargoes that flow in and out of the heartland through the St. Lawrence Seaway, both exports from American manufacturers and imports like specialty steel that we rely on in the appliance manufacturing sector and other manufacturing sectors. So I think in total, the number for the entire system is something like on the order of 227,000 jobs, both on the U.S. and Canadian side of the Seaway and the Great Lakes. So making sure that we continue to get WRDA right, streamline the process, authorize new projects and get to full use and full spend of the Harbor Maintenance Tax is a critical priority for us. Thank you.

Senator Barrasso. Thank you.

Senator Carper?

Senator Carper. Thanks, Mr. Chairman.

I will start out with Nicole Carter. Let me say, excellent testimony, very helpful. A question for you. Given our current operating environment, with recently-passed tax reform which reduces revenues over the next ten years by about \$2 trillion, the state of our crumbling infrastructure with a grade of D, and we are talking about the kind of situation we face here with our ports, our rivers and so forth, it is just as bad with respect to roads, highways and bridges.

Complete with limited numbers of Chief's reports and a large backlog of Corps projects, what are the big issues that we should tackle on the next Water Resources Development Act?

Ms. Carter. Thank you for the question. In WRDA 2014, Congress established new ways for non-federal entities to be involved in projects. This has resulted in additional projects being led by non-federal entities, and trying to understand how well are those projects and processes working for those non-federal entities, as well as delivering on projects would be part of the process to understand how to incorporate Corps project into a larger investment package.

Basically right now, that process consists of the non-federal entities often providing the funds up front, and essentially signing an agreement that upon the availability of appropriations, they may receive some reimbursements. GAO recently did a study that identified that there are about \$4 billion in projects like this in the Country, and about \$400 million has been reimbursed. But we don't know the total amount that requires to be reimbursed.

How well those are working, well, [indiscernible] how well other non-federal entities in the future want to make those investments and what they can expect in the way of the Federal Government partnering in those investments if they do choose to lead rather than wait for the Corps.

Senator Carper. Thank you very much.

I will turn next to Mr. Friedman. Thank you very much.

Does the Cuyahoga River still catch on fire?

[Laughter.]

Mr. Friedman. No, sir. We are coming up on the 50th anniversary of that infamous fire, Senator Carper. I am happy to report that the environmental health of the river has been restored significantly. We are proud of what we have been able to achieve since that dark day.

Senator Carper. I was a student at Ohio State University about that time. We used to talk about fish fries up on the Cuyahoga River.

[Laughter.]

Senator Carper. The wrong kind. Question for you, if I could. By 2020, the total volume of cargo shipped by water is expected to more than double by what it was just 17 years ago in 2001. As ships continue to get bigger, we see more congestion at the docks, longer ships required, deeper navigation channels, as we know, which only a few U.S. ports currently have.

How do we ensure that ports are able to effectively distribute and receive goods as ships continue to grow in size? Is it a policy, funding? Is it policy issues or funding issues or both? If it is a funding issue, how do we go about doing more with less.

Mr. Friedman. Thank you for the question, Senator. I will try to address that. Yes, it is certainly a funding issue and a policy issue, both. As you heard me say earlier, AAPA is asking for \$66 billion over the next 10 years to address many of those issues that you just spoke to, deepening waterside projects, such as deepening in order to keep up with the ships that are, of course, enormous today, as well as some landside projects to ensure that we have the intermodal connections, so once that cargo comes off that ship at a port, or moves onto that ship, it can get to that port efficiently from an inland point.

So we absolutely need a federal partnership. I would also point out that there is already what I would call a robust public-private partnership in place, because our port authorities work very closely with private sector port terminal operators and ship owners who invest heavily in our ports in partnership with our ports and the Federal Government. The federal dollars will leverage additional private investment and go toward those sorts of infrastructure projects, which there is no direct pay-back on.

So we look forward through this next round of WRDA and in this infrastructure discussion we will be having this year to ensuring that we can put a plan in place to fund those important needs at our ports.

Senator Carper. In my opening statement, I mentioned that

the Corps faces a rather sizeable math problem, as it tries to serve roughly a \$200 billion requirement, and more with an annual budget that hovers around \$4.6 billion. Think about that. Think about that, a \$200 billion requirement to meet and an annual budget that hovers around \$4.6 billion. We are just, we know it costs a lot of money. We know how economically important it is in our Country. We are just not spending the money, we are not investing the money. We can do streamlining from now until the cows come home. We have done a lot of smart streamlining. I think we are prepared to do some more.

There is good news, and good opportunity to figure out how to leverage federal resources, State resources to bring in private sector resources. We are doing that right now with an extension of the Port of Wilmington.

But at the end of the day, one of the things we need is for the Federal Government to do its share, to do its part. That is not something that requires a response from any of you. I think that is the 800-pound gorilla in the room. Thank you.

Senator Barrasso. Senator Inhofe?

Senator Inhofe. I think Senator Carper brought out something that is significant and that is very unique, and that is that in this area, where we are trying to bring in private sector funding, we actually had to pass a bill and a provision into law to allow that to take place. I can't think of any

place else in government where you have to ask permission to let the private sector pay for something. So that was something that was good.

Mr. Robinson, I again appreciate your being here so we can make it very visible to people that we have problems on this inland waterway. I can remember back when I first came to Congress, I would go up through some of the eastern States and see the problems they have had with their old ports, thinking, well, we are pretty fortunate in Oklahoma, we don't have those problems. Well, now we do have those problems. Enough years have gone by, we have outlived the lives of some of our ports. So we have to address that.

We had a subcommittee that I chaired not long ago on transportation and infrastructure. Someone suggested that the cost share of the Inland Waterway Trust Fund should be changed in some way. One suggestion was from, to 15 percent from the trust fund and 85 percent from the general fund. Are you familiar with that suggestion?

Mr. Robinson. Yes, Senator Inhofe, I am, and I think there probably needs to be an adjustment. The problem, as Senator Carper acknowledged, is not doing more with less. We have been trying to do that forever. It is not working. We need to do more with more and do it efficiently and in a businesslike manner.

Senator Inhofe. Those of us who have been down there and observed the problems that we have in some of these relatively new ports through where we carry our goods and services, our Nation's system directly touches 38 States, as has been brought out. It is not just the coast. Three of our ports go through Senator Boozman's State, then two more ports are in Oklahoma.

Now, in the FAST Act, for the first time, and I have been through all seven of them since 1987, that we were able to have a freight provision. That freight provision left a lot of the authority up to the States as to how to expend that and so forth.

So I would ask the question, would allowing the States to use FAST Act freight funds on our waterways, if they chose to do it, would that be a valuable tool to address the issues and the needs in the States?

Mr. Robinson. I think so, Senator Inhofe. I think we need more tools, and that would be one of them. The question, of course, would be whether States who are so focused on their highways' needs, roads and bridges, how much effort or how much expenditure they would allow from those funds for waterways.

The other question is, what would they use those funds for? Would they use it to cost-share new projects? If that were the case, I think there is a real need to cost-share new projects. There is not enough money in the Inland Waterways Trust Fund to

do that. Perhaps the States are going to have to pick up a little bit of the load there.

Senator Inhofe. It is not going to happen unless somebody does something. You have to get aggressive and come in with the State, decide what the alternatives are and then what percentage perhaps might be appropriate for that. I look at sources and I run out of ideas. So anyway, I think that is something we can do, and something that doesn't affect us as much here in the Federal Government as much as it does in State government.

Mr. Robinson. I also think, Senator Inhofe, the Water Infrastructure Financing Act that the Congress authorized in 2014 is another tool that could be used. It is leveraged, because the Federal Government is getting the money back, it is a loan. So I think that is another one of the tools at our disposal, like the TIGER program.

Senator Inhofe. There is a variety. We can get together and decide what we want to do on a State level.

Ms. Ufner, the counties and cities are facing a lot of issues when it comes to water resources, in trying to address these. I know other States, not just the State of Oklahoma, have some of these problems. In the city of Bartlesville, Oklahoma, the community is growing and in need of additional water storage. Now, we had water storage from one lake in that city. As a result, it increased our rates to the customers by

over 100 percent.

But when we tried to open up another one, and I am not sure you are familiar with this particular issue, but we went to the Corps of Engineers, and they increased, they had a rate increase of 3,000 percent, which obviously our cities, that particular city of Bartlesville, was not able to do anything. When I asked the GAO to investigate how the Corps comes up with their prices, they reported back that they couldn't, because the agency's record-keeping was so bad and varied they could not actually study how the agency arrives at their numbers. That is shocking.

Ms. Ufner. I almost feel like that is a trick question, Senator.

[Laughter.]

Senator Inhofe. No, it is not a trick question, it is a serious question and I would like you to talk about it. Because we have new people coming in, and we have had a hearing already with the Civil Division of the Corps of Engineers. They recognize that changes have to be made. But not if we all sit around and keep quiet and don't talk about it.

Ms. Ufner. I think that you hit a strong point on the head. There is a lot of information that is not available out there. It is something that we need to figure out and work together to do it.

Senator Inhofe. Yes, well, my time is expired, but that is something we need to address. Thank you, Mr. Chairman.

Senator Barrasso. Thank you, Senator Inhofe.

Senator Whitehouse?

Senator Whitehouse. Thank you, Chairman. I appreciate the panel being here. Particular welcome to Mr. Friedman.

Rhode Island has two ports that we are investing in and proud of, ProvPort and Quonset. We are the home of Moran Shipping Agencies, which is one of the world's best ship servicing agencies. So we are keenly interested in ports.

I am interested in your take on what sea level rise infrastructure impacts our ports are looking at.

Mr. Friedman. I think our ports are keenly interested and concerned about sea level rise and what they can do in partnership with local, State and Federal Government to enhance resiliency, as we heard Mr. Cochran speaking to earlier. I think we would look toward this WRDA bill to increase our ability to work in innovative ways with the Army Corps of Engineers.

I think you usually find that a lot of the new and interesting ideas tend to bubble up from those of us who are on the ground at our local ports and communities. We need the ability to sit down with our Army Corps districts and work together on those solutions. We are engaged in those

discussions with the Buffalo District of the Corps, which oversees Cleveland. Believe it or not, we have had some coastal resiliency issues in Cleveland. SuperStorm Sandy did a tremendous amount of damage to our breakwater and other structures in our port. We are looking at dredge material, for example, to fortify our port.

Senator Whitehouse. Is it fair to say that the concern of America's ports about sea level rise goes beyond the actual seashore itself, that you can raise piers and sea walls and so forth. But if the sea is infiltrating through, for instance, water systems and bubbling up behind, if it is flooding access roads that are necessary to get goods in and out of the ports, those are matters that are of equal concern to the actual shoreline itself, is that correct?

Mr. Freidman. No question, Senator. I think our ports are literally on the front lines of this issue and they are very concerned about the upland impacts of sea level rise as well as being inundated right on the docks. There is no question that all our ports are focused on that question. I think they are all working very hard to figure out how do we mitigate going forward.

Senator Whitehouse. Ms. Ufner, you are here on behalf of all counties, but if I could direct your attention to coastal counties, could you tell us what you are hearing from coastal

counties about the infrastructure hazards and risks and problems and challenges that they are seeing related to sea level rise and storm surges and so forth?

Ms. Ufner. It is much broader even than sea level rise and storm surges. We are definitely getting the flooding in the coastal counties. I also work very closely with our Gulf States Counties and Parishes Caucus, and especially with the hurricanes that have come through this past fall, they are increasingly focusing on how to address those issues. Because the weather events have been getting more severe and the population growth within those communities makes it even more essential that the communities can address these issues at the local level.

Senator Whitehouse. So my view on this is that this is a problem that coastal communities face, counties and municipalities. That very often those counties and those municipalities don't have a lot of resources to do the planning. I see your head nodding, for the record, yes. Good. It is also my view that a lot of the FEMA mapping has proven itself to be wildly inaccurate. So you have counties that are counting on the Federal Government for planning as to what sea level rise and flood risk looks like and they are being given bad information, which puts it again back on the community to try to reach its own better planning process. But without the resources it is really hard to ask a local community to take on

a task like that . Is that a fair description of the problem as you see it as well?

Ms. Ufner. It is. Counties derive a large part of their income from property taxes and States set the limit of how we can even raise property taxes. So it sets an ugly cycle of how do we fund for something, how do we strengthen our local communities. And that is why the Federal-State partnership is so valuable to us.

Senator Whitehouse. Yes. Well, let me just make one point to my colleagues. I think that as we are beginning to address these WRDA issues, one of the areas in which we can become more efficient and more helpful to the Army Corps would be to try to find a good, honorable and transparent way for Congress and this committee to be able to assert its own priorities in the process.

It concerns me that we shovel projects in one side of the WRDA bill and we shovel money in the other side of the WRDA bill, and how the Army Corps of Engineers connect that money to those projects is a giant black hole. I think we need to fix that. I know we have been through a problem of earmarks that received a lot of justified criticism. Our response was to abandon this responsibility entirely. I think that was an overreaction, and that we can and should in this committee try to frame out an honorable, transparent, proper way for these

priorities to be met under our supervision, rather than just throw it off to the Army Corps bureaucracy. I hope that statement was not unwelcome, and I appreciate that time.

Senator Barrasso. It was very welcome. Thank you very much, Senator Whitehouse. Senator Wicker?

Senator Wicker. Thank you.

Mr. Friedman, let's talk about the Harbor Maintenance Trust. I notice in your testimony you advocate full use of HMT revenues over a ten-year period. What we have been doing, as has been pointed out, is we have been taking in more HMT revenue and sort of setting it aside, making the deficit look better by not spending it for its intended purpose.

If we take your recommendation and restore, and restore over a ten-year period the full use of these revenues, will that get us where we need to be in terms of meeting our funding needs?

Mr. Friedman. Thank you, Senator Wicker. It gets us part of the way there, but not all of the way there. If you look at the numbers that AAPA has submitted in the infographic, and they can provide more detail, we are calling for full spend every year of the revenues that are brought into the trust fund, and spending the roughly \$9 billion surplus that has been built up, as you just mentioned. Then on top of that, we would need additional monies through an infrastructure bill to reach the

\$66 billion, which we identify as the full need.

So we would certainly be fully maintaining our harbors at that point, if we fully spend the Harbor Maintenance Trust Fund, catching up with the backlog if we use the surplus. And then for some additional waterside improvements, such as deepening, which was mentioned earlier, some of our largest harbors for the larger ships, some of the big container ports, then some critical landside multimodal connections, using infrastructure dollars, we think that gets us to where we need to be as a Nation.

Senator Wicker. Okay, so it is your hope that the President's infrastructure plan, which should be outlined to us and to the public within a couple of weeks, or at least within a month, that that \$1 trillion infrastructure plan will be the third step in getting us where we need to be to meet our needs?

Mr. Friedman. We hope so, Senator, yes.

Senator Wicker. Okay, and I hope so, too.

Thank you for this chart and these graphics. Senator Carper showed a bigger copy of this. They are illustrative examples of port-related investment needs. I notice you have three rail projects, one being the Mississippi Rail Relocation Marine Terminal Project at Pascagoula, Mississippi. That is the only city in the United States that rhymes with hallelujah, you might tuck that away as a fact to be learned today.

[Laughter.]

Senator Wicker. Also, Cross Harbor Rail Tunnel in New Jersey and Port Arthur Rail Project. How are we doing in rail access to ports? And why aren't we where we need to be? What have been some of the challenges in getting that rail to the ports?

Mr. Friedman. I think we have made good progress in the last 20 or 30 years or so in improving rail access to ports. Intermodality, or the whole concept of putting a container onto a train, is not that old a concept. So many of our ports had to be retrofitted with the kinds of rail connections that would be functional for them.

The granddaddy of all those would be the Alameda Corridor project in southern California, which consolidated all the rail lines in a cut, so as to eliminate grade crossings. We have seen those sorts of projects on somewhat smaller scale at many of our ports. That has been, I think, a good public-private partnership between the railroad industry and between ports themselves, between the Federal Government.

But we do need more. We are seeing increased volumes to and from our ports. I think it is particularly important for exports. We tend to think about containers coming in through our ports. But where I am in Cleveland, we think a lot about exports. We need those strong rail connections from the

hinterland into the ports in order to move exports, which quite often are heavy and bulky products that we make here in the U.S.

That is why, in that \$66 billion, we have included those critical rail connections. In some cases it is tunnel clearances, in some cases, it is rail bridges, in some cases it is grade crossings, it is more track in order to manage those trains as they move in and out of the ports. Thank you.

Senator Wicker. Quickly, Mr. Cochran. This loss of land in Louisiana is something I am more than familiar with, as a next-door neighbor. Truth of the matter is, I am not advocating doing away with flood control, but it is actually flood control over the centuries and decades that has caused the absence of sediment and the loss of land, is that correct?

Mr. Cochran. One of the significant factors, yes, sir.

Senator Wicker. Just the point I would make is, no one would advocate the solution to the problem is to go back to the wild days that we used to have that caused the sediment. I appreciate you and your testimony by thinking of different ways, innovative ways to address them and that we can't change back to the way it used to be. I appreciate that.

Also let me just say, I understand you that we are all for streamlining permitting. You have some doubts about some of the suggestions at the other end of the table. We are going to have to come together across the aisle on ways that we can streamline

the permitting processes. I am glad to see a consensus among all five of our witnesses, I believe, that we need to address that. I hope we can work on the nuances that can be a happy solution and a win-win for all parties.

Mr. Cochran. I would offer, and I appreciate that. The key there is what you identified, which is sitting down together, sitting down together on the things that we have been lucky enough, and maybe threatened enough in Louisiana to do, is to recognize that hurricanes and other things are completely non-partisan. We need to be too, as we figure this out. So looking at how to make the system work better, how to make underlying protections do what they are intended to do, but to do so in the most efficient way, that is a great conversation to have.

Senator Wicker. Thank you.

Senator Barrasso. Thank you, Senator Wicker. Senator Gillibrand?

Senator Gillibrand. Thank you, Mr. Chairman, Mr. Ranking Member. I am very grateful for your holding this hearing. It is important work that our committee does, to draft the new Water Resources Development Act this year.

My State of New York has a wide range of diverse water infrastructure needs and challenges. We are a coastal State threatened by the impacts of climate change, coastal storms and

sea level rise. We are also a Great Lakes State, constantly challenged by aquatic invasive species like Asian carp, that have the potential to destroy our fisheries if they are not stopped from gaining a foothold in the Great Lakes Basin.

We have the largest and busiest port on the east coast, which is essential to international commerce. And we have a number of small ports and harbors across our State that are important to the local economies and need to be properly maintained.

We cannot address all of these challenges without a strong investment in the Army Corps. But funding is only a part of it. We need to ensure that we are investing our federal dollars so that we are more resilient in the face of these challenges.

I was very disappointed that the Trump Administration chose to rescind the Flood Risk Management Standard implemented by the Obama Administration, which required federally-funded projects to incorporate best available and actionable science on climate change and sea level rise and build above the base floor elevation levels. If we are spending, as we are in the northeast, billions of dollars to build the infrastructure to protect our communities, it defies logic that we would leave taxpayers exposed to the types of catastrophic losses we saw after SuperStorm Sandy, and more recently hurricanes Harvey, Irma and Maria, but not building to withstand the current and

future flood risk.

So to Ms. Ufner, what are the consequences to counties and local governments and their taxpayers if we fail to properly assess risks, both current and future, when planning to build in flood plains?

Ms. Ufner. Thank you, Senator, for your question. Ultimately, counties are responsible for the public health and safety of our communities. Probably, if you look at what has happened in Santa Barbara County, California, within the last day, with the flooding that is due to the wildfires, there are only limited things you can do after a wildfire to address risk. But it demonstrates that when floods happen, people die, homes disappear, roads are gone, memories are gone. This is something that local governments want to prevent, and they want to be there to help with their residents.

Senator Gillibrand. Are we doing enough to ensure that we are adequately protecting ourselves and our assets from future storms and floods? What could we be doing better?

Ms. Ufner. It is a combination approach. There is a responsibility on the local governments. A lot of our local governments, though, they have the limited income and technical assistance to follow through with these projects. And that is where they really look to the Army Corps of Engineers and other federal agencies to bring the technical assistance, the data,

the modeling, the communities can use. We have been working with our counties on best practices that they can use in their own communities to build their resilience at the local level.

Senator Gillibrand. What else could we be doing?

Ms. Ufner. We just keep on going in the direction we are going. The way NACo views it is that these are steps on the ladder that we can help the communities that are out there, really being aggressive. There are trend-setters. They are the ones we learn from on what may work in other communities.

Senator Gillibrand. Thank you.

To Mr. Cochran, what needs to change in terms of Army Corps policies and procedures to allow for greater use of nature-based solutions to mitigate flood risks along our coastlines?

Mr. Cochran. One of the things that I want to point out is that this multiple lines of defense system chart that we used earlier to illustrate the integration of hardened infrastructure and natural infrastructure is actually based on a chart that the Corps put together following in its post-Sandy efforts, as it did a comprehensive coastal study in the northeast. So I take that as both a positive sign that, too often what we do is learn about these things after the fact. This is a post-Sandy study, not a pre-Sandy study.

So I think one of the things we really need to encourage within the Corps is to take the learnings that have occurred in

these post-Sandy situations and really make sure that they penetrate across the Corps, across the various divisions, not just single in on one place, so all the areas, coastal and inland, can get the clear benefit of this kind of thinking, this kind of an approach. Because from that comes actual information and data, so that you can actually do the kinds of comparisons that let you select the things that will work best, not just take one old system because that is the way we have always done it, but actually integrate these things so that they become not only protected but sustainable in the process.

Senator Gillibrand. Thank you, Mr. Chairman.

Senator Barrasso. Thank you, Senator Gillibrand.

Senator Ernst?

Senator Ernst. Yes, thank you, Mr. Chair.

A number of my coastal colleagues have mentioned the detriment from hurricanes and so forth. I would offer them the opportunity to come inland a little bit. Iowa has about 1,000 miles of coastal setback in either direction. But regardless of those large scale effects that come from hurricanes, we do have flooding issues in Iowa that occur on a much more regular basis than those 100-year floods or 500-year floods that are recorded out there.

Senator Whitehouse mentioned that black hole that exists within the Army Corps of Engineers. We get the projects in on

one side, and as he said, the funding in from the other side. I tend to agree with the Senator, in that there is a black hole and we need greater transparency there.

Part of that black hole, I feel, is the benefit to cost ratio. Mr. Cochran, in your testimony, you encourage Congress to direct the Corps to modernize that BCR, the benefit to cost ratio analyses, because you believe the estimated costs are often inaccurate. A priority of mine has also been to modernize the BCR metrics, so that more communities, particularly our rural ones, have an opportunity to get their projects funded.

We have a flood mitigation project in Cedar Rapids, Iowa, that was authorized by WRDA in 2014. It was mentioned for prioritization in WRDA in 2016, but has not received any funding due to the low BCR that results from Iowa's relatively low property values. I know that is true in other areas as well, and maybe Mr. Cochran in Louisiana, too, because your property values are low also.

Do you have any thoughts on how the BCR metrics could be modified so that projects like this flood mitigation project in Cedar Rapids have a better chance of receiving funding?

Mr. Cochran. One of the recommendations that we have is really a focus on making sure that you can in fact take account for the range of benefits that can come from projects when you are doing protection. A lot of that has to do often with the

benefits of wetlands, the benefits of setbacks, things like that that you are used to in your riverine situation that really don't get accounted for any benefits when you get into the cost benefit. It is just, well, there is some land there, but they don't actually look at the benefits associated with it, this kind of benefits.

So a true accounting for the benefits from natural infrastructure, for the benefits that are there, really needs to be done. It will end up benefiting these discussions in a lot of the ways that you are talking about because it actually gives a true picture, not just one that is just slanted towards an old way of doing things.

Part of the challenge that I think a lot of people have had with these analyses too is a real lack of transparency. It is difficult understanding exactly where the numbers came from or how they got there, and no real requirement that they be justified in a way that allows people to actually engage in that conversation. So we think that that transparency is a fundamental piece of this. Data transparency, real accounting for real benefits, those things together really can make a difference.

Senator Ernst. That is too true. Again, going back to that black hole that Senator Whitehouse was referencing. So thank you. I think that is important, and I hope we are taking

a look at the BCR as we move forward.

And of course, Ms. Carter, the Army Corps component of the WIFIA program that was established by WRDA in 2014 has yet to get off the ground. That is the Army Corps portion. The EPA has already implemented their portion.

What are some of the challenges that the Corps is facing in implementing this program? And at this current pace, how long will it take for the Corps to catch up to where EPA is?

Ms. Carter. Thank you for the question. Indeed, the WIFIA program for the Corps has not been funded. And part of what has been going on is that the Corps has no real history with a loan or loan guaranty program, so developing the guidelines. And then understanding how will those projects be scored in terms of the risks to the government have been some of the primary challenges.

Basically, as those issues get worked through, with either Congressional or Administration involved in those discussions of how to score the risk, as those progress, then funding could be provided and the Corps could start providing these loans and loan guaranties, which could assist with projects like flood levees where communities could potentially proceed on their own to be able to perform those projects.

So those are the main ones, the ability to understand the scoring of it.

Senator Ernst. Would it be helpful, since EPA already has an established process, would it be helpful then if the Corps could determine those projects and then fund those through WIFIA and EPA?

Ms. Carter. I have not looked at that as an option. But I believe there is some legislation that is out there to that effect. We have a CRS expert that covers the WIFIA program, and any questions for the record that you would like to provide for us, we are happy to answer.

Senator Ernst. I appreciate it, thank you very much. Thank you, Mr. Chair.

Senator Barrasso. Thank you, Senator Ernst. Senator Boozman?

Senator Boozman. Thank you, Mr. Chairman.

I don't have a question for you, Ms. Carter, but we do appreciate CRS, we appreciate all of your knowledge and just CRS in general. You all do a great job and probably are not thanked enough by us as we try and get things together. Give yourself a big pat on the back.

Ms. Carter. Those types of comments are what keep us going. Thank you.

Senator Boozman. We do appreciate you.

Mr. Robison, to capitalize on America's changing economy, it is clear that necessary infrastructure improvements must be

made to our inland waterways and ports. Arkansas and Oklahoma have been working for years to deepen the McClellan-Kerr Arkansas River Navigation System so barges and boats can carry larger loads. I think about 40 percent greater loads. So it is very, very significant.

Senator Inhofe and I both understand, and certainly we appreciate his leadership, but also the national significance of a 12-foot channel versus what we have now. We are going to work really hard in WRDA 2018 to try and get that accomplished.

Can you explain why the 12-foot channel would be a benefit? Not just for Arkansas and Oklahoma but for the Country as a whole.

Mr. Robinson. As you said, Senator Boozman, well, let me give you an example. You know Scott McGeorge with Pine Bluff Sand and Gravel, operating a rock quarry there in the Pine Bluff area. The closest rock quarry to New Orleans in the Country. So Scott McGeorge and Pine Bluff Sand and Gravel were not able to compete when New Orleans needed rock desperately. So as a Nation, we paid more for that rock than we otherwise would have, because we weren't willing to deepen the channel. Or we started the channel, but we didn't complete it, we didn't go forward with it.

Senator Boozman. Along that line, I have great concern in the sense that as recently as 2016, Bob Portis express concern

that the critical backlog on the NKARNS was of that nature. That number is now ballooned to \$143 million in less than two years. If we can continue to kick the can down the road and not address the critical backlog, talk about that. Talk about the effect of it, if we actually had to shut the system down, again, not only for Arkansas and Oklahoma, but for the rest of the Country.

Also, according to the U.S. Army Corps of Engineers, 58 percent of locks and dams are past their 50-year life expectancy. Talk about, if we could do some more things, the positive effect.

Mr. Robinson. The locks and dams on the NKARNS are 47 years old. I realize that the locks and dams on the rest of the system and in the Nation are older than that. One of the reasons that the backlog of critical maintenance is growing at such an alarming rate is because we are nearing the end of the 50-year life that most projects like that have from an engineering standpoint. So we are discovering new things every time we de-water a lock, and we do that quite often in order to make sure that we are keeping up with the maintenance that needs to be done.

Unfortunately, the funds aren't available to do the maintenance, even when we know they need to be done. If NKARNS were shut down as a result of failure of the system in one way

or another, we have calculated that the cost in Oklahoma would be \$2 million a day. That is a significant cost to shippers, to ports and terminal operators and to the Nation. It is just not a good way to do business.

These projects were justified on expectations that the benefits would exceed the cost. They have done that. There is significant earnings to the Federal Government to go into the Treasury. It is not a matter of not enough benefits and revenues. It is a matter of using those revenues for other purposes.

Senator Boozman. Mr. Friedman, a top priority for the Chairman and Ranking Member, for the entire committee, is passing a WRDA bill. We went through a period from 2007 to 2014 where we had a gap. In 2014, 2016, we have gotten back on track. Can you talk about what it means to have certainty with having a WRDA bill every two years to address these problems?

Mr. Friedman. Sure, thank you, Senator. Yes, it is critically important for the port industry, American industry to have a WRDA reauthorized every two years, or on a regular cycle. Because adjustments need to be made to the new construction start authorizations as projects are designed and then being built that, as we know, the Army Corps has been plagued with projects that string out for many, many years, adding costs.

It hurts the competitiveness of the Nation if we can't

complete these harbor improvement projects, complete these deepenings. A gap of seven years, as you mentioned, is very, very harmful.

It also gives us an opportunity to address the issue that was brought up in terms of transparency and opening up the decision-making process at the Corps, the so-called black box which we think would be good for all stakeholders to be able to have input, to modernize the benefit cost ratio, to make sure we are funding the best projects for the Nation. So AAPA is strongly in favor of getting back to the regular order on WRDA.

Senator Boozman. Thank you, Mr. Chairman.

Senator Barrasso. Thank you, Senator Boozman. Senator Carper?

Senator Carper. Thank you, Mr. Chairman. A question again for you, Ms. Ufner, dealing with stakeholder involvement. The ground rule is that stakeholder and project sponsor, in collaboration with the Army Corps of Engineers, is essential to solving our water resource challenges, which are many. And this collaboration helps to limit the cost of missed opportunities, promotes better planning, provides better transparency, results in more fiscally and environmentally sound projects.

A question for you, if I could. How can the Army Corps adapt its efforts to promote integrated planning and management? Please?

Ms. Ufner. You are talking integrated planning from the concept of Environmental Protection Agency but using it also within the Army Corps of Engineers?

Senator Carper. Yes.

Ms. Ufner. And basically how to - it is a big issue for us with water issues, whether in the Corps or the Army Corps to address Clean Water Act issues in a holistic way. That essentially includes potentially, I don't want to say bundling projects, but it is a way for us to look at what is the most important thing. We are still meeting our Clean Water Act goals in the Corps, or EPA. But we can do it in a much more affordable way. That is something that NACo has been supporting within the realm of the Clean Water Act.

Senator Carper. Thanks.

I want to go back to something I said earlier in my opening statement. I am going to ask you to join me in an airplane, and let's go up to about 30,000 feet. I would like for you to react to what I am going to repeat, what I said earlier. As the 2017 hurricane season illustrated, our Nation - I spent some time in Puerto Rico and spent some time in the Virgin Islands, spent some time in Houston and saw the kind of devastation that we are going to pay for for a long time, long, long time.

But as the recently-departed hurricane season illustrated, our Nation needs to be a resilient one that is ready for the

next storm, flood or drought event, because it is coming. In fact, just this week, NOAA, as was said earlier, NOAA estimated that the total cost for extreme weather and climate events exceeded \$300 billion, which is a new annual record for the U.S. So it is clearly not a matter of if our next extreme weather event is coming, but when.

Together, the Corps' navigation and flood risk management activities accounted for more than 70 percent of the agency's annual civil works appropriation. But the Corps has or shares jurisdiction, as we know, over any number of critical civil works program. They include environmental stewardship, they include hydropower, they include recreation, they include emergency management and water supply.

Unfortunately, in the mid-1980s, federal funding for new project construction and major rehab began to decline steadily. With this trend, the Corps in its actions has shifted to operations, to maintenance, to rehabilitation of existing infrastructure, and a backlog of deferred maintenance has continued to grow ever since. As a result, much of the Corps infrastructure is now exceeding its useful life plan.

If you were sitting on this side of the dais, as members of this committee, what would you be doing about it? We will start with you, Steve, please.

Mr. Cochran. I think that situation you described is

incredibly debilitating to the people who work at the Corps of Engineers. They are, many of them, quite skilled, quite talented and quite able. And yet they, the vision of what it could be and what they need to be is completely overwhelmed by a backlog of things that they are not getting done.

So it does seem to me that it is essential to find a way to overcome the backlog. Not by doing all the projects, frankly, that is not going to work. But by creating a new vision that actually does, we talk a lot in Louisiana about getting ahead of the next storm, the same way you talked about in your opening statement. Well, that is critical, because otherwise you are always playing catch-up. That is what the Corps is doing now. That is all they can do, is play catch-up.

I don't actually mean this, but we should either give them a real job to do, or we should just get rid of them. Because the way it is right now, Mr. Robison said earlier, everybody has learned how to do more with less. That is just business as usual. If you do that long enough, you give up on what you really need to do. I think that is what the Corps has done.

Senator Carper. Thank you for that. Ms. Carter, please.

Ms. Carter. CRS has no opinions or reactions. But one of the topics that may be of concern in the future is the dam and levee safety issues. The Corps should be coming out in the next few months with reports related to some of the infrastructure

investment needs in that area, including related to I-walls, which are one of the pieces of infrastructure that failed in New Orleans and contributed to the costs to the Federal Government for emergency response and recovery.

Figuring out how aging infrastructure like that fits into the infrastructure package in the long run will help or hinder the government's ability to manage its risk.

Senator Carper. Okay. Well, I am going to ask you to react to what I said earlier and just repeat it, please.

Mr. Friedman. Absolutely, Senator. With my AAPA hat on, I would repeat what I have said, which is that our ports want to see the continued movement toward full use and spend of the Harbor Maintenance Trust Fund. That would make a tremendous difference for us. We are grateful for the progress that Congress has made and you have made in that direction recently. The numbers are remarkable from where we were five or six years ago. Then we would again submit that our waterways, our water infrastructure needs to be viewed very high priority in any upcoming infrastructure legislation that is passed out of Congress.

And then speaking for myself, if I were on your side and in your shoes, I would think back to when the Army Corps, the days when the Army Corps was building some of the greatest public works projects known to man, the Panama Canal, our great dams

and other waterways and waterworks. I think we need to get back to that spirit of, we can do this. We have to fund it, but we can do it, we can address these issues. I could share the view that without enough funding, there is not much the Corps can do. They are fighting this backlog perpetually. I think we have to start thinking on a bigger scale to address these problems and make that a national priority.

Senator Carper. Thank you. Julie?

Ms. Ufner. Thank you, Senator. Actually two thoughts on that, well, several thoughts. There is such a backlog within the Corps, and the need within the communities are so huge. There are communities out there that would love to partner with the Corps on projects, but there is no funding. They don't meet the cost benefit analysis. And the technical assistance that the Corps offers is so valuable.

Having said that, there is a lot of challenges within the Corps, with the processes, the bureaucracy, complex requirements that make it very difficult, even if counties do want to partner with them, that they make go to other federal agencies first, because it may take ten years through the Corps as opposed to seven years somewhere else.

Senator Carper. Good, thanks.

Mr. Robinson. I hate to beat a dead horse, but the Civil Works program in the Country for many, many, many years has

delivered significant benefits to the Country. And revenues to the Treasury, revenues far in excess of the cost of the program. It is time to reinvest some of those earnings back into the system, instead of using up the principal, the capital, that was originally invested.

Senator Carper. All right, thanks. That is good. Thank you all. This is a good hearing, and we appreciate very much all you have added to it.

Senator Barrasso. Just a couple quick questions. Mr. Friedman, when you talked about the days of the Panama Canal, there is an excellent book by David McCullough, I don't know if you have had a chance to read it, The Path Between The Seas.

Mr. Friedman. I have read it.

Senator Barrasso. The comment about the time, the complexity, the bureaucracy, all of those things. The title is actually The Path Between the Seas: The Panama Canal, 1870-1914. It spanned a 44-year plan and the issues. They actually had to find a cure for a major disease that was killing a lot of people down there at the time of the construction. So it was a remarkable achievement and it was over 100 years ago. Thanks for bringing that up.

Ms. Ufner, there were several projects and programs passed in the Water Infrastructure Improvements for the Nation Act, to reduce flooding, ice jam prevention, you mentioned mitigation

pilot programs. In your opinion, how important is preventing flooding to the economic health of rural communities?

Ms. Ufner. To reiterate what we mentioned before, it is immeasurable. Communities are responsible, counties in particular are responsible for health and public safety. We take many measures to ensure that our public is protected. We are the first on the scene of any emergencies, flooding disasters. When they result in deaths and/or damage to our economies, ultimately it impacts the national economy. So it is huge that we are able to address this long term, and figure out the steps that we need to get there in the end together.

Senator Barrasso. One of the things I don't think I had mentioned yet was in terms of, because I continue to advocate maintaining this network of stream gauges and snow pack monitors throughout the Upper Missouri Basin. I don't know if you are familiar with these, these are gauges that are used to monitor snow depth, snow moisture, to help inform agencies like the Corps as to potential flooding, issues of drought as well.

So in your opinion, is there more than can be done to better predict flood and drought than what we are doing here?

Ms. Ufner. There is definitely more than can be done. What we are hearing from our counties is that there needs to be more available data, and that it is reliably updated. We hear this a lot about the LIDAR data used for NFIP, or also flood

elevation data that is not readily available and or updated. For communities to make the most efficient decisions in their community, they need the most up to date information.

Senator Barrasso. Thank you. Thank all of you. Some members may ask - Senator Carper?

Senator Carper. Thank you, Mr. Chairman. I have a question, but I am not going to ask it now. I just want to flag it for Mr. Cochran with regard to flood risk management and beach nourishment. I will submit a question for the record. One of the things that is important to a lot of us on the east coast, from Maine down to Florida, is the issue of cost benefit ratio not just with regard to beach renourishment, but actually building the dune systems and so forth that protects a lot of our coastal towns and communities. We are going to send that to you. Be sure to take a good look at that.

Thank you very, very much, all of you. You have done a great job.

Senator Barrasso. In follow-up, members may submitting written questions to each and every one of you. I ask that you follow up quickly for the record. The hearing record will remain open for two weeks. I want to thank all of you for being here, for your time and your testimony.

The hearing is adjourned.

[Whereupon, at 11:50 a.m., the hearing was adjourned.]

