

FARGO-MOORHEAD METRO AREA FLOOD CONTROL AND RED RIVER BASIN FLOOD CONTROL ISSUES

HEARING
BEFORE A
SUBCOMMITTEE OF THE
COMMITTEE ON APPROPRIATIONS
UNITED STATES SENATE
ONE HUNDRED ELEVENTH CONGRESS

FIRST SESSION

SPECIAL HEARING
MAY 27, 2009—FARGO, ND

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**FARGO-MOORHEAD METRO AREA FLOOD
CONTROL AND RED RIVER BASIN FLOOD
CONTROL ISSUES**

WEDNESDAY, MAY 27, 2009

U.S. SENATE,
SUBCOMMITTEE ON ENERGY AND WATER DEVELOPMENT,
COMMITTEE ON APPROPRIATIONS,
Fargo, ND.

The subcommittee met at 3:38 p.m., in room 201, Fargodome,
Hon. Byron L. Dorgan (chairman) presiding.

Present: Senator Dorgan.

Also present: Senators Conrad and Klobuchar and Representa-
tives Pomeroy and Peterson.

OPENING STATEMENT OF SENATOR BYRON L. DORGAN

Senator DORGAN. Good afternoon and welcome to this hearing of the Energy and Water Development Subcommittee. Even though this is a field hearing, it is the same as if the hearing were being held in my hearing room in Washington, DC. There will be a record of the hearing that will contain the testimony of the panelists and the witnesses and in addition to that, we would invite any written testimony that anyone wishes to submit to supplement what we will hear today to be submitted via e-mail by June 12, 2009. And you may call my office or see one of my staff for the e-mail address in order to submit additional written testimony that will become a part of this record.

We will receive testimony in two panels today. The first panel will consist of Colonel Jon Christensen, the Commander of the St. Paul District of the Corps of Engineers; the Honorable Dennis Walaker, Mayor of Fargo, North Dakota; the Honorable Mark Voxland, Mayor of Moorhead, Minnesota; Mr. Keith Berndt, the chief engineer of Cass County; the Honorable Jerry Waller, chairman of the Clay County Commission of the Minnesota Board of Commissioners.

Our second panel will consist of Brigadier General Michael Walsh, Commander of the Mississippi Valley Division of the Corps of Engineers; Commissioner Mark Holsten, Minnesota Department of Natural Resources, on behalf of Governor Tim Pawlenty; and Governor John Hoeven of North Dakota.

It is a testament of the importance of this issue that all of you have come before us today. I want to make a few brief comments about the hearing, and then I will call on my colleagues. I would hope that my colleagues will have about a 2-minute opening state-

ment. Then we will get to the witnesses, and then we will have plenty of time for questions. We do have eight witnesses today. So I do want to see if we can get to them as quickly as possible.

Let me say that in the aftermath of the very serious flood fight that occurred here in the Red River Valley, and especially in Fargo and Moorhead, this past spring, there are a number of questions for the people of the Red River Valley and for the people of Fargo and Moorhead. And the central question is can more be done to reduce these flood threats? And if so, what is it that can be done?

If one believes there is more storage in the valley that is available in order to hold some water back, what authority exists to achieve that storage? What is the cost-benefit of projects that invest in that storage?

Second, if Fargo and Moorhead and the citizens of those two communities wish to have a greater level of flood protection, then what specifically would they like the Corps of Engineers to study? What concerns do they have? What cost-benefit test would be met by which proposals? And are they able to provide the local funding? Because these flood control projects are 65 percent federally funded and 35 percent State and locally funded.

This subcommittee is the place where the Corps of Engineers water programs are funded, but it is not top-down. It is instead bottom up. That is, the Federal Government does not move around the country trying to determine where we can build additional flood control projects.

The Corps of Engineers is necessarily involved in virtually every flood fight, and they do a great job. But when a flood fight occurs, the question for local folks is: is there more that can be done? Is there a project that meets a cost-benefit test that is in the national interest that represents a consensus of that which we would like to build?

At that point, this subcommittee would then, along with the relevant subcommittee in the House of Representatives, begin funding this through the Corps of Engineers appropriation.

This is one region, one river, and one cause, in my judgment. We had a meeting in Washington, DC about 3 weeks ago and I think in that meeting engaged in some constructive approaches. That meeting was going to result in additional meetings, which I understand have occurred between the communities of Fargo and Moorhead, and between Clay County and Cass County.

The issue today and what we hope to put on the record today is a timeline by which we might determine what projects might be worthy of consideration and what kind of consensus can and will exist, if any, of a project that this region wishes to fund.

One potential result is to do nothing, and I say that only because I think most of us are gathered here because we watched this valiant flood fight in the Red River Valley and believe more needs to be done. I personally believe that more needs to be done and a comprehensive flood control project needs to be built.

But in the absence of a local consensus, one prospect is to have no comprehensive project and every single spring live with the anxiety of whether this will be the year that the river wins. Or will this be one more year in which we wage a valiant effort and fight the river to a draw?

This is not the only place in the country in where we have flooding, but the Nation was fixed on this issue for some weeks this year because the question was would this region make it through? Would there be catastrophic flooding?

The answer was not this year. And a substantial amount of great work was done—in many cases, by people in this room—to avoid the substantial cost of having lost to the Red River.

From my standpoint, I would say that my hope coming from this and other similar meetings would be a series of alternatives around which a local consensus has developed and then from which a more comprehensive flood control project is considered.

I want to mention as well that my colleagues and I have talked about and will consider other meetings with other river systems in our State in the weeks and months ahead because we believe that, too, is important. This is not just about Fargo and Moorhead or Clay and Cass. It is about the entire Red River Valley. And it is also about other river systems that have exhibited substantial flooding in this year.

So I want to thank all of you for being here. Let me call on my colleague Senator Conrad.

STATEMENT OF SENATOR KENT CONRAD

Senator CONRAD. Thank you, Chairman Dorgan.

And first, I want to thank you for convening this hearing. How fortunate we are to have Senator Dorgan at the head of this subcommittee at this critical time for our State and our region. We just could not be more fortunate, and we thank you for your leadership, Senator Dorgan.

It is fitting today that this hearing is in the Fargodome, which was home to “sandbag central” in the midst of the flood fight. This is where tens of thousands of people gathered to put on really an inspirational display of people coming together to protect their homes, their communities, and their neighbors. And I can say the eyes of the Nation were on North Dakota and Minnesota at those moments, and the people of this country were impressed. They were inspired at the way the people of our region came together. We can be proud of that.

In fact, I told General Walsh that he is going to have to start filing North Dakota income tax returns. He spent so much time here on the flood fight that he now qualifies as a North Dakota resident.

There is no question it seems to me, that just as we came together then, we can come together now. And that is really what is required of us. Because unless we are able to form a local consensus, there is virtually no chance that we will secure Federal funding. And I think it is important at this moment to thank all of those who helped us come together.

Mayor Walaker, Mayor Voxland, thank you for your extraordinary leadership. Colonel Christensen, we will never forget the way you conducted yourself in these difficult times. Keith and Jerry, we appreciate so much the leadership that you provided as well in these difficult times. And General Walsh and the Corps of Engineers, time after time when we called, you answered that call.

You came here to help make certain that the decisions that needed to be made were made.

But with all of that, I think all of us understand that a comprehensive solution is needed for flood protection in this metro region. As we witnessed this spring, the current patchwork of flood control projects is simply inadequate to the task. We can do better, and we must.

As this chart demonstrates—and I am pointing to the one that are “steps to permanent flood protection”—there are several steps that must be taken to achieve permanent flood protection. It starts at the local level. The Federal Government will be able to come in later as a partner and provide a substantial part of the funding, but as we all know, flood control begins at the local level.



Right now, we are at the feasibility stage on the ladder, and I look forward to the Corps' update on that study today. However, as I have said before, each of the partner cities in this project needs to form consensus on the project. Without that consensus, there is simply very little chance of Federal funding.

Our efforts on flood protection do not stop at the city limits. We must look broadly across the basin and not just this basin, but the Sheyenne and the James and the Souris in North Dakota. All of those are going to require a comprehensive approach and a new strategy.

We cannot rest until temporary flood protection is a thing of the past. People here deserve the best that we can do. And the best that we can do is permanent flood protection that reduces the stress levels that all of us experienced during this extraordinary period and that protects these cities, these rural residents, and others across these basins from the extraordinary flooding events we have seen over the last 12 years.

Again, Senator Dorgan, thank you so much for your leadership.

Thanks to our colleagues from Minnesota for being here as well. We really are partners in this, and I believe we will find a way forward.

Senator DORGAN. Senator Conrad, thank you very much.
Senator Klobuchar.

STATEMENT OF SENATOR AMY KLOBUCHAR

Senator KLOBUCHAR. Thank you very much, Senator Dorgan, for your leadership time and time again on these flood issues. Your leadership, we both serve on the Commerce Committee together. Your leadership on all kinds of transportation issues as well. And I am glad to be here today and I thank you for including us in your hearing here in Fargo.

Both of the Mayors thank you for your leadership. I was so impressed by the efforts on both sides of the river. I will never forget that day flying over—well, I will never forget it because I flew over with Collin in his plane, and when we got into the plane, the battery had died. So I will never forget that ride, and then the engine flooded, but we got here.

But what I most remember is just the citizens and how they came together, people of all ages. I met a guy at the flood control center who lost his home, and he was there 10 hours later answering calls. I met a woman who was 80 years old who was there giving out cookies, and it was just an amazing thing.

And there is absolutely no doubt that without the work of the citizens, things would have been so much worse. So that is what I most remember, and I remember that people worked together across both sides of the river, which is exactly what we need to do today.

Just yesterday, I returned to the valley and was with Congressman Peterson. We visited with local officials and community leaders in Breckenridge and in Moorhead and Hendrum, Crookston, and Oslo in order to get a picture of what was going on on the Minnesota side of the river, now that the floodwaters have receded and the recovery and the planning efforts are underway.

What we heard at those meetings is that there is still a lot of work to be done. There is a lot of concern in some of our more rural areas about what the impact of any plans that we come forward with for the Fargo and Moorhead areas. Understandably, they have been suffering from flooding for years and years now.

There is a concern that we look at, as Senator Dorgan and Senator Conrad pointed out, in the basin as a whole and that we make sure that we are looking at the other projects that need to be completed in Breckenridge and Roseau and all parts of Minnesota, projects that are already in line.

But as I said back in March, in the heartland, a river, a rising river doesn't divide us. It unites us. And I believe that is how we will move forward. As both the Senators from North Dakota mentioned, we are going to have to have consensus at the local level on this project in order to bring it up through Kent's great ladder that he has over there. In order to get the funding, we are going to have to have some agreement on how we do that.

I think that is very possible. We faced such a close call, and we know we can't just let it happen again. We know that we can't figure the sandbags will work forever and ever. We have to have a long-range plan.

So I appreciate being here and look forward to hearing from our witnesses to come up with the solution.

Thank you.

Senator DORGAN. Senator Klobuchar, thank you very much.
Congressman Pomeroy.

STATEMENT OF REPRESENTATIVE EARL POMEROY

Mr. POMEROY. I will be very brief. What a strong sense of *deja vu* coming into this building and seeing the leaders assembled, the very people that were directing the effort when literally thousands of volunteers turned this place into perhaps the greatest sandbag factory ever assembled.

You know, being part of this community made me so incredibly proud with the citizens and its leaders throughout this period. And I was in all kinds of meetings in all kinds of hours, and I never once heard anybody, from the Mayor on down, say, "This is too hard. Let it flood." Not once.

It seems to me that even though we are removed a bit by a few weeks in time, we now face in longer term a very similar prospect. Are we going to do something about this threat, or are we going to say, "This is too hard. Let it flood."

That is not in our character. It is not in our makeup. We have proven it again and again. And now we are going to move long term, work through the many very difficult issues of coming up with a consensus plan, hands across the river, that works for both States and works for multiple communities up and down this river.

Byron, you said it well when you said one region, one river, one cause. I am very pleased that you brought this hearing to Fargo-Moorhead and I'm looking forward to hearing the testimony before us.

Thank you.

Senator DORGAN. Congressman Pomeroy, thank you very much.
Congressman Peterson.

STATEMENT OF REPRESENTATIVE COLLIN C. PETERSON

Mr. PETERSON. Thank you, Mr. Chairman, and thank my other colleagues. I associate myself with the remarks of my distinguished colleague Mr. Pomeroy.

And I also want to single out, in addition to that, the Corps and the FEMA people that have done such a great job. And we were up in Oslo yesterday, and the FEMA folks were in the senior citizen center. I guess they were taking care of the folks up there. So we have had a lot of great help through the whole process.

I don't think I should say much. I probably have said enough the last day.

But people didn't listen to my whole statement, but as I have said before, we are going to work together. We understand that we have to come up with a solution. Fargo-Moorhead is too big a part of our valley to ignore, and we all understand that. But there are concerns, and we heard them yesterday.

Beyond the diversion, there are concerns out there. We heard in Hendrum about the diversion. "What is going to happen to us?" And some questions, Mayor Walaker, about the Southside project that came up.

And what we have to do here is we have got to get people understanding what we are doing and get the information out there. As Byron said, get the consensus. But it is going to take a lot of education. It is going to take a lot of meetings. And it is going to be hard, but we can do it.

And so, we are here to do what we can to help on our side of the river and work together and come up with a solution.

Senator DORGAN. Congressman Peterson, thank you very much and now to the panel.

First, we will hear from Colonel Jon Christensen, the Commander of the U.S. Army Corps of Engineers, St. Paul District. All of us know Colonel Christensen. He has been in many parts of North Dakota, engaged with his staff on a very aggressive flood fight. We thank you for your efforts for our State and our region. And Colonel Christensen, you may proceed.

The statements will be a part of the permanent record. So we would ask all the witnesses to summarize.

STATEMENT OF COLONEL JON CHRISTENSEN, DISTRICT COMMANDER, ST. PAUL DISTRICT, ARMY CORPS OF ENGINEERS

Colonel CHRISTENSEN. Chairman Dorgan and members of the subcommittee, I am honored to appear before you to report on what the Corps of Engineers is doing to address flooding in the Fargo, North Dakota, and Moorhead, Minnesota, metropolitan area.

My testimony will address the regional flood situation and how the Corps of Engineers proposes to continue to support the people of the area.

The Corps of Engineers has a long history in the Red River basin and in the Fargo-Moorhead area. We constructed our first permanent flood protection project in Fargo in 1963. We have assisted in 17 major emergency flood fights since 1965, and we operate reservoirs at White Rock Dam and Bald Hill Dam that provide flood storage capabilities to reduce the flood peak levels at Fargo and Moorhead.

The Corps of Engineers initiated the Fargo-Moorhead Metropolitan Feasibility Study at the request of the city of Fargo, North Dakota, and the city of Moorhead, Minnesota, in September 2008. The goal of this study is to develop a regional system to reduce flood risk. The study includes Cass and Clay Counties and smaller communities in the area, such as Oxbow, North Dakota, and Oakport, Minnesota.

The study will evaluate several alternatives, including non-structural measures, relocation of flood-prone structures, levees and floodwalls, diversion channels, and flood storage.

Recently, two public meetings were held in the region as part of the scoping process for an environmental impact statement. The Corps will continue to host public meetings to update the public on the steady progress and to seek feedback on alternatives as they are developed and the project progresses.

The Corps intends to have a timely completion of this study. First, we will develop a number of standalone alternatives, those being nonstructural measures, levees and floodwalls, and diversion channels. Second, we will combine the standalone alternatives to form combination alternatives. Finally, we will take advantage of the work being conducted as part of the Fargo-Moorhead Upstream Feasibility Study to assess the potential benefits that flood storage may provide.

The standalone and combination alternatives will be screened, and the results will be presented to the public once complete. At that point, the city of Fargo, city of Moorhead, and the Corps will decide if continued Federal study is warranted and if it is likely that a federally justified plan can be identified.

If there appears to be a federally justifiable plan, the remaining alternatives with the greatest potential of becoming the national economic development plan will be carried forward and optimized, potentially leading to a report of the Chief of Engineers.

Throughout the study, it will be critical to receive input from the cities and counties regarding the possible alignments. Local input will be the foundation for the alternatives and the basis for future plan development. We are certain that the project sponsors will need to make difficult decisions and those decisions will need to be made in a timely manner.

To ensure that a timely completion of the study is achieved, the Corps of Engineers will need unprecedented support on the local, regional, and national levels. Timely communication, input, and decisions will be critical. The cities and counties will need to work together and to make difficult decisions when they arise.

During the 2009 flood, unprecedented support was provided by the Federal, State, and local governments. Those efforts, combined with the heroic efforts of the citizens, were able to minimize flooding in a large portion of the basin. As part of these efforts, the Corps supplied over 11 million sandbags, 141 pumps, 81,000 feet of HESCO barriers, and 70 miles of earthen levees to the Red River basin.

These efforts, in combination with dam operations, prevented nearly \$3 billion worth of damages. Of that \$3 billion, nearly \$2.5 billion of damages were prevented in the Fargo-Moorhead metropolitan area.

The citizens of Fargo and Moorhead met the Red River's challenges this spring, but we all realize there are limits to the effectiveness of emergency flood fights, and the area remains at considerable risk from flooding. The Corps of Engineers is committed to work in partnership with State and local agencies to develop long-term strategies to manage and reduce flood risk in the Fargo-Moorhead area and the rest of the Red River basin.

PREPARED STATEMENT

Again, thank you for allowing me to testify here today. Mr. Chairman, this concludes my testimony. I would be happy to answer any questions you may have.

[The statement follows:]

PREPARED STATEMENT OF COLONEL JON CHRISTENSEN

Chairman Dorgan and members of the subcommittee, I am honored to appear before you to report on what the Corps of Engineers is doing to address flooding in the Fargo, North Dakota and Moorhead, Minnesota metropolitan area. My testimony will address the regional flood situation and how the Corps of Engineers proposes to continue to support the people of this area.

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The stand alone and combination alternatives will be screened and the results will be presented to the public once complete. At that point the city of Fargo, city of Moorhead and the Corps will decide if continued Federal study is warranted and if it is likely that a federally justified plan can be identified. If there appears to be a federally justifiable plan the remaining alternatives with the greatest potential of becoming the National Economic Development plan will be carried forward and optimized, potentially leading to a Report of the Chief of Engineers.

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Again, thank you for allowing me to testify here today. Mr. Chairman, this concludes my testimony. I would be happy to answer any questions you may have.

Senator DORGAN. Colonel Christensen, thank you very much for your testimony.

Next, we will hear from the Mayor of Fargo, Dennis Walaker. Mr. Mayor, welcome.

STATEMENT OF DENNIS WALAKER, MAYOR, FARGO, NORTH DAKOTA

Mr. WALAKER. I will not go off the script, and the reason I will not do that is I understand things can be taken out of context.

We do not start this by driving something between us. What we need to do, like Senator Dorgan has said again and again, that we need a plan, and that plan needs to be comprehensive for everybody. And my statement in the paper was very simple, that we need to wait until the engineers, especially the Corps of Engineers comes back with their preferred alternatives, and then we can decide and begin the debate.

First of all, Senator Dorgan and members of the subcommittee, welcome to Fargo, back again. And thank you for holding this hearing at the Fargodome.

As you know, the spring of 2009 presented the citizens of Fargo-Moorhead and Cass and Clay Counties with a tremendous challenge, a record flood event. It seems like we are experiencing a record flood every 5 years.

Attachment A of this testimony reveals that the past 50 years of flooding in Fargo-Moorhead, it shows that 2009 with a 100-year event or greater. This year's flood also reflected a recent phenomenon, 8 days from our first flood stage of 18 feet to a crest of 40.82 feet, 3 weeks earlier than the previous prediction. Everybody thought it was going to come in April, and that is normally when it does. But it came in the end of March.

As a result of this flood record, Fargo and its citizens had to take Herculean efforts to protect our city and its property. Attachment B shows the 48 miles of temporary levees that were built using approximately 300,000 cubic yards of clay hauled in in 30,000 truckloads, which was constructed in only 8 days. That should not become the norm.

If I was asked at the beginning of this entire flood whether we could do this or not, I would say absolutely not because we had never done in the past. Before the clay had to be collected, we had to remove 100,000 cubic yards of topsoil and frozen material on top of the clay.

And also, these temporary protective measures required a volunteer force of over 100,000 people, and they came from everywhere, from out of State. There are people that came in their vehicles, slept in their vehicles, absolutely amazing. And when you talked about what was happening here and over at the University of Minnesota and in Moorhead, it was absolutely emotional to walk in and see what was going on here.

The facility, the Fargodome, became the base for our sandbag operations, running 24 hours a day for the duration of the flood fight. During the flood, approximately 160 portable pumps, ranging in size from 2 to 12 inches, ran continually, including 120 permanent lift stations on storm water.

Fortunately for us, there was about 2 weeks of below average temperatures that slowed the rate of rise of the Wild Rice, the Mustinka, and the Rabbit Rivers, which feed the Red River south of Fargo. However, we cannot factor in cold weather every time we have flooding conditions.

I remember specifically somebody from the Corps of Engineers saying the weather was such a great benefit, but he said after you got hit in the head with a 2 by 4 10 times, he said, it is about time we got a little bit of help from mother nature.

Our concern is how do we record floods that keep reoccurring on a more regular basis? Attachments C and D—and these attachments are along here—reflect what meteorologists refer to as a “wet cycle” in our weather patterns.

As you can see in these charts, the moisture received in the area for the past 10 years has been above normal, and the flows in the Red River have been higher than average. All winter they were higher than average, and the lakes once again are full this spring. During the peak of the 2009 flood, the Red River was running at a rate of over 29,400 cubic feet per second, while the average 10-year discharge is 10,300 cubic feet per second.

Attachments E and F show the Red River watershed south of Fargo-Moorhead and the permitted drainage ditches developed on the land over the past 50 years. We are concerned that any additional drainage development will only add to these issues that we have here in the Fargo-Moorhead area.

I am not faulting the producers in the Red River Valley. If I owned land out there, I would probably do the same thing. But people have to understand what is happening here in our cities on this frequent basis as more drainage is added to our system.

Since we are located in a very shallow drainage system, more water, rising faster, causes us to protect our community to a higher level than we ever thought necessary. I thought 1997 was going to be the benchmark for each and every one of us in our lifetime.

As you can see, the water—if we did not protect ourselves to 42, 43 feet, you can see on one of the charts there how much of the city would have flooded—600 single-family homes, 6,000 apartment buildings, displacing over 52,000 residents.

It also would have inundated North Fargo through the North Dakota State University campus, as well as the neighborhoods situated along the Red River. Permanent protection through Fargo, including upstream retention and overland flood protection throughout Fargo-Moorhead is needed as soon as possible.

I will make one comment. It got to be an issue. We understand the concerns of everybody that was here, and I had one of those concerns myself about evacuating our city. And it was amazing. You left the decision to us, and we made that decision together that we would not evacuate our city. And as it turned out, it worked out well.

But we do not criticize anybody for their concerns coming to the city of Fargo and asking us to consider evacuation.

PREPARED STATEMENT

So that basically sums up. We printed 50 copies. Everything is available.

So I would like to thank you for this opportunity to testify today on behalf of the citizens of the Red River Valley.

Thank you.

[The statement follows:]

PREPARED STATEMENT OF DENNIS WALAKER

Senator Dorgan and members of the subcommittee, welcome to Fargo, and thank you for holding this hearing at the Fargodome.

As you know, the spring of 2009 presented the citizens of Fargo-Moorhead, Cass and Clay counties with a tremendous challenge—a record flood event. It seems like we are experiencing a record flood about every 5 years. Exhibit A of this testimony reveals the past 50 years of flooding in Fargo-Moorhead, it shows that 2009 was a 100 year event or greater. This year's flood also reflected a recent phenomena—8 days from our first flood stage of 18 feet to a crest of 40.82 feet, and 3 weeks earlier than previous predictions.

As a result of this record flood, Fargo and its citizens had to undertake Herculean steps to protect our city and its property. Attachment B shows the 48 miles of temporary levees that were built using 300,000 cubic yards of clay hauled in 30,000 truck loads which were constructed in only 8 days. Even before the clay could be collected, approximately 100,000 cubic yards of topsoil and frozen material had to be removed to get to the clay. Also, these temporary protective measures required a volunteer force of over 100,000 people to help fill and place over 3.5 million sandbags. This facility, the Fargodome, became the base for the sandbag operations, running 24 hours a day, for the duration of the flood fight.

During the flood, approximately 160 portable pumps ranging in size from 2 to 12 inches ran continually, including 120 permanent storm water pumps. Fortunately for us there was about 2 weeks of below average temperatures that slowed the rate of rise of the Wild Rice, Mustinka, and Rabbit rivers which feed into the Red River south of Fargo. However, we cannot factor in cold weather every time we have flooding conditions.

As waters continued to rise, protective dikes and overland flooding caused over 20 miles of road closures. Water rescues of stranded residents had to be conducted in the county. Residents working hourly paying jobs and service industry businesses depending on patrons were negatively affected.

Our concern is how do these record floods keep occurring on a more regular basis? Attachments C and D reflect what meteorologist refer to as a “Wet Cycle” in our weather patterns. As you can see in these charts the moisture received in the area for the past 10 years have been above normal; and the flows in the Red River of the north have also been higher than average. During the peak of the 2009 flood, the Red River was running at a rate of over 29,400 cubic feet per second while the average 10 year discharge is 10,300 feet per second. Attachments E and F show the Red River watershed south of Fargo-Moorhead and the permitted drainage ditches developed on the land over the past 50 years. We are concerned that any additional drainage development will only add to the flood issues we have here in the Fargo-Moorhead area.

Since we are located in a very shallow drainage system, more water, rising faster, causes us to protect our community to a higher level than we ever thought necessary. Attachment G shows what would happen if Fargo had not been able to protect itself to 41 feet in 2009. As you can see, the water would have extended from south of Fargo all the way to Interstate 94 west of Interstate 29 to the West Fargo boundaries, causing the flooding of over 6,000 single family homes and over 6,000 apartment buildings, displacing over 52,000 residents. It would have also inundated North Fargo through the North Dakota State University campus, as well as most neighborhoods situated along the Red River. Permanent protection through Fargo, including upstream retention and overland flood protection throughout the Fargo-Moorhead area, is needed as soon as possible.

I would like to thank you for this opportunity to testify today on behalf of the citizens of the Red River Valley.

Senator DORGAN. Mayor Walaker, thank you very much.

Next, we will hear from Mayor Mark Voxland, the Mayor of the city of Moorhead. Mayor Voxland.

STATEMENT OF MARK VOXLAND, MAYOR, MOORHEAD, MINNESOTA

Mr. VOXLAND. Chairman Dorgan, Members of Congress, thank you so much for coming today. We really appreciate this hearing being held in the Fargo-Moorhead area.

My name is Mark Voxland. I am the Mayor of the city of Moorhead. We are on the east coast of the Red River.

As a quick aside, our family history shows that in 1893, my great aunt lost all of her possessions in the Great Fargo Fire. And then what she had accumulated by 1897, she again lost everything in the Great Flood of 1897. I think it is amazing that 100 years later, our family still gets to see record floods in 1997 and 2009.

Moorhead is a growing city. It is part of the metropolitan statistical area. The MSA of Fargo-Moorhead is about 193,000. We are the largest city in the western half of Minnesota. We have a very stable housing sector in our community, and it is a very stable sector in this part of Minnesota. We are seeing growth in new housing starts continuing, even though we are seeing declines in the rest of Minnesota.

Our population right now is just under 36,000 as of the 2009 State demographer. We are up a little over 10 percent in the last 8 years.

During the 2009 flood, a flood that when we were talking in Washington, DC, right around March 15, we were looking at a 37-foot flood, which is a major flood, but feeling very confident because of the 1997 flood.

Two days after we got back from Washington, DC, we found out that it was going to be 39 feet plus. And as each day of that next week rolled along, we kept hearing the National Weather Service raising that flood crest peak up a foot. It was a very trying time for citizens all over the Red River Valley.

In the end, Moorhead, we put in 9 miles of sandbags, about 2.5 million sandbags, as compared to maybe 1 million in 1997. Once you go up that extra 1½ feet, that's a major effort in sandbagging in Moorhead. We put in over 8 miles of clay dikes. Those were constructed by the U.S. Corps of Engineers. They were constructed after the first crest, and they were there as our secondary line of defense.

About 71,500 cubic yards of material is necessary to create those clay dikes. And one thing that a lot of people in the country don't understand is we were fighting a flood in March. Those sand pits were frozen, and those clay pits that we were getting clay from were frozen. It isn't just grabbing some sand and bringing it in. And most of the sand did come from an area about 25 miles away. So there was a real logistical difficulty as we created that.

As with Fargo, about 100,000 hours of labor, we figure, from volunteers were put in on this effort in 2009, a Herculean effort much greater than we ever did see, even in 1997.

We feel that in the long-term this kind of approach that we had to do in 1997 and again in 2009 is really not sustainable. We are going to need some interim flood protection measures put into place so that we can be ready for that once in 100 year flood event that could happen next year or in 2 or 3 years as we wait and find out what this comprehensive flood protection set of measures are going

to be. That is going to be the key to our success in Moorhead and in Fargo in the next couple of years and down the line.

I think that the city of Moorhead—I know that the city of Moorhead sees that both Federal and State mitigation programs are going to be important to us. The State of Minnesota this year allocated \$17.6 million for flood mitigation measures. We, as a city, will be applying for that. That money doesn't come to us, but it comes to all cities that need flood mitigation. And we will be applying and have already started that process now so that we can start putting in some short-term measures for flood protection of our public infrastructure.

We are going to be working with FEMA, section 206 mitigation grant programs. One of the concerns we have with that is you can't build flood structures on land purchased with 206 dollars. We will be working very closely with FEMA to figure out how we can utilize those dollars to the most effectiveness to protect our city, but still be able to build the diking that we feel will probably be needed when we hear the Corps' final study.

The city of Moorhead does support permanent flood protection for our cities. We agree with what Mayor Walaker said. We need to see what the Corps study brings out next year. I keep hearing December, but I read in the paper today September 2010, and I thought, well, if it is a misprint, wow. If it is true, I love it.

But we look forward to what that final is. And we, in the meantime, know that we have got to figure out a way for Moorhead and Fargo, Cass and Clay County to figure out some of those things that need to be decided before we can move forward with that Corps study.

Simple things like what is the level of protection? Do we protect both cities to 39 feet, and then the Corps thing is at 42? We need to come up with those numbers ahead of time.

I see the next 18 months, as we look toward Senator Conrad's ladder, I kind of look at that as Moorhead and Fargo, Cass and Clay County looking to find the trailhead. We know that the path is out there, but we have to find where that path begins. And that is what we are going to be working on very hard the next 18 months.

Again, we support what the Corps is doing, what the Corps staff is doing. We are very thankful for what they did for us in the months of March and early April. We look forward to seeing and working with the Corps as they come up with that final set of projects that we could implement.

In closing, I really believe that the economic growth and vitality of Moorhead and Fargo over the next 50 to 100 years is very much determined on what we do in the next 18 months to 4 years. We need to find permanent flood protection. We need to get going on it.

The last statement that I have here talks about generations, and people need to understand we have to get together for employment. What I look at is very basic. I have three grandchildren that live in Moorhead. I will be darned if I want them to go through what my great aunt went through. So what I see is really a way that we can protect Moorhead and Fargo, Cass County, Clay County,

and the valley so that my grandchildren can choose to live in this area and not have to worry about the flood.

I want them to be able to go out to the Red River and look at it and say, "Wow, that river sure is high for a record flood." I don't want them to ever learn how to make sandbags.

Thank you, Senator. Thank you, Members of Congress.

Senator DORGAN. Mayor Voxland, thank you very much.

Next, we will hear from Chairman Jerry Waller of the Clay County Commission.

STATEMENT OF JERRY WALLER, CHAIRMAN, CLAY COUNTY COMMISSION

Mr. WALLER. Okay. Thank you, Chair Dorgan, Senators Conrad and Klobuchar, Congressmen Peterson and Pomeroy, for being here today, first of all, and, second of all, for allowing us to offer testimony on some perspectives from Clay County.

Being a lifelong resident of this area, I remember vividly the flood of 1969, the spring flood of 1969. I remember the summer flood of 1975, and the greater Fargo-Moorhead metropolitan area has experienced four major floods on the Red River since 1997. That tells me that the flood events are coming more frequently and with more severity, as we have witnessed this spring.

The property damage and disaster recovery costs resulting from these flood events have exceeded hundreds of millions of dollars, not to mention the substantial emotional and mental anguish suffered by the citizens and the region during each flood event. And if you could put dollar, hang dollars on emotions and stress and those things, I would guess that number would probably be higher than the millions that have been spent on fixing and doing things from these flood events.

Clay County supports the efforts to design and implement permanent flood protection measures involving the Red River of the North and its tributaries. Clay County is appreciative of the strong support from the States of Minnesota and North Dakota and our congressional delegations in Washington, DC, and their willingness to establish a region-wide flood protection authority, control authority and to help fund this major undertaking.

Ongoing collaboration among area local governments in various State and Federal agencies in finding region-wide flood control solutions is essential. Clay County will continue to be an active partner in this process.

The Fargo-Moorhead metropolitan flood study presently being conducted by the U.S. Army Corps of Engineers must incorporate the river elevation analysis and design considerations used in the Fargo Southside Flood Control Project to ensure that there is no adverse flooding impact on the properties on the Minnesota side of the river as a result of this project.

The permanent flood control measures recommended by the Corps flood study must address the flood protection in all of Clay County, including those communities and residential areas, such as Georgetown and Kragness to the North, the Crestwood subdivision to the south, which are located beyond the immediate vicinity of the city of Moorhead in Oakport Township. We feel strongly that whatever measures—and I am sure there is nobody in this room

that feels differently. But whatever measures are taken here just do not move this problem downstream.

Recommendations for long-term flood control structures, such as a diversion channel and/or dike system, must also include analysis of cost impacts on local governments, long-term maintenance plans, and funding mechanisms.

The diversion is going to be a controversial issue. I don't know that that can be avoided. If you do the math, that would take approximately 7,500 acres of the richest farmland in the world out of production, which is an equivalent to 11.5 sections.

But there are other issues. There are aquifers in this area. The city of Moorhead collects their water from the Buffalo aquifer. There is another aquifer further to the north, and there certainly is concern of any diversion and what effects it would have on the recharging of those aquifers. And these aquifers, estimates are that these will supply fresh water to about 50,000 residents, rural and citywide.

It is not clear at this time as to how the recommendations of the Corps flood study and the ensuing construction and maintenance of the permanent flood control structures will dovetail with the scope and the responsibility of the proposed region-wide flood management authority. A region-wide flood management authority established by the U.S. Congress must be granted adequate Federal powers, which will enable it to effectively implement flood protection measures across the State border lines in a regional watershed which spreads across the two States and the two Federal regions.

I want to comment on Colonel Christensen's comments today on retention. As we met in Washington, DC a month ago or 3 weeks ago or a month ago, whatever it was, we talked about the three-legged stool approach, and we feel that retention may have to certainly be included to make for meaningful flood control.

PREPARED STATEMENT

So, again, I appreciate you having me here to testify on behalf of my colleagues and the citizens of Clay County, and we certainly hope to work with you as this project moves forward.

[The statement follows:]

PREPARED STATEMENT OF JERRY WALLER

The Greater Fargo Moorhead Metropolitan Area has experienced four major floods on the Red River since 1997. The property damage and the disaster recovery costs resulting from these flood events have exceeded hundreds of millions of dollars, not to mention the substantial emotional and mental anguish suffered by the citizens of the region during each flood event.

Clay County supports the efforts to design and implement permanent flood protection measures involving the Red River of the North and its tributaries.

Clay County is appreciative of the strong support from the States of Minnesota and North Dakota and our congressional delegations in Washington, DC in their willingness to establish a region wide flood control authority and, to help fund this major undertaking.

Ongoing collaboration among area local governments and various State and Federal agencies in finding region wide flood control solutions is essential. Clay County will continue to be an active partner in this process.

The Fargo-Moorhead Metropolitan Flood Study, presently being conducted by the U.S. Army Corps of Engineers must incorporate the river elevations analyses and design considerations used in the Fargo Southside Flood Control Project to insure that there is no adverse flooding impact on the properties on the Minnesota side of the river as a result of this project.

The permanent flood control measures recommended by the Corps Flood Study must address the flood protection in all of Clay County, including those communities and residential areas; such as Georgetown and Kragnes to the north and Crestwood Subdivision to the south; which are located beyond the immediate vicinity of the city of Moorhead and Oakport Township.

Recommendations for long term flood control structures such as a diversion channel and/or a dike system must also include analysis of cost impacts on local governments, long term maintenance plans, and funding mechanisms.

If a diversion channel on the Minnesota side is recommended as a permanent flood protection measure for the area, its alignment, design and location must be coordinated with the city of Moorhead to insure that there is no damage to the south branch of Buffalo Aquifer which serves as the primary source of water supply for the city.

It is not clear at this time as to how the recommendations of the Corps Flood Study, and the ensuing construction and maintenance of the permanent flood control structures, will dovetail with the scope and the responsibility of the proposed region wide flood management authority.

A region wide flood management authority, established by the U.S. Congress, must be granted adequate Federal powers which will enable it to effectively implement flood protection measures across the State border lines in a regional watershed which spreads across two States, and two Federal regions.

Senator DORGAN. Chairman Waller, thank you very much.

Finally, we will hear from Keith Berndt, the Cass County engineer.

STATEMENT OF KEITH BERNDT, ENGINEER, CASS COUNTY, NORTH DAKOTA

Mr. BERNDT. Senator Dorgan, Members of Congress, Senator, thank you for convening this hearing. And Members of Congress, thank you for being here this afternoon.

My name is Keith Berndt. I am the county engineer for Cass County, North Dakota.

As a county, we look forward to working in partnership with the communities and agencies on both sides of the Red River to bring solutions to fruition in a timely manner. The economic future of this metropolitan area and the entire region is dependent upon timely completion of permanent flood protection projects.

PREPARED STATEMENT

We are all involved in this historic process to move as quickly as possible. We must recognize the tremendous risk and costs associated with every year that passes without protection in place. We have before us an historic opportunity and an obligation to future generations to work together as communities to solve this daunting, but solvable problem.

Thank you. That concludes my testimony.

[The statement follows:]

PREPARED STATEMENT OF KEITH BERNDT

We would like to express our sincere appreciation to Senator Dorgan for convening this hearing and for your strong ongoing support of permanent flood protection. Permanent flood protection for the Fargo Moorhead metropolitan area is critical. As a county, we look forward to working in partnership with the communities and agencies on both sides of the Red River to bring solutions to fruition in a timely manner.

The economic future of this metropolitan area and the region is dependent upon timely completion of permanent flood protection projects. We urge all involved in this historic process to move as quickly as possible. We must recognize the tremendous risk and cost associated with every year that passes without protection in place.

We have before us a historic opportunity and an obligation to future generations to work together as communities to solve this daunting, but solvable problem.

Chrisan, Briarwood, Selkirk and Martens Way Neighborhoods in South Fargo and immediately south of Fargo on March 28, 2009.



Senator DORGAN. Mr. Berndt, thank you very much.

I would like to ask a couple of questions and then call on my colleagues if they have questions as well.

First to Colonel Christensen, you have been looking at various project options at this point, and you indicated by the end of May, you thought you would have some preliminary numbers. What are the preliminary benefits or cost-benefit ratios for the various project options? Are you prepared to disclose that to us at this point?

Colonel CHRISTENSEN. We have done some preliminary cost-benefit ratio calculations on the options that we have looked at so far. And what we have looked at is a levee option and a diversion channel option and a combination of those two pieces.

And right now, without optimization and without taking into account other facets of the project that we call on board, stuff like upstream storage and working these in combination and detail, the levee option comes out to be about 1.0. The diversion channel option comes out to be 0.65, and the combination plan comes out to about 0.62.

And again, these aren't optimized and are back of the envelope-type calculations.

Senator DORGAN. Right. Whatever optimized is, it is a term of art. If those were the cost-benefit ratios that represented some final analysis, the levee option would then represent the only option that would meet the Federal cost-benefit ratio test. Is that correct?

Colonel CHRISTENSEN. Yes, sir. But that is in isolation.

Senator DORGAN. I understand that, but I am talking about the options.

Colonel CHRISTENSEN. But of the three options on the table, that would be the only one that would—

Senator DORGAN. The only one that would meet a test and go forward would be the levee option?

Colonel CHRISTENSEN. Yes, sir.

Senator DORGAN. A quick question, what information and decisions do you need from local governments as you proceed from now until either September or December of next year, and is that the next decision point in the study?

Colonel CHRISTENSEN. We are getting everything we need right now in coordination with the local and the State governments. We have been working in a very cooperative fashion.

Basically, what we need is input into what the solutions are going to be, impacts on what would be the impacts of a given solution on the community and others around it, and also we need help in making sure that we go out and sell this plan in a unified effort to the public.

The next decision point will be this fall, when we will have a more refined cost-benefit analysis on the various options that we are going to lay forward. At that time, we are going to sit down with the local communities and figure out what is the best proposed solution and whether that does have a Federal interest.

Senator DORGAN. You say this fall?

Colonel CHRISTENSEN. This fall.

Senator DORGAN. And what does "this fall" mean?

Colonel CHRISTENSEN. We will go with September, sir.

Senator DORGAN. All right.

Colonel CHRISTENSEN. We will make a decision about whether we are going to move forward or not, whether there is a Federal interest, and what the best plan would be.

Senator DORGAN. Can you explain in layman's terms how the flood protection in a metropolitan area like Fargo and Moorhead can affect river States upstream and downstream and how the potential effects of a project like that are addressed as a part of your study?

Colonel CHRISTENSEN. Yes, sir. That is a very complex question. We start with the levees. Levees can constrict the water flow through a city, and it could affect the upstream stage, and it could affect the downstream stage as the water comes in.

Now there are ways to mitigate that by offsetting the levees a little bit farther into the floodplain, but there is always that potential. And we do the modeling to make sure that those impacts are minimized.

In a diversion channel, you are taking flow around the metropolitan area. There is always a danger that you pass that water too quickly and that it will increase the stage in the communities upstream.

Again, we will do the modeling to make sure that is minimized, and as the diversion goes around the city, the water is slowed enough so that it would not have an adverse impact. But it could have an adverse impact if done improperly downstream, and it will have the potential to lower the upstream stage as well.

Senator DORGAN. I am going to send you a series of questions, and in that series, I am going to ask a number of questions be answered with respect to the Southside project in Fargo, its impact on a comprehensive flood control project, cost-benefit ratio, and so on. I will also request your assessment of an impact, if any, that

a Southside project in Fargo would have with respect to the city of Moorhead.

So I will submit those for the record, and if you wish to comment—and perhaps my colleagues will pursue that because I think we should have some discussion of that here, but we will also ask that you submit some responses for the record.

Now let me ask the two Mayors to fast forward to the end of this year. It is December. Do you have some confidence that there will be a consensus between the two major cities, and that would include, of course, the counties on some kind of a flood control project that represents what you consider to be the interests of both areas?

Are you optimistic that by December, if we meet—

Mr. WALAKER. We are always optimistic.

The Southside project, I will take that on first. It isn't—this didn't just happen overnight. Two years ago, they brought the plans forward, and there was somewhere around a 6- to 9-inch increase in the river through Briarwood. There was an uprising, and basically, I asked staff to go back and reduce it to zero because that was the only way we were going to get it passed through the process.

So it didn't start 2 years ago. It basically started 4 or 5 years ago trying to come up with this process. So that is why some people look at this as a very complex plan, and it is, extending Drain 27, Drain 53, and so forth into storage and adding probably at least a section of storage down in that area and then also these channel cut-offs and so forth. So it is a complex project. But properly managed and so forth, it has a zero impact on these areas.

And we have had peer review and so forth. So that is part of it. If there is any mistake in this process, we did not—we had 50 or 60 meetings. There has been a group of—from the DNR, from Moorhead, the city engineer and so forth, a technical group that have been meeting for over a year. So there is probably 100 meetings total.

If there is any mistake in this whole process, because Moorhead was not going to be participating in the cost of that event, maybe we overlooked that a little bit. So we didn't get the information out.

There seems to be a disconnect between the engineers and the elected officials, okay. And I don't mean that to be a negative. What that is, is that the elected officials that are out there representing the public feel that they need to understand the project, and maybe I have spent too much time at this, and I will take any responsibility for that. That is not a problem. It is just that frustrations begin and so forth.

And if we are going to debate this in the forum—and we are not going to do that, right, Collin, because that accomplishes nothing. We need to allow the Corps of Engineers to do their process.

Now it doesn't sound like a diversion is going to work anyway, and maybe you guys are absolutely right. We don't need anybody to drive a divisive separation of the river. We need to cooperate.

You told us this specifically, that we need a plan that both cities can come forward, and we want it done by the Corps of Engineers. That is why we solicited them to go ahead with this comprehensive study, when the study for downtown Fargo, including City Hall, did not have the cost-benefit ratio. So, that is what we are doing.

If we get some information at the end of this year, that is magnificent. But we are all waiting for September or December 2010 also to have a preferred alternative.

Senator DORGAN. I am going to ask Mayor Voxland if he wishes to respond. But Colonel Christensen, would you just tell us when you did the cost-benefit ratios a few moments ago, was that for a 100-year flood or a 500-year flood or some other flood? Tell us what it was you were measuring.

Colonel CHRISTENSEN. I would have to go for a lifeline on that, sir, just to make sure that I am correct, 100 year plus 4 feet.

Senator DORGAN. Pardon me?

Colonel CHRISTENSEN. A 100-year flood plus 4 feet.

Senator DORGAN. Thank you.

Mayor Voxland.

Mr. VOXLAND. I look back to what the world was like in our area on March 15, and had you asked that question then, I would have kind of smiled and chuckled because there was a casual discussion of different things amongst the group. Starting with the meeting that you convened in Washington, DC, the city of Moorhead, Fargo, Cass and Clay County have had one joint meeting since then. We have another one that they are working on scheduling for June right now.

My belief is the best way that we are going to get good cooperation is by having us get together and, first of all, get to know each other, get to know the first names of everybody that is around the table, get to know a little bit about them, and honestly talk about the problems and how we can solve them.

I think that has been happening. It has been happening—as I look in front of me, it is happening at the national level. I know it is happening at the State level. It is happening at the local level.

I think we are going to be a long way toward a final, cohesive answer by the end of this year. We might not have everything done, but we will be a long way. And by the time the Corps project comes out, I think we will be in good sync with it. I am very confident. You can't be Mayor and be pessimistic.

Senator DORGAN. Well, Mayor Voxland, I am encouraged by that answer certainly and by the answer of the mayor of Fargo.

Again, I will send a series of questions to the entire panel for a written response to be included in the record.

Senator Conrad.

Senator CONRAD. Thanks again, Mr. Chairman. And I didn't have a chance to thank specifically my colleague Senator Klobuchar for being here and for her leadership. She has just been terrific to work with on these issues. One thing about Senator Klobuchar, she does her homework. And so, it has been great to have her as a partner in this effort.

And Congressman Peterson, I will tell you, you could not have a better partner in a fight than Collin Peterson. And I know because we just went through the Farm bill together, and we were great allies in that fight and will be allies in this effort as well.

The Mayor, Mayor Walaker mentioned the evacuation meeting that we had. It really was, I thought, was going to be a meeting about resources but turned out to be, in part, about the evacuation. I just want to say, as we went through that meeting, I thought you,

Mayor Walaker, and the Deputy Mayor, Tim Mahoney, made a very clear and compelling case that you had taken the responsible steps that would be expected.

You had a plan. You had gotten the vulnerable populations evacuated. You had voluntary evacuations of the low-lying areas, and you had issued special alerts to the people who were between the backup dikes and the main dikes. So I personally was persuaded you had been fully responsible in an evacuation planning effort.

I want to ask Colonel Christensen, as I understand it you have \$600,000 available for 2009, \$1.4 million for 2010 for the analysis that needs to be done. Are those the correct numbers? And do you have, in your judgment, the resources necessary to meet the timeline for these reviews?

Colonel CHRISTENSEN. Yes, sir. Those monetary figures are correct, and we do have the resources. I have assigned my two best project managers on this. This is an important project to the district and to the region. Anything I have asked for from General Walsh and from Headquarters, USACE, they have promised that they would give me. So I feel I have the resources.

Senator CONRAD. General Walsh has indicated that you will have available to you the resources that you need to complete this aggressive timeline. Is there anything that could be done to provide an even faster result?

Colonel CHRISTENSEN. In my estimation, no. We have taken every effort to compress this timeline because we know how important this is. And this is a very complex issue, as has come out.

Senator CONRAD. Okay. To the Mayors and to the county representatives, are there any, as far as you can see at this point, any showstoppers as issues for agreement to be reached between the cities and the counties?

Mr. WALAKER. No. But we need these people here. I mean, they rotate these guys like General Walsh and Colonel Christensen every 3 years. Is that going to be a showstopper?

I mean, we brought these people here. They were here during the flood fight. They understand the problems and as they go forward. So if you are talking about a showstopper, I think all of these things can be resolved to some benefit. But to watch these guys be redeployed, that bothers me a little bit.

Senator CONRAD. Let me just say I watched Colonel Christensen in community after community, and I have high regard for Colonel Christensen. His professionalism and the absolute dedication he brought to this, I think all of us respect.

Mayor Voxland, any showstoppers that you see? We should get them on the table. If there are things out there that are non-starters, we need to know.

Mr. VOXLAND. That I can think of at this point, no. I think communication is going to be a key. I think one thing that the four of us, the two counties and two cities, probably need to do is get together and figure out some way of an instant e-mail type communication on a very regular basis to see if something does crop up in the near future and the midterm future so we can address those right away. But at this point, I see nothing that would stop it.

Mr. WALAKER. How about hand-delivered communications?

Mr. VOXLAND. No, you are going to have to learn how to do e-mail.

Mr. WALAKER. I know how to do that. I just read it, because it becomes public record and so forth. That is the point I was trying to make.

Senator CONRAD. Keith.

Mr. BERNDT. Senator Dorgan, Senator Conrad, no, I don't see any from the county's perspective.

Senator CONRAD. And Chairman Waller.

Mr. WALLER. Senator, I don't believe there will be any showstoppers. I believe there are going to be some bumps in the road along the way because of the different interests of each community or county, city or county. But I do believe that what I have seen is that everybody certainly understands the situation and certainly wants protection for our citizens.

Senator CONRAD. Okay, I just want to end on this note, if I can, with Colonel Christensen, because we know there is one big potential showstopper out there, and that is the cost-benefit ratio and the cost-benefit analysis, because if we don't achieve that, we can't achieve Federal funding.

So I want to make certain that I understood your earlier answer to Senator Dorgan. With respect to a diversion, your initial indication is that that would have a cost-benefit ratio of 0.65. The combination would be 0.62. Both of those would be far below any cost-benefit ratio that would be acceptable for Federal funding. Isn't that correct?

Colonel CHRISTENSEN. Yes, sir.

Senator CONRAD. And so, the only option with respect to your initial calculations that would qualify for a Federal project would be the diking approach.

Colonel CHRISTENSEN. As a standalone alternative, yes, sir.

Senator CONRAD. As a standalone alternative.

Colonel CHRISTENSEN. However, we have to optimize those, and we have to make sure we are capturing all the benefits.

Senator CONRAD. Yes, I understand that you have got a caveat there, but still you are providing us initial information that is important for people to understand.

To meet the cost-benefit ratio, my understanding is that you have to be above 1.0. Is that correct?

Colonel CHRISTENSEN. Yes, sir.

Senator CONRAD. And your initial indication is we are at 1.0, but that is before optimization. Okay. So we have still got, hopefully, some benefits to capture there before we get a final determination.

Colonel CHRISTENSEN. Yes, sir.

Senator CONRAD. All right. I thank the chairman.

Senator DORGAN. Just for the record, the calculation you have just described, that is the comprehensive levee system without or exclusive of the Southside project or including the Southside project and the benefits it provides?

Colonel CHRISTENSEN. It is looking at an alignment that would be typical of what a levee alignment would be in the city as a standalone, just as you sketch out what protection would look like from the city, a typical alignment. I am not sure I am answering your question there, sir. But it is—

Senator DORGAN. I am not sure I want the answer to the question. But I will inquire more about that.

Senator KLOBUCHAR.

Okay. Thank you very much.

Just a question for the two mayors, as we can learn a lot from these crises when they happen and how we can improve things, I have said a few times that FEMA—in North Dakota and Minnesota, FEMA is a four-letter word, but it is not a bad one. Compared to the Katrina FEMA, I think that, once again, just as in Grand Forks and East Grand Forks, we saw a lot of good work out of FEMA in this area.

Could you talk about your impressions of that and any improvements you think that could be made as we go forward? I guess Mayor Voxland first.

Mr. VOXLAND. I have to say that I was extremely impressed with our FEMA representatives that were invited into Minnesota, as I understand that is how the process works. They were very clear from the start what their mission was. They kept re-explaining it so that we absolutely understood. I'm very happy with what they did.

So I would say I can't think of anything that I really want to fault them on, I'll go into our next steps with FEMA and the frustration of the 206 funds are probably the only thing that I have as we go forward, and that is not FEMA's problem. It is the way Federal law is written.

Senator KLOBUCHAR. Well, and that is actually something that I have talked to the Secretary of Homeland Security about. There is this regional funding difference. And you would hope when an area has the same problem, that there is a way to treat both sides of the river the same when they are in different States. But that is something that we need to work on going forward.

Mayor Walaker.

Mr. WALAKER. As I get long in the tooth, I have watched FEMA grow. Back in 1975, 1978, 1979, FEMA was a depository for people that couldn't get another Federal job, okay? They had no skills. The laws were almost obscure.

The rules—and that is the way they wanted it. As far as I was concerned, that is the way they wanted it. Because the flood of 1993, when they flooded the Mississippi, we had a flood up here later on that summer, and it got to be just absolutely, they were so difficult to deal with.

This year's response, we still have some difficulties. I mean, but they are following the law as close as they possibly can. Are we disappointed in some areas? Of course we are. But the response and the professionalism of the FEMA today is much, much enhanced over what it used to be years and years ago.

So, as far as the President is concerned, I mean, he was very concerned that we had all of the Federal help that we could and that trickle down to the process. And right now, sure, we still disagree over what was done in the past, the right of entry and so forth and the particular part of the cleanliness of the boulevards and so forth and the sand.

I mean, we had 42 miles of dikes in Fargo. So we still have some of those to deal with and so forth. And we understand that some

of them are going to go away. We are going to do it on PA and so forth, but they are good.

Senator KLOBUCHAR. Thank you.

Colonel Christensen, this was interesting information for us about the cost-benefit analysis. I know that it is preliminary. But could you describe to me why that would be a little more information about the levee plan? Obviously, we had some concerns about I think Chairman Waller mentioned 7,500 acres. We have heard 9,000 acres of some of what you described, Chairman Waller, of the most highly productive farmland, richest farmland in the country that would have been taken out if only the diversion plan was used.

Was that part of what went into the consideration of the lower cost-benefit analysis with the pure diversion plan?

Colonel CHRISTENSEN. Yes, it was. And we only looked at the Minnesota side initially for this first pass through. We do intend to look on the North Dakota side as well. But as you look at both sides of the river initially, it was a little bit more complicated to do it on the North Dakota side. And with the time constraints we had, we wanted to see what a cost-benefit ratio would look like. So we did the Minnesota side first.

Senator KLOBUCHAR. So you did it on the Minnesota side just because it was a preliminary thing?

Colonel CHRISTENSEN. It was a preliminary thing. We wanted to take a snapshot. It is less complex on the Minnesota side. There are less railroad crossings, less rivers to cross, less roads to cross.

Senator KLOBUCHAR. But it still came out with this higher cost, lower benefits basically, and part of that was this farmland?

Colonel CHRISTENSEN. And part of that was captured in the cost piece.

Senator KLOBUCHAR. I think that is what Collin said. He just said it differently than you did.

Senator KLOBUCHAR. Okay, so anyway, because we really do want to make this work so dearly. We care so much about making this plan work. And so, obviously, hearing this—could you tell me a little—is good news for us. Could you talk a little bit more about the levee plan and how this would work?

Colonel CHRISTENSEN. The levee plan on which we initially did the calculations was very similar to what they have set up already in the Southside project. That is the alignment we used to do the cost-benefit analysis initially.

Senator KLOBUCHAR. And Senator Conrad was asking; you have to get over a 1.0 cost benefit. Could some of this be—you talked about the possibilities of retention. We talked about this with some of our smaller communities, and actually, we have some ideas about that, some potential places for retention. Could that bump it up? Again, I know it is still preliminary.

Colonel CHRISTENSEN. And that is part of the optimization piece. We wanted to just get a snapshot of the standalone pieces, and we still have to pull in the nonstructural aspects and the retention upstream from the Fargo metro upstream storage and see how we can incorporate that.

Senator KLOBUCHAR. And that storage could be happening in both States?

Colonel CHRISTENSEN. Yes.

Senator KLOBUCHAR. Okay, very good, just one last question, Chairman Waller, when you talked about Georgetown and some of the other communities are they going to have a seat at the table as we look at this process?

Mr. WALLER. After the first meeting, flood meeting with the Corps, I don't think it was 15 minutes later, and I got a call from the mayor of Georgetown, the mayor is certainly concerned and really wants the information. So these communities want to be involved. They want to express their thoughts and their issues and—

Senator KLOBUCHAR. And was this helpful information to you about the cost benefit? Did that surprise you when you brought that up in your testimony?

Mr. WALLER. Well, from what I gathered in the initial information that came out, it really talked about what I gathered was the diversion as well as the levees. And retention, again, we feel—and I think there are already some studies out there that indicate that the two alone are not going to be successful without that third leg of the stool. I am not familiar with some of those studies, but that is what I have heard.

Senator KLOBUCHAR. Okay. Thank you very much.

Thank you, Mr. Chairman.

Senator DORGAN. Senator Klobuchar, thank you very much.

For the information of my colleagues, I am going to call on Congressman Peterson and Congressman Pomeroy. In about 10 minutes, we will have the second panel up. Governor Hoeven came after we started, he is here and has exhibited great patience and General Walsh similarly, and we have a representative of Governor Pawlenty.

So following the questions of my two colleagues, we will be submitting a list of questions, especially to the Corps, but also to other witnesses on this first panel. When we receive the responses, which we would expect within 2 weeks, we will make the responses publicly available so that everyone has access to those responses because that will complete the record. We are not able to ask every question in this circumstance, but we appreciate the cooperation of the witnesses.

Congressman Peterson.

Mr. PETERSON. Thank you, Mr. Chairman.

I will try to be brief. So this preliminary look included the Southside project. Is that part of the deal?

Colonel CHRISTENSEN. Yes, sir.

Mr. PETERSON. Okay. And when you were talking about minimizing the effect downstream, when you were asked, you said you were going to minimize. So with both options that you are looking at, at this point, there is going to be some effect downstream probably, right?

Colonel CHRISTENSEN. There could potentially be, but the goal is to get that down to zero by minimizing—

Mr. PETERSON. Do you think that is realistic to get it to zero?

Colonel CHRISTENSEN. Realistically, there will probably be some effect upstream or downstream, to some small degree.

Mr. PETERSON. But we will be able to know—

Colonel CHRISTENSEN. And we will be able to know by the hydrological modeling what those effects are and we will make sure that that is minimized.

Mr. PETERSON. And on the Southside project, Mayor Walaker, I don't know as much about it as I need to, but are you—you say you have had peer review of it, that it won't affect our side. I think you have mentioned that.

Mr. WALAKER. Well, Briarwood. Briarwood would have had a significant increase of 6 to 9 inches, and now we have got that down to zero. So there is a benefit to that whole area, and we are talking about within the district having retention and more retention in the legal drains, Drain 53 and Drain 27.

Mr. PETERSON. So you have it down to zero now, you think?

Mr. WALAKER. Yes, and below zero. There are some significant improvements there on the Southside project, and what we are asking the Corps of Engineers to do is to include that.

If we are going to spend \$161 million, we would certainly like to get some credit for that, and we would like to know that as soon as possible because there are some aspects of that project that we could actually start on if there wasn't going to be any benefit. But the cost-benefit ratio, we do not want to screw up the cost-benefit ratio for both cities.

Mr. PETERSON. One last question, Colonel. We had some meetings yesterday and last evening, and it was on this upstream study that was done earlier or I don't know if it was completed or what exactly happened. But somebody had mentioned and I think somebody mentioned this at one of our other meetings that—and I want to understand if this is correct—that if you had 400,000 acre feet of storage upstream, it would only affect the crest 1.6 feet. Is that correct?

Colonel CHRISTENSEN. Those are the figures I have heard, sir.

Mr. PETERSON. That doesn't seem possible.

Colonel CHRISTENSEN. For the 100-year flood.

Mr. PETERSON. Pardon?

Colonel CHRISTENSEN. For the 100-year flood, 1.6 feet.

Mr. PETERSON. I guess I am not enough of an engineer to understand. Is there any kind of information that would help the understanding of that? Is there some kind of a paper that shows that?

Colonel CHRISTENSEN. We—

Mr. PETERSON. Okay. I would like to see it because it just seems kind of counterintuitive. But I mean, if that is the case, we struggled to get 20,000 acre feet of storage and 400,000 is only going to give us 1.6 feet, I don't know. It is going to take a lot of retention to make any difference.

Colonel CHRISTENSEN. In the cost-benefit ratio, that was pretty low as we did that study. I think it came out to be about 0.25. However, we are looking at incorporating some ecosystem and restoration pieces in there that might drive up that cost benefit.

And again, it is—

Mr. PETERSON. Is that kind of why that study was shelved or whatever?

Colonel CHRISTENSEN. We are still working on it, but we need to capture other benefits besides just the flood mitigation piece. And it is going to take all of these pieces together, the nonstructural,

the structural, and whatever we can to pull this in to get that maximum cost-benefit ratio.

Mr. PETERSON. All right. Thank you.

Thank you, Mr. Chairman.

Senator DORGAN. Thank you, Congressman Peterson.

Congressman Pomeroy.

Mr. POMEROY. Thank you, Mr. Chairman.

The questions I had have largely been covered. There are a couple of interesting items in the testimony that I want to make sure are reflected in the record, and they are because you included them. But they deserve some emphasis.

We get into cost-benefit ratio analysis and the Corps has a very well-designed criteria in terms of how you figure that. But I think the testimony presents reality in terms of the cost benefits that we also need to consider. We are going to look at some very expensive designs going forward.

And yet, according to the mayor's testimony, had we not protected at 41, water would have extended from south of Fargo all the way to Interstate 94, west to Interstate 29, to west Fargo boundaries. It would have caused the flooding of 6,000 single-family homes, 6,000 apartment buildings, 52,000 residents displaced, also inundating north Fargo through North Dakota State University campus, as well as most of the neighborhoods situated along the Red River.

That is from the mayor's testimony. And Colonel, your testimony reflects that the basin protection was achieved with a heroic effort locally, but the Corps providing 11 million sandbags, 141 pumps, 81,600 feet of HESCO barriers, 70 miles of earthen levees, and these efforts prevented nearly \$3 billion in damages. And of that \$3 billion, \$2.5 billion in damages avoided were right here in the Fargo-Moorhead metropolitan area.

So I think that is the first time I have actually seen a hard figure on what this successful flood fight yielded in terms of savings. Is that your testimony?

Colonel CHRISTENSEN. That is my testimony. And it is a very complex algorithm when you are doing a cost-benefit ratio for a project. And I am not even going to pretend I understand—

Mr. POMEROY. Regrettably, a cost-benefit ratio can't just say, look, if it floods, it is going to cost you \$2.5 billion in Fargo-Moorhead alone, but—

Colonel CHRISTENSEN. You have those costs spread over time, the life of the project, and it is a very complex algorithm. And like I said, I can't even begin to understand it, and that is why I have Aaron working on that.

Mr. POMEROY. We are not challenging the algorithms. We will work with them. But we do know we have to proceed because even though these are going to be—these costs are going to be in the hundreds of millions of dollars. But on the other hand, this frantic effort involving these temporary measures produced \$2.5 billion worth of savings.

On the other hand, but for the weather turn and freezing all of that water out in the fields, which allowed for almost a staged drawdown of the water in this area, but for that freeze, we might not have made it. Is that your evaluation?

Colonel CHRISTENSEN. Yes, sir.

Mr. POMEROY. So that is tremendous risk. If you were running this like a business, you wouldn't want to take that kind of risk, this heroic effort, getting a break from the weather, and by the skin of our teeth avoiding a \$2.5 billion hit.

So thank you very much. I look forward to the next panel also. Thank you.

Senator DORGAN. Congressman Pomeroy, thank you very much.

Let me thank all of the witnesses. You will be receiving from us a list of questions that we hope you would submit back in 2 weeks.

Thank you very much for your testimony today.

We will ask the next panel to come forward. Is the Governor in the room? All right, we ask that the Governor and General Walsh come forward. Also, Commissioner Mark Holsten, Minnesota Department of Natural Resources, on behalf of Governor Tim Pawlenty.

Let me ask that you be seated, please.

Is Mr. Holsten in the room, Mark Holsten?

Governor, you came after the hearing began. We appreciate your patience, but we wanted especially to invite you and Governor Pawlenty, as well as Brigadier General Walsh, to be with us today. I appreciate the fact that you were able to listen to a fair amount of the testimony from the first panel.

I think it is important to point out that you, Governor Pawlenty, and a lot of folks at the State level, both Minnesota and North Dakota, played a very significant role in the flood fight this year, and we appreciate that.

And General Walsh, as Senator Conrad indicated, you are almost becoming a permanent resident up here, and we appreciate your work as well.

Let us begin, Governor Hoeven, with you, and we appreciate your being here. As I indicated to the previous panel, your full testimony will be in the permanent record, and you are welcome to summarize.

STATEMENT OF HON. JOHN HOEVEN, GOVERNOR, STATE OF NORTH DAKOTA

Governor HOEVEN. Thank you, Senator.

And greetings to you, Senator Conrad, Congressman Pomeroy, Senator Klobuchar, good to have you on our side of the river, and also Representative Peterson.

I appreciate this meeting today and also the meeting in Washington, DC, where we brought local leaders, State officials, and, of course, the Federal delegations together to talk about flood protection in the Red River Valley. And really, it is a bi-State effort. It is a regional effort. And we certainly recognize that this is about permanent flood protection for the Fargo-Moorhead area, but really, it is about water management in the Red River Valley basin.

And so, right at the outset, once again, I want to affirm our desire in North Dakota to make sure we are working with our friends in Minnesota so that this benefits people on both sides of the Red River.

I also want to start out again thanking the people of Fargo, of Cass County, of the Red River Valley in North Dakota, and of

Moorhead and Clay County, and the Red River Valley in Minnesota for the tremendous effort they put in during the flood fight this past spring. And the outstanding local leadership, Mayor Walaker and all of the local officials here, the county officials, and the same for Mayor Voxland, and both city and county officials on the Minnesota side of the river as well. It was unbelievable.

And I think people all over the Nation saw North Dakotans and Minnesotans doing just an amazing job battling the floodwaters. But the thing is we can't go through that every year. We have got to get permanent flood protection. And I think that the real issue is how do we get this thing going? How do we get permanent flood protection going?

And I have looked at least at the preliminary alternatives that the Corps has brought forward, both the levee alternative and also the east diversion alternative, and I know they have a hybrid as well.

And I purposely started my comments out—and I have submitted written testimony, which is longer, and obviously you can look at. But I purposely started my comments out from the standpoint of this has to benefit people on both sides of the river. That is how we are approaching it. But at the same time, we are very anxious to get started.

And the city leaders in Fargo and in Cass County have spent a lot of time and effort, approximately 4 years, on the Southside flood protection project. And I guess what I would like to offer is that that, I think, could be a good option as Phase I of a phased-in approach, okay?

And there are a number of benefits to doing it that way, understanding, again, that this is part of a larger regional project. This is part of water management in the basin. This is part of doing more with storage of water upstream, but that you don't eat the whole apple in one bite. We want to get going.

And so, from the State perspective and, I think, from the community's perspective, we would be in position to offer that up as a phase one approach to the larger Corps-sponsored project. It is approximately \$161 million from the States, and we have \$75 million. It is ready to go. The community is working on their \$75 million. We have approximately \$11 million in FEMA funding. That is the \$161 million.

We could get that project going. It would provide flood protection south of I-94, which is certainly a growth area for the community, and the project has been constructed in a way where there is no negative impact downstream. It does not raise water levels at all downstream on either the North Dakota or the Minnesota side of the river.

Also, it would give us time to complete the full-blown plan, as well as get appropriated funding for it. So I offer that up as an option or an alternative to begin the process, get it going on a phased approach. That would also then put us in position to have time to get the appropriation for the full Corps-sponsored project. And I understand a Corps-sponsored project typically is 65 percent federally funded, which means a 35 percent non-Federal share.

So the keys for us would be that the investment that goes into this phase one would be credited toward the non-Federal share of

the cost of the larger project and, second, that it would be taken into account properly in the cost-benefit analysis.

Now I offer this as an alternative, as an option, provided that the community of Fargo is comfortable moving forward, the community of Moorhead, Cass County, Clay County, and the region. I also offer it up as a Phase I, if you will, to get going on the flood protection, recognizing that it is only part of the larger regional effort for flood protection and water management in the Red River basin.

And so, I think, again, we are open to any and all options, but we are anxious to get going. Along that line as well, I have talked to Governor Pawlenty, both before, during, and after the meeting we had in Washington DC, and we have offered to enter into a State-to-State compact, which could include Federal participation or not as well.

And I am waiting to hear back from Governor Pawlenty. He has been—I know he is always busy. He has been particularly busy as of late. But we have offered up a compact approach between the States, and we are waiting to hear back at this point as to how he would like to approach that.

PREPARED STATEMENT

So I guess those are my comments. Again, I have submitted written testimony, but appreciate the willingness of people to come together. And again, I want to express our desire, on behalf of the State of North Dakota, to move the process forward and do anything we can to work with everyone at the local level, the State level, and with our Federal delegations on both sides of the river to advance the ball and get the permanent flood protection going.

Thank you.

[The statement follows:]

PREPARED STATEMENT OF HON. JOHN HOEVEN

Good afternoon, Senator. Good afternoon Ladies and Gentlemen.

Although the waters have receded, concern about flooding in the Red River Valley is still at the high water mark.

As we continue our efforts to recover from the floods of 2009, we must not take our eye off the ball—and that ball is permanent, effective, and reliable flood protection for the Fargo-Moorhead area, as well as for outlying communities.

The Red River of the north has exceeded flood stage—that is, 17 feet—in roughly half of the last 100 years. This year, the Red River exceeded flood stage for more than 60 days, and fell below flood stage just last week.

The people of Fargo and Cass County, the mayor, commissioners, and other local leaders did an outstanding job of battling the flood. We at the State level did all we could to support the flood fight with the North Dakota National Guard, DOT, the Highway Patrol, and other State resources.

Clearly, we need more permanent flood protection for the Fargo-Moorhead area, and we need to coordinate development of that flood protection with additional measures and better water management throughout the Red River Valley on both sides of the river.

We are committed to working with all parties—the cities, counties, States, and Federal Government—to arrive at a solution that addresses everyone's concerns, and that doesn't adversely affect any adjacent community.

Furthermore, we are committed to doing so in a timely fashion and with substantial State resources. To that end, we committed \$75 million for permanent flood protection in the Red River Valley prior to the recent flooding. We would like to see that funding applied to our State match, and also to the Corps' cost-benefit criteria.

In 2008, the U.S. Army Corps of Engineers began a feasibility study for a Fargo-Moorhead metropolitan area flood protection project. Under the Corps' current

schedule, however, they will not even identify a final plan until January 2010, or begin construction until April 2012.

Two alternatives have initially been advanced: the Levee Alternative, which would incorporate the Southside Flood Control Project and cost approximately \$625 million; and the East Diversion, which would essentially create a 30 mile channel around the cities of Fargo and Moorhead and cost about \$910 million.

If the Levee Alternative is selected, we may have the advantage of being able to get underway more quickly, with the Southside Flood Protection project as Phase I because that project is already laid out.

The cost of the Southside Flood Protection Project is \$161 million. The State's \$75 million, combined with local match and \$11 million from FEMA, would enable the project to get underway, perhaps as early as next spring. We would like the Corps to help green-light the project by giving us credit for the non-Federal share of the larger project, as well as proper treatment in the cost-benefit analysis for the entire Corps project.

The Southside Flood Protection Project would provide security from overland flooding that threatens people and property south of I-94, and also enable the city of Fargo to continue to grow to the south, helping to maintain the economic vitality of the whole State and region. In addition, it doesn't create adverse impacts downstream because it doesn't increase water levels.

With the East Diversion Alternative, it's not clear at this point whether we would have an opportunity to proceed with an earlier Phase I option.

With either alternative, however, we need the Corps' help and cooperation to begin any type of phased approach prior to the April 2012 timeframe they have scheduled for beginning the project.

I encourage the Corps to work with us to provide a phased approach, if possible, under either option that will enable us to move forward to construct permanent flood protection before the April 2012 timeframe.

In addition, we have made an offer to the State of Minnesota to formalize an agreement between our States to cooperate on the implementation of the Corps' flood protection measures to protect people and property on both sides of the river.

Considering the millions of dollars expended in the recent flood fight, this project needs to be a priority.

Thank you for an opportunity to speak to this very important issue.

Senator DORGAN. Governor Hoeven, thank you very much.

Next, we will hear from Brigadier General Michael Walsh, the Mississippi Valley District Commander of the Army Corps of Engineers.

General Walsh.

**STATEMENT OF BRIGADIER GENERAL MICHAEL J. WALSH, DIVISION
COMMANDER, MISSISSIPPI VALLEY DIVISION, ARMY CORPS OF
ENGINEERS**

General WALSH. Thank you, Chairman. And thank you, members of the subcommittee.

Before I get to my prepared comments, I just want to again mention that I was here at "sandbag central"—I believe you mentioned it, Senator—and saw thousands of people in this facility working very close to heavy equipment. And from a safety perspective, it was just a little bit nerve-racking. But you guys, the local folks really had a good handle on it and were able to fill thousands of sandbags and really get it done.

I took that message—I have worked flood fights on the east coast. I have worked flood fights on the west coast, and I have worked it on the center coast as well, on the Mississippi and now on the Red. I explained to a lot of people, as I have gone around, what I saw in "sandbag central"—quickly put it on a truck and race to the levees. And people didn't quite understand what I meant by "racing to the levees." They thought racing to the levees to put the sandbags on the levees. And what I was explaining to them, they were racing to the levees so that they wouldn't freeze

the sandbags. And people don't understand that as well. And when I explained this to them, I asked how many go shopping in their local store, most of them—all of them raised their hand. And I said now how many times have you seen the frozen chickens or the frozen turkeys stacked on top of each other? They can't.

So fighting a flood in this area is different than anyplace else that I have worked flood fighting, and so I really applaud the people who got it done in this area and was proud to be part of the team that worked on that.

Senator DORGAN. General, that was an unusual weather pattern. It is normally much, much warmer up here.

General WALSH. Sir, I worked very closely with the North Dakota National Guard in Iraq, and they told me how warm it is here in the wintertime.

Sir, the other thing I would comment on, as you mentioned, the one river, one region, one cause. I think that is a very good charge that we should all be looking at.

Sir, while I was sitting here, as you do know, Corps of Engineers, our employees are not only here in the United States, but we are in Iraq and Afghanistan. We have 65 of our people now in Iraq. And I just got a note from the Chief of Engineers that while returning back from a project site in Fallujah, Iraq, on Monday, an IED attacked one of our teams coming back from that project site and killed our Navy Seabee, one of our Corps of Engineer employees, and a State Department employee.

The Chief mentioned that the employee wasn't from my division, but certainly, it was one of our team members. And I just wanted to pass that along to the subcommittee that we are here with you. We are also here and in Iraq and Afghanistan.

Sir, just back to my comments, Chairman Dorgan and members of the subcommittee, I am honored to appear before you and report what the Corps of Engineers has been doing to address flooding on the Red River and the North Basin.

My testimony will highlight our ongoing efforts to manage flood risk in collaboration with all levels of government and to provide the information that each citizen needs to make the appropriate choices regarding his or her exposure to flood risk.

The Corps of Engineers, as you know, has a long history in the Red River basin. The Lake Traverse Project in the headwaters of the Red was an authorized project that started in 1936. The Bald Hill Dam on the Sheyenne was authorized in 1944. The Orwell Dam on the Otter Tail River was also part of the 1947 comprehensive plan that was proposed by the Corps of Engineers and was authorized in the Flood Control Acts of 1948 and 1950.

Now we have also built 5 reservoirs and 10 flood control projects in the communities on the Red River Valley. We have provided emergency assistance on numerous times. Our preliminary calculations for the 2009 flood event shows the Corps reservoirs, the permanent projects, and the emergency assistance actions did prevent \$3 billion in flood damages in this event alone.

Nevertheless, many of the areas still sustained significant flood damages this year, and further action is clearly needed to address flood action in the region. Flood risk management is not just a Federal responsibility. Rather, it is a shared responsibility between

multiple State, Federal, and local government agencies, which has a complex set of programs and authorities.

The authority to determine how land is used in floodplains and to enforce flood-wise requirements is entirely the responsibility of State and local governments. Individual citizens must also make wise choices to reduce their own flood risks.

The Federal project and programs like the National Flood Insurance Program can help mitigate that risk, but it does not eliminate it. The Government needs to accurately communicate flood risk to its citizens so that they can make the appropriate choices.

The Corps is moving away from the paradigm of flood protection and moving to managing flood risks and working in a collaborative fashion with all levels of government and private citizens as we seek a comprehensive solution that could leverage both Federal and non-Federal authorities and resources. The measures needed to reduce flood risk go far beyond the traditional structural solutions of levees, diversions, and flood storage.

It is important to note that the Corps' objective when considering Federal investments in flood damage reduction is to contribute to the national economic development that is consistent with protecting the environment. In short, the economic benefits of any Federal project must outweigh its costs, as we have talked about earlier.

But the low-hanging fruit on the Red River basin has been largely picked. For a variety of reasons, we have struggled to find the environment, the economically justified solutions on proposed projects in the recent past.

Because the Red River floodplain is extremely flat, local levee projects often have no high ground to tie into. Urban development sits directly on marginally stable riverbanks, so there is little room to build a permanent line of protection.

Even though we can clearly see the potential for catastrophic damages in the rare and extreme events, such events do occur. They occur infrequently, but as you figure out the cost-benefit ratio, the economic analysis stretches that out.

As a result of these factors, the projects do not tend to move very well in a justified manner looking at an economic basis. Many people believe that flood storage is the best long-term solution to flooding. While we agree that flood storage is part of the solution in certain circumstances, they are not always and they do provide significant challenges, and they vary by region to building reservoirs, and that limits their effectiveness.

The best reservoir sites in the Red River basin have already been built, and there are significant environmental concerns with the remaining if we are looking at modifying those. Over 90 percent of the wetlands originally present in the Red River basin have been drained.

Building flood storage on this drained landscape is possible, especially where drainage systems are less effective. Unfortunately, because the valley is so flat, off-channel storage projects typically require hundreds of acres of land to be surrounded and a constructed embankment around it.

From the Federal perspective, it is difficult to find economic justification for this type of project, and there is often local resistance to taking agricultural land out of production.

Despite these obstacles, flood storage projects can be successfully implemented by local agencies, and we have seen that in Cass County at the Maple River Dam. And the North Ottawa impoundment project and the Bois de Sioux watershed district in Minnesota are two recent projects that worked well.

The first step in minimizing future flood damage is to restrict development like in urban, rural, agricultural, industrial, and commercial areas, in areas that are prone to flooding, in the floodplains. We urge communities responsible for making land use decisions to act wisely in this regard and restrict development in areas that are known to be at high flood risk.

If communities can limit development within floodplains, the largest and most expensive issues related to flood risk management has been resolved before there is even an issue to be addressed. The Corps is currently engaged with several construction projects on the Red River basin, including the Wahpeton in North Dakota, Breckenridge, Fargo, Roseau in Minnesota, and we are also studying projects in Ada and the Wild Rice River basin, as well as Devils Lake, the Fargo-Moorhead project that we are talking about today, and many of the Red River watershed projects that are upstream.

Rather than describing those in detail, I will provide a fact sheet for you guys to go through later. But the Corps is committed to completing these studies and projects with both our Federal and non-Federal funding as it is allowed.

I would like to highlight one additional study. That is the Red River basin-wide watershed study. This is a study that began in June 2008, and its purpose is to develop a watershed management plan for the entire Red River basin.

The first study task was to collect detailed topographic information using LIDAR technology in cooperation with the International Water Institute and several local partners. The data from this effort is already being used to inform decisionmakers.

The next step is to use this information and put together topographic data to build and refine hydrologic and hydraulic models, then using those models to guide watershed management planning throughout the basin.

This study is not intended to recommend or justify Federal projects. Instead, it is to provide better tools and data for local and State decisionmakers.

In conclusion, the Corps of Engineers is committed to working with our partnerships and partners with the State and local agencies to develop a long-term flood risk reduction strategy. The Federal projects will never totally eliminate flood risk in the Red River basin. Citizens need to take responsibility for reducing their own flood risks.

PREPARED STATEMENT

Where Federal projects can be justified, we will pursue them in concert with the local communities as they so desire. Where Federal studies can inform local decisionmakers, we will work with the project partners to conduct them. All levels of government must

work together to manage flood risk and empower citizens to make wise choices.

Thank you for allowing me to testify here today, Mr. Chairman. [The statement follows:]

PREPARED STATEMENT OF BRIGADIER GENERAL MICHAEL J. WALSH

Chairman Dorgan and members of the subcommittee, I am honored to appear before you to report on what the Corps of Engineers is doing to address flooding in the Red River of the North basin. My testimony will highlight our ongoing efforts to manage flood risk in collaboration with all levels of government and to provide the information each citizen needs to make appropriate choices regarding his exposure to flood risk.

The Corps of Engineers has a long history in the Red River Basin. The Lake Traverse project in the headwaters of the Red River was authorized in the Flood Control Act of 1936. Baldhill Dam on the Sheyenne River was authorized in 1944. Orwell Dam on the Otter Tail River was part of a 1947 comprehensive plan proposed by the Corps and authorized in the Flood Control Acts of 1948 and 1950. We have built 5 reservoirs and 10 flood projects in communities in the Red River valley. We have provided emergency assistance numerous times. Our preliminary calculations from the 2009 flood event show that Corps reservoirs, permanent projects and emergency assistance actions prevented nearly \$3 billion in flood damages in that event alone. Nevertheless, many areas still sustained significant flood damage this year, and further action is clearly needed to address flooding in the region.

Flood risk management is not just a Federal responsibility. Rather, it is shared between multiple Federal, State and local government agencies with a complex set of programs and authorities. The authority to determine how land is used in flood plains and to enforce flood-wise requirements is entirely the responsibility of State and local government. Individual citizens also must make wise choices to reduce their own flood risk. Federal projects and programs like the National Flood Insurance Program can help mitigate the risk, but can not eliminate the risks. The Government needs to accurately communicate flood risk, so citizens can make appropriate choices. The Corps is moving away from the paradigm of "flood protection" to one of managing the risk of floods in collaboration with other governmental partners and private citizens as we seek comprehensive solutions that would leverage Federal and non-Federal authorities and resources. The measures needed to reduce flood risk go far beyond traditional structural solutions of levees, diversions and flood storage.

It is important to note that the Corps' objective when considering Federal investments in flood damage reduction is to contribute to national economic development consistent with protecting the environment. In short, the economic benefits of any Federal project must outweigh its costs. The "low hanging fruit" in the Red River basin has largely been picked. For a variety of reasons, we have struggled to find economically justified solutions for proposed projects in recent years. Because the Red River flood plain is extremely flat, local levee projects often have no high ground to tie into. Urban development sits directly on marginally stable riverbanks, so there is little room to build a permanent line of protection. Even though we can clearly see the potential for catastrophic damages in rare and extreme events, such events occur too infrequently to carry much weight in the economic analysis. As a result of these factors, the projects do not tend to be very well justified on an economic basis.

Many people believe that flood water storage is the best long-term solution to flooding. While we agree that flood storage is part of the solution in certain circumstances, there are always significant challenges—that vary by region—to building reservoirs and limits to their effectiveness. The best reservoir sites in the Red River Basin have already been built, and there are significant environmental concerns with modifying the few remaining natural ravines. Over 90 percent of the wetlands originally present in the Red River basin have been drained. Building flood storage on this drained landscape is possible, especially where drainage systems are less effective. Unfortunately, because the valley is so flat, off-channel storage projects typically require hundreds of acres of land surrounded by constructed embankments. From the Federal perspective, it is difficult to find economic justification for this type of project, and there is often local resistance to taking agricultural land out of production. Despite these obstacles, flood storage projects can be successfully implemented by local agencies. The Maple River dam in Cass County, North Dakota and the North Ottawa Impoundment project in the Bois de Sioux Watershed District in Minnesota are two recent examples of locally implemented projects.

The first step in minimizing future flood damage is to restrict development—urban, rural, agricultural, industrial, and commercial—in the areas within the flood plain. We urge the communities responsible for making land-use decisions to act wisely in this regard, and restrict development in areas that are known to be at high flood risk. If communities can limit development within the flood plain, the largest and most expensive issue related to flood risk management has been resolved before it ever has become a problematic issue.

The Corps is currently engaged in several construction projects in the Red River basin, including projects at Wahpeton, ND; Breckenridge, MN; Fargo, ND; and soon Roseau, MN. We are also studying projects in Ada, MN; the Wild Rice River basin in MN; Devils Lake, ND; the Fargo-Moorhead Metropolitan area; and the Red River watershed upstream of Fargo-Moorhead. Rather than describing all of these efforts now, I will provide a fact sheet with details and points of contact for the subcommittee members' information. The Corps is committed to completing these studies and projects as Federal and non-Federal funding allows.

I would like to highlight one additional study—the Red River Basin-wide Watershed Study. This study began in June 2008, and its purpose is to develop a watershed management plan for the entire Red River basin. The first study task was to collect detailed topographic information using LIDAR technology in cooperation with the International Water Institute and several local partners. The data from this effort is already being used to inform decisionmakers in the basin. Next steps include using the topographic data to build and refine hydrologic and hydraulic models, then using the models to guide watershed management planning efforts throughout the basin. This study is not intended to recommend or justify any Federal projects; instead, it is to provide better tools and data to local and State decisionmakers.

In conclusion, the Corps of Engineers is committed to working in partnership with State and local agencies to develop long-term flood risk reduction strategies. Federal projects will never totally eliminate flood risk in the Red River Basin, and citizens need to take responsibility for reducing their own flood risk. Where Federal projects can be justified, we will pursue them in concert with local communities. Where Federal studies can inform local decisionmakers, we will work with project partners to conduct them. All levels of government must work together to manage flood risk and empower citizens to make wise choices.

Thank you for allowing me to testify here today. Mr. Chairman, this concludes my testimony. I would be happy to answer any questions you may have.

Senator DORGAN. General Walsh, thank you very much.

Commissioner of the Minnesota Department of Natural Resources, Mark Holsten, who is here testifying on behalf of Governor Pawlenty.

Mr. Holsten.

STATEMENT OF MARK HOLSTEN, COMMISSIONER, MINNESOTA DEPARTMENT OF NATURAL RESOURCES ON BEHALF OF HON. TIM PAWLENTY, GOVERNOR, STATE OF MINNESOTA

Mr. HOLSTEN. Thank you, Senator.

On behalf of Governor Pawlenty, I want to send his apologies for not being able to be here today, but he wants me to assure you that doesn't lessen the importance that Minnesota has placed on flood damage reduction.

As the DNR, as commissioner of the Department of Natural Resources, we administer floodplain management programs and the State's flood hazard mitigation program. In addition, we administer the regulatory programs that address impacts to public waters and dam safety.

The Governor and our legislature this spring passed a bonding bill that will provide \$50 million additional resources to flood hazard mitigation projects into the State and \$17 million for disaster relief here to the Red River Valley.

Minnesota and North Dakota have been collectively dealing with floods for many years. The 1997 flood disaster brought a renewed

focus to floodplain management and disaster preparedness. Much has been done since then. Unfortunately, there is still much to do.

It was very gratifying for me to be able to fly over Breckenridge this spring during the flood to see that flood project, to see how that worked for the Breckenridge community and also being able to be on ground at East Grand Forks to see how that Federal project protected that community at that peak flood stage this spring.

First of all, I think it would be helpful if we looked back specifically to Minnesota. Floods have been part of our history here in the Red River Valley, as for North Dakota also. But the floods that occurred in 1826, the significant floods in 1897, 1997, and 2009, each flood is unique and has a different impact throughout the valley.

We recognize floods are here to stay, and we need to better manage the risks of even greater events in the future. In the mid 1990s, impoundment projects on the Red River Valley in Minnesota were at a standstill. There was a U.S. Corps of Army Engineers moratorium on issuing permits for new impoundments, and that led to a joint State-Federal cumulative impact EIS.

The EIS was never completed due to the differences between the parties who were involved in development of that. That led to a formal mediation process that began in 1997 and ended in 1998. That mediation recognized the needs for 100-year flood protection for cities and a 10-year protection for farmland.

The mediation established a joint planning process that has proven to be very successful. Each watershed has a flood damage reduction workgroup that reviews and develops projects. Since then, numerous projects have been completed, both with State and local funding.

Seven impoundment projects have been completed or are under construction—Agassiz Valley, North Ottawa, PL566 upstream of Warren, Brandt/Angus, Fusillit, Easton, Riverton Township, Mattson-Slew.

The North Ottawa project, as the General spoke about earlier, had 18,000 feet of acre storage of water that helped to prevent or reduce the flow of water to the Breckenridge area this spring.

These impoundments through that mediation process met the concerns of what that mediation process brought out, the concerns for flood control, the providing of the safety of our public, and the environmental benefits that those impoundments can bring.

The 1997 flood provided an impetus for significant State funding to address flood mitigation projects. Local governments, with the assistance of the State and Federal partnership, have completed projects in Warren and East Brant. There are three currently ongoing, as the General talked about—Ada, Breckenridge, and Roseau.

Federal funding is still needed to complete these projects, and you can guess that there will be additional communities coming in for additional assistance, such as Oslo, Argyle, Hendrum, East Georgetown, and Halstead. From a practical point, a point of concern that we have is the length of time and the cost of pursuing Federal projects. For example, Breckenridge project over the years was delayed while the Corps waited for Federal assistance to be able to complete that project.

While the Corps has been a valued partner and does a lot of good work, that study process has forced us to move forward on other projects that could have been Federal projects, such as Crookston and Oakport Township. Waiting for that and the risk associated with that has forced us, as a State, to move in with those local units of government, and that is just something we wanted to bring out for the record.

There are a couple of things that we would point out from Minnesota's perspective that would help from the Federal Government. One is provide a cost control mechanism for projects. As the General talked about, it is a very complex system of local, State, and Federal funding. Having the ability to control those costs and the times associated and clear understanding of who is responsible for cost overruns, preferably the Army, would be helpful.

Utilizing, as the General also talked about, the best science around the hydrology, the hydrology information that we have collected from these previous floods to be able to determine floodplain management and a focus on risk management.

PREPARED STATEMENT

We would also like to stress the point that Federal assistance to help the States out, to be able to go into these localized projects would be of great help at this time.

[The statement follows:]

PREPARED STATEMENT OF MARK HOLSTEN

Mr. Chairman, Governor Pawlenty could not be here today but that does not lessen the importance that Minnesota has placed on flood damage reduction. I am Mark Holsten, Commissioner of the Minnesota Department of Natural Resources.

The DNR administers the floodplain management program and the State's flood hazard mitigation program. In addition we administer a regulatory program that addresses impacts to public waters and dam safety. This legislative session Minnesota passed a bonding bill that has \$50 million for flood hazard mitigation projects and a \$17 million disaster relief bill that addresses recovery needs in the Red River Valley.

Minnesota and North Dakota have been collectively dealing with floods for many years. The 1997 flood disaster brought a renewed focus to floodplain management and disaster preparedness. Much has been done since then and unfortunately there is still much to do. It was gratifying to visit East Grand Forks at the height of this years flood and see how effective the Federal flood control project was working. Additionally the diversion channel that was constructed as part of the Whapeton/Breckenridge project effectively reduced the flood stage even though there was more water in the system.

First it will be helpful to look back. Floods have been a part of the history of the valley for many years with the flood of record having occurred in 1826 and significant floods in 1897, 1997, and 2009. Each flood is unique and they have different impacts throughout the valley.

We recognize floods are here to stay and we need to be better at managing the risk of even greater events in the future. We need to build out of harms way instead of trying to control the inevitable next flood.

In the mid 1990s impoundment projects in the Red River Valley in Minnesota were at a standstill. There was a USCE moratorium on issuing permits for new impoundments; and that led to a joint State/Federal cumulative impacts EIS. The EIS was not finalized due to significant differences between the parties. This led to a formal mediation process that began in 1997 and concluded in 1998. The mediation recognized the need for 100+ year protection for cities and a 10-year protection for farmland.

The mediation established a joint planning (early coordination) process that has proved to be quite successful. Each watershed has a flood damage reduction work group that reviews and develops projects. Numerous projects have gone through this process and have received both State and local funding. Seven impoundment

projects have been completed or are under construction including; Agassiz Valley, North Ottawa, PL566 upstream of Warren, Brant-Angus, Euclid-East, Riverton Township, and Manston Slough. North Ottawa has 18,000 acre feet of storage and helped reduce flows to Breckenridge this spring. These impoundments are all off channel projects that have met the work groups concerns for flood control, environmental enhancements, and safety. On channel dams will continue to be difficult to permit.

The 1997 flood provided an impetus for significant State funding to address flood mitigation projects. Local governments with the assistance of State and Federal partners have completed community projects in Warren and East Grand Forks. There are three ongoing Federal projects in Ada, Breckenridge/Whapeton, and Roseau. Federal funding is still needed to complete these. There will likely be other requests from smaller communities for assistance like Oslo, Argyle, Hendrum, Georgetown, and Halstad.

A concern is the length of time and the cost of pursuing a Federal project. For example the Breckenridge project was delayed for years because of a lack of Federal funds. This results in more risk exposure to the city and an increase in costs due to inflation. After a project commences with the USCE the inflation costs should be a Federal responsibility if the project is delayed.

While the USCE has been a Federal partner on some projects, their study process resulted in projects in Crookston and Oakport Township, moving ahead without them because the risk was too great to wait for the possibility of Federal assistance.

WHAT CAN THE FEDERAL GOVERNMENT DO TO HELP MINNESOTA REDUCE FUTURE RISK FROM FLOODING?

- Ensure consistent management across borders and Federal regions.
- Provide a mechanism for cost control on projects:
 - Including when a contract is utilized that costs more than the low bid, the Federal Government should pay the additional costs without a local cost share.
 - Inflation costs due to Federal delays should be borne by the Federal Government.
- Utilize the best science to address flooding—when new hydrology is available it should be used for floodplain management. Need to focus on risk management not avoiding the need for flood insurance.
- Have a means to provide funding directly to the States without the need for a Federal project and the cost and time issues associated with that.

Thank you for the opportunity to present these brief comments about Minnesota's floodplain management and mitigation programs. We will continue to work with North Dakota and Congress to address these issues and to reduce the flood risk for our citizens.

Senator DORGAN. Mr. Holsten, thank you very much.

Let me just observe that the delay on funding for the Breckenridge project no longer exists, since I became chairman of the subcommittee. Would you agree with that?

Mr. HOLSTEN. Senator, I would wholeheartedly agree with that.

Senator DORGAN. Thank you very much.

We are providing that funding, and we will continue to do that.

Governor, let me just ask a couple of questions about this issue. I understand you are ready to proceed on the Southside project and wish to get credit against a future project, but it is probably not possible to get credit against a future project that doesn't yet exist.

I think if a future project is defined and available, at that point, I think that you have raised a legitimate question. If the State and local government would proceed on the Southside project with its own funding, could it get credit as part of the local share for the more comprehensive project that is then defined?

But the ready-to-go piece, are we clear with Minnesota and Moorhead at this point on the Southside project, or is there more to do before we are "ready to go?"

Governor HOEVEN. Well, I think that is the purpose of these discussions that we are having. The meeting we had in Washington,

DC, the meetings that Mayor Walaker and Mayor Voxland are having, this meeting today is to find the answer to that question.

Granted, it would have to be part of the plan. I mean, we recognize and acknowledge that. But you are talking about a timeline with the Corps where they are going to come out with a plan in 2010 and then construction in 2012. So on behalf of the State of North Dakota, we are offering this as a phase one to that if it can be incorporated into the planning process, both for the cost benefit and for the non-Federal—getting credit for the non-Federal share of the cost.

And this is exactly the kind of dialogue that we are having today and that we are having on an ongoing basis, local officials to local officials, State to State, Federal delegation to Federal delegation, to find out if that is possible to move forward as part of the planning process.

Senator DORGAN. From my standpoint, I think that has merit, to the extent that there is then a consensus developed on the more comprehensive project against which this contribution could count.

We would have to work on how to do that in Federal law. But again, I think a first step has merit, presuming that the rest of what we have discussed today actually bears fruit, and that is the development of a consensus on a project. I appreciate both the interest of local government and the State government to begin as soon as the rest of those hurdles are cleared.

Governor HOEVEN. Well, and Representative Peterson and others have brought forward other projects in the region. We just got done talking about Breckenridge, for example. You know, we want to get as many of these things going as we can as part of a basin-wide effort for water management, flood protection.

Senator DORGAN. Yes, Wahpeton-Breckenridge is in a different situation because that is an established project that is—the proposition is correct that there was not adequate funding for Breckenridge for a while. I am correcting that. But that is an established project that has been developed.

There are other communities which have been discussed that do not have, at this point, Corps projects. But when they do move ahead with Corps projects, we should try to get them funding.

Governor HOEVEN. And that is accurate, and we held up on our flood protection in Wahpeton, pending Breckenridge getting that funding in place. In other words, we waited to finish our project until they had the funding so they could finish theirs.

Senator DORGAN. Didn't have any choice.

Governor HOEVEN. Right.

Senator DORGAN. And that makes the point clearer than almost anything we could say today, that both sides of the river have an impact on whatever is done on any side of the river.

Governor HOEVEN. Exactly. That is the point I am making. It has got to be done together.

Senator DORGAN. Senator Conrad.

Senator CONRAD. Thanks again, and thanks to this panel.

I would like to go to get on the record because I think it is important to do because we keep getting questions about 1997, what occurred after 1997, why wasn't there a Federal project? I just want

to make clear, from my perspective, that this is what occurred after 1997.

The city came to us with the Southside project. We got \$400,000 of Corps funding to do a reconnaissance study of that project. Subsequently, the city and the State came to us and said they were not interested in pursuing a Federal project. And the reasons that we were given at the time that they did not want to pursue a Federal project were the following.

No. 1, it was only a \$29 million project at that point, and we had already secured \$11 million of FEMA money that could be applied to it. That was mitigation money. So it was not—while that was Federal money, it was not a Federal project because it wasn't going to be Corps funded, funded by the Corps of Engineers.

No. 2, they were concerned about a delay if it was a Corps project because Corps had other major projects underway, and they were concerned that there would be a delay that would go on too long. Well, subsequently, you look back, Grand Forks got a project completed, Wahpeton funded, on the brink of completion.

Third and this is the thing I want to ask General Walsh about, I was told at the time one reason they didn't want to proceed with a Corps project—in other words, a Federal project—was because of development land to the south of Fargo that they wanted to get protection for. And they were concerned if it was a Corps project that would not be included, or it wouldn't meet the cost-benefit test.

So I am interested, General Walsh, in probing that question. We still have that issue because Fargo is continuing to grow. Fargo needs room to grow. Fargo's natural path, one of the significant paths is south.

How would that potential development land be treated for the purposes of the cost-benefit analysis? If the city of Fargo wanted to include that, would that create a problem for the cost-benefit analysis?

General WALSH. Sir, it would depend on the benefits. Certainly, if the benefits are in an urban area and you are protecting a large factory, you would get much higher benefits than you would be on—

Senator CONRAD. Development land.

General WALSH [continuing]. A developable land.

Senator CONRAD. Yes, well, that is exactly the issue. And I think, in the interest of everybody having kind of the full information before them, this is going to be a key question for all of us going forward. Because Fargo needs—they need growth room. This city is growing. It is dynamic.

And obviously, when you calculate a benefit, if it is not developed land that has got potential for development, it is not yet developed, that has much less benefit in the formula than land that has been developed. And so, if we are at 1.0—I listened very carefully to Colonel Christensen here—we are at 1.0, we are on the tipping point of this being, meeting the cost-benefit test.

And of course, we have got a lot of other things to consider. We have got 100-year coverage. We have got 250-year coverage. We have got 500-year coverage. And what kind of cost-benefit test we would get on each of those alternatives.

So I just think it is very important that we get on the record here these issues and that we all understand to the extent development land is included, it is probably not going to be treated very well for the purposes of cost-benefit test, and we have got a close call here before it is optimized.

We understand there are other things that have to be entered into calculation. But I think it is just important we get that on the record.

Senator DORGAN. Let me just say that that issue exists all across the country on flood control projects, and the key, from the Corps' standpoint, and it makes perfect sense, of course, is that when you develop a cost-benefit ratio, you are talking about what the cost-benefit ratio is to protect that which exists.

But rather than trying to provide protection for something that doesn't yet exist, the Corps would much prefer that if there is a risk to that area that they move elsewhere and build where there is not such a risk. Therefore, in the calculation of a cost-benefit ratio, future development scores very, very low, if at all.

It is a perfectly logical thing for the Corps to do from the outside, to say if you want to protect this area for future development, it is not going to score very well because we would prefer you build on higher ground somewhere else.

Senator CONRAD. Can I add just one other point? And that is that we also have the issue of floodplain. Because there is, as I understand, an order out there to discourage development in the floodplain, and of course, I mean, all of this is floodplain. So that becomes another issue as we go forward.

And you know, I think we have got to think very carefully about the future of this community because the development opportunity, at least a significant part of it for Fargo, is to move south. That is all floodplain, much of it not yet developed, and we are going to have to calibrate very closely here that cost-benefit test if we are going to meet it and be able to qualify for that significant pot of Federal funding.

Senator DORGAN. Senator Klobuchar.

Senator KLOBUCHAR. Thank you very much, Mr. Chairman.

Brigadier General Walsh, you talked about some of the projects in Minnesota, and Chairman Dorgan mentioned the Breckenridge project, which has been long in getting completed. And we were just there yesterday and made the final request for that.

But could you just talk a little bit about some of the other Army Corps projects—people get very antsy to get these done—Roseau and Crookston, as well as what is happening with Ada and Wild Rice?

General WALSH. Ma'am, a lot of them are quite detailed. I can talk about them or submit them for the record.

Senator KLOBUCHAR. Maybe if you just want to mention what is happening in Crookston and Roseau?

General WALSH. In Crookston, as I look here, the work to repair the berms is scheduled for this September. So we should be starting to work on that this year.

On Roseau, we are preparing the plans and specifications for the Roseau project. The project was authorized, as you know, in 2007. The recommended plan is for a 150-foot east diversion plan with

the associated recreation features. I am not quite sure when we are going to start.

Senator KLOBUCHAR. But, no, that is helpful. It is just we want to get those done as soon as possible, as you can imagine.

The other question I had, in your opinion, looking at projects in metropolitan areas like these, larger towns, how important is it across the country to have consensus at those town levels before the Army Corps goes forward with a project?

General WALSH. It is absolutely essential that we have from the local governments what they want for us to formulate. Planning is a very messy business. You must get a lot of people in a room with different thoughts and, from that, develop a plan.

I know I heard from the previous panel there are a lot of people talking about the Corps plan next year, and I would just hope that that terminology changes to be the one plan, the consensus plan, as opposed to the Corps plan.

Senator KLOBUCHAR. Do you have examples in other parts of the country where people were able to quickly reach a consensus and other examples where they didn't?

General WALSH. Well, certainly, East Grand Forks and Grand Forks is the example that I carry around in all my speeches. People just need to meet on both sides of the river in different States and agree how they want to proceed forward. And there are hundreds and hundreds of examples.

For instance, in Napa in California, there were three attempts to come up with a flood damage reduction plan there, and the different counties couldn't agree on one. The attempts just fell apart all three times. Until finally, the three counties got together, signed an agreement, a legal binding document that pushed that project forward and that project is underway.

Senator KLOBUCHAR. Thank you.

Mr. Holsten, Representative Peterson and I were just in Oslo and Hendrum, some of these smaller communities. I mean, they had a ring dike around the entire community, and for weeks they were going in by water. Are those types of communities going to be able to apply for some of this money?

I know Senator Langseth had worked very hard on getting those funds. And as you said, the Governor was supportive of them. What will that funding cover, that flood funding?

Mr. HOLSTEN. Senator, the projections for the 2009 bonding bill, we are looking at a number of projects dealing with—Roseau has multiple phases or multiple aspects at Roseau. Breckenridge and Ada are the ones of particular note. We are also looking at additional resources. Those are ones where we have State and Federal partnership.

These dollars are also looking at Crookston, North Ottawa, and Agassiz Valley. Moorhead has a number of different components to its dollars, both it is not known to detail the scope at time for Georgetown, Oslo, Preston, and Hendrum. But we have approximately \$2 million that we have set aside for that.

But again, until those projects are clearly defined—

Senator KLOBUCHAR. I understand.

Mr. HOLSTEN. The way we also manage our State resources, it is based upon project ready and whether it is a State-Federal partnership and local matches that are required.

Senator KLOBUCHAR. Okay. So we can urge them to at least approach you about some of these projects.

Mr. HOLSTEN. Absolutely. We are working with all of those communities in the Red River Valley.

Senator KLOBUCHAR. Okay. Thank you very much. And thank you, Governor Hoeven.

Senator DORGAN. Thank you.

Representative Peterson.

Mr. PETERSON. Thank you, Mr. Chairman.

Don't forget St. Vincent, okay? That is one other community that has some needs up there that probably can't get dealt with otherwise. So—

General WALSH. It is on the list, Congressman.

Mr. PETERSON. And the other—I just wanted to say that I talked about the Southside project before, but I don't think that there is consensus yet on the Minnesota side, from what I hear. There is no question.

And I think they have said today they are going to try to work those out, and everybody seemed to be on the page they are trying to work it out. But there are questions. And I don't know exactly how people are going to get comfortable that this doesn't affect the Minnesota side without the Corps coming in and saying it doesn't. You are kind of going ahead of the Corps having—I mean, you are not going to be able to say that, are you, until you get the whole study done?

So I don't know how we get the assurance for the residents, the community, and the leaders. I think that is kind of the question. So we want to work with you, but I don't think we are there yet, and hopefully, we can work through it.

General WALSH. That is why we are working on the dialogue, to see if we can get there.

Mr. PETERSON. Thank you.

Senator DORGAN. Congressman Pomeroy.

Mr. POMEROY. Thanks, Mr. Chairman.

I took a slightly more positive conclusion away from our Washington, DC, meeting than the comments of my colleague Collin just reflected. I understand we have got issues to work on. Nobody is going to blow anything by anybody. This is going to be a consensus resolution. We all get that.

And in the early stages of these many, many meetings, as we work this through and the studies progress, I think we are going to have better luck if we talk about the process rather than talk about the reservations. We all understand—the reservations are just kind of a matter of record. We all get that.

But if we talk about how concerned we are at every time we get a chance, we may never get past these concerns. So let us just let the process work its will and I think these studies are going to be enormously helpful in terms of guiding us, giving us the information we will have to make informed judgments.

General Walsh, you have got a couple of things in here that I want to note in your testimony. And as a proclaimed honorary citizen of Fargo, we expect a little more of you than some of this—

Senator CONRAD. He hasn't filed his returns yet.

Mr. POMEROY. Some of the qualified comments you make in your testimony, you indicate, "Federal projects will never totally eliminate flood risk in the Red River basin. The citizens need to take responsibility for reducing their own flood risk." We absolutely get that.

You go on to say, "Where Federal projects can be justified, we will pursue them in concert with local communities." You indicate in your testimony the low-hanging fruit has already been done. But obviously, where circumstances compel, we have to act. Circumstances compelled the response in Grand Forks and East Grand Forks. That wasn't low-hanging fruit.

And yet, to be in those communities, as you were, during this flood event with people that woke up every day pinching themselves. They couldn't believe it. That is the first time in the history of this region, major flooding and the citizens of East Grand Forks and Grand Forks secure.

It goes to show you what permanent flood protection can achieve, and so, obviously, when driven by circumstance has to be part of the response. Now how do we get there? Will we get there by the cost-benefit analysis? And this is a part of your testimony that maybe concerns me the most.

You indicate, "Even though we see the potential for catastrophic damages in rare and extreme events, such events occur too infrequently to carry much weight in the economic analysis. As a result of these factors, the projects do not tend to be very well justified on an economic basis."

What we are seeing is that the rare and extreme event is becoming commonplace up here. The 100-year flood is the decade flood, and we have constantly amazed ourselves at having survived a once-in-a-lifetime occurrence, and just a few years down the road we are fighting another one even more threatening.

I remember one time during the flooding, I talked to Colonel Christensen about this. And he indicated there was some effort being made to have models reflect that 100-year events aren't 100-year events anymore. Do you acknowledge that your testimony may give way to some evolution of these models to capture what we are actually experiencing? I mean, again, we have come to know the 500-year event, the 100-year event. These are really meaningless to us because we seem to be seeing them many times in the course of a career.

And therefore, the modeling, which is part of your cost-benefit ratio determination, needs to reflect we saved, by your own figures, \$2.5 billion in Moorhead-Fargo. We absolutely believe that it is not going to be 100 years until we face that kind of threat again. Will your models reflect that perhaps this isn't rare and extreme? This is basically a cloud hanging over the head of this community that needs to be addressed.

General WALSH. Yes, sir. And that is what the LIDAR study that I talked about in my testimony should help us figure out whether the 100-year was the 100-year.

And also, the second item is we are changing our vernacular from—I have explained to people from California to New York that 100-year is just a statistical number, and we are reflecting back to 1 percent chance a year of flooding, so that people don't think this is only going to happen once every 100 years.

You have a 1 percent chance every year of a flood if you live in that type of a flood zone. So we are trying to change the vernacular as well.

Mr. POMEROY. I appreciate changing the vernacular. But I also appreciate changing the percentages. If Devils Lake, for example, was a jackpot, we would have won the house several times over because we seem to keep hitting that 1 percent or smaller.

And frankly, in Fargo-Moorhead, we feel like we have been hitting that 1 percent regularly. One percent has got to be bigger than 1 percent, or we wouldn't be hitting it that often.

Thank you, General. Your honorary status still is secure with me.

General WALSH. Thank you, sir.

Senator DORGAN. Let me make just a brief final comment. I know that there are a lot of people who, having been through this flood season this spring and been very concerned about whether they would prevail or lose their property or have to evacuate and leave, they are very impatient. And the fact is developing a comprehensive flood control plan is not the result of waving a wand. It is a long, tough slog that requires a lot of agreement and meetings and consensus being developed.

And we have had people ask us, the three of us and perhaps you all, well, why did Grand Forks and East Grand Forks get a project 12 years ago? Was it because they got the flood? They say we should have had some bad news so that we could have gotten the project.

You know, that is not the way it works. And I just wanted to end this with an understanding that the way it works is when local governments reach agreement.

Grand Forks and East Grand Forks reached an agreement very quickly, but they had the added benefit of having a comprehensive study already underway that had begun 2 years prior. And so, after having been evacuated, they moved right straight ahead, and their project is complete.

It is not as if Fargo and Moorhead each haven't improved their flood control and their flood fighting capabilities. Each has invested in various component projects and buyouts and so on, but neither has agreed, and there has been no agreement on a comprehensive plan for Fargo and Moorhead.

And the question is will that occur now? My guess is it is likely, and this hearing, the meetings in Washington that the Governor, that we all attended and other similar meetings will make that judgment, will determine whether that is the case.

My hope is that it will be the case because I believe there needs to be a comprehensive flood control plan developed, planned, and finally built.

Let me thank all of you for your testimony.

ADDITIONAL SUBMITTED STATEMENTS

The hearing record will remain open for 2 weeks, and we will also invite others who wish to submit testimony for the permanent record to do so.

[The statements follows:]

PREPARED STATEMENT OF GERALD H. GROENEWOLD, DIRECTOR, ENERGY AND ENVIRONMENTAL RESEARCH CENTER

Thank you, Senator Dorgan and members of the subcommittee. I appreciate this opportunity to provide testimony on a flood mitigation concept recently evaluated by the Energy and Environmental Research Center (EERC).

As many of you well know, the Red River Basin is subject to frequent damaging inundation from minor and major flood events, with a truly devastating flood occurring, on average, every decade. Within the last decade, billions of dollars have been spent on flood preparation and recovery efforts within the Red River Basin, which underscores the need for implementation of alternative flood mitigation approaches to augment conventional flood control structures.

The EERC recently completed a federally funded multiyear effort that evaluated the feasibility of employing a basinwide, distributed, temporary storage strategy as a means of augmenting existing dikes and controlling the devastating effects of springtime flooding in the Red River Basin. With funding provided by the U.S. Department of Agriculture Natural Resources Conservation Service (NRCS) and input and guidance from two advisory boards, the EERC conducted both hydrologic modeling and field demonstrations of the concept. The flood mitigation approach, referred to as the Waffle® concept, could be accomplished by temporarily storing springtime runoff in existing “depressions” within the basin, primarily ditches and low-relief fields bounded by existing roads. The storage areas, roads, and existing drainage systems would act as a distributed network of channels and control structures to temporarily store water until downstream flood crests along the Red River and its tributaries subside.

There are two kinds of dikes: those that have been breached, and those that will be breached. Absolute security from flooding requires augmentation of dike systems. The results of the EERC's effort demonstrated that the Waffle concept is an excellent means of augmenting dikes and mitigating damage from large springtime floods. This approach is particularly effective as a means of intercepting, controlling, and reducing overland runoff and, as such, could be implemented as a stand-alone flood mitigation approach or as an augment to conventional flood mitigation measures. The study estimated that, if implemented, the Waffle would reduce peak flooding by as much as 6.2 feet along the Red River during a 1997-type event. The predicted net flood mitigation benefits of the Waffle over the next 50 years for the larger communities along the Red River were on the order of hundreds of millions of dollars, with some implementation scenarios exceeding \$800 million in net benefits. These benefits could be attained with participation scenarios encompassing as little as 5 percent of the basin's land area. The Waffle concept protects the entire basin, not merely a few metropolitan areas with large dike systems. Unquantified benefits of the Waffle approach also accrue to those areas with limited or no flood protection measures, such as agricultural lands, farmsteads, smaller communities, and rural infrastructure. For instance, frequent and severe road washouts, which often decimate county road maintenance and construction funds, are easily prevented with Waffle-type storage. The approach also provides ancillary benefits through reduced soil erosion and increased soil moisture and groundwater recharge during dry years.

Unlike conventional flood control approaches, the Waffle concept does not entail implementing drastic structural measures to intercept, retain, or divert large volumes of water in order to achieve flood mitigation benefits—instead minor structural modifications are made to existing culverts to retain precipitation primarily where it falls on the landscape. The aforementioned hydrologic and attendant financial benefits were determined assuming no structural modifications would be made to existing roads; however, the EERC estimates that by simply elevating certain low-lying areas on roads surrounding potential Waffle storage areas, the available storage volumes would double or, perhaps, even triple with only modest increases in utilized storage area. This could prevent some tributaries from even reaching flood stage, resulting in as much as a 10-foot reduction in the level of the Red River during a 1997-type flood event.

This approach is an excellent means of providing an additional source of income to rural residents by allowing farmers to have two crops: stored water prior to the

planting season as well as their regular crop. The economic evaluation of the Waffle concept, conducted by North Dakota State University's Agricultural Extension Service, concluded that the Waffle concept is economically viable even with sign-up bonuses and landowner reimbursements equivalent to twice that of the land's cash rent. Thus rather than spending billions of dollars on flood preparation efforts or on damage to property and infrastructure after the fact, much less money could be spent on reimbursing landowners for temporary storage of water on their land—without taking farmland out of production.

I urge the U.S. Senate to construct a program wherein landowners can be compensated for temporarily storing water until downstream threats from flooding have subsided. Given the history of severe and frequent flooding in the region, a basinwide flood mitigation approach like the Waffle is essential to long-term security from floods and the economic vitality of the region. Our results have shown that coordinated basinwide water management is viable, and the Waffle concept is an excellent example of an option available for implementation.

PREPARED STATEMENT OF THE NORTH DAKOTA FARM BUREAU

Senator Dorgan and members of the subcommittee, thank you for the opportunity to submit comments on Red River Basin flood control.

North Dakota Farm Bureau is a member-organization, representing more than 26,000 families across the State. Our purpose is to be the advocate and catalyst for policies and programs that improve the financial well-being and quality of life of our members. That is why we are taking an active role in the issue of water management for the Red River Basin. We have thousands of members—many of them landowners—who will be impacted by decisions made regarding future Red River Basin water issues.

And it is our members who saw a need, took charge and developed the Farm Bureau Red River Basin Task Force, with the express purpose of evaluating a water management plan for the Red River Basin. As envisioned, the task force will gather information, identify individuals and organizations with access to appropriate data and correspond with other organizations. The information gathered will be used to build an all-encompassing management plan that takes into consideration the unique needs of landowners. The task force will be comprised of a chairman and eight other Farm Bureau members from across the basin.

Unfortunately, Red River flooding has become a polarizing issue. This task force is interested in finding answers that will support landowners as well as communities in the Red River Basin. Without an active voice from landowners, committed to overcoming rural challenges with an eye on growing healthy communities, we feel the issue will continue to grow more contentious.

The Farm Bureau has a diverse membership. In Cass County alone, we have more than 3,000 members who are urban dwellers. This diversity provides us with a unique opportunity to speak to various audiences and provide them with accurate and relevant information.

Agriculture continues to be the driving economic force in the Red River Valley, as well as statewide. As such, agriculture must be part of the water management decisionmaking process. We respectfully request that our task force chairman have a seat at the table in any discussions regarding the future of water management in the Red River Basin.

Thank you for allowing us to submit comments on this issue.

PREPARED STATEMENT OF SENATOR TIM MATHERN, DISTRICT 11, NORTH DAKOTA
LEGISLATIVE ASSEMBLY

Senator Dorgan, thank you for holding your hearing in Fargo yesterday. We have much work to do!

I wanted to make a comment for the record about permanent land use easements. My concern was also raised by General Walsh. He noted "flood-wise requirements" for flood plains as part of the solution to prevent wide spread damage. I agree that State and local governments must take more responsibility in this area.

We have dealt with such legislation in North Dakota with little success but maybe a greater awareness of benefits of such land use could lead to another outcome. There are many natural resource and conservation organizations that could be invited to take part in the flood prevention discussions. This would lead to a greater awareness of the use of flood plain management to benefit not only people living in flood danger but also to landowners.

My background includes having spent time in the Netherlands to learn about dikes, floodplain requirements, and water policy. I work at Prairie St. John's hospital situated next to the Army Corps dike built in the 1960s in Fargo and serve on the appropriations committee designating State match dollars for such projects.

Please consider broadening your discussions in this regard. I will to do the same.

CONCLUSION OF HEARING

Senator DORGAN. The hearing is recessed.

[Whereupon, at 5:52 p.m., Wednesday, May 27, the hearing was concluded, and the subcommittee was recessed, to reconvene subject to the call of the Chair.]

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