SMALL WATERSHED INFRASTRUCTURE: CONTINUING THE MISSION, BUILDING UPON SUCCESS

HEARING

BEFORE THE

SUBCOMMITTEE ON CONSERVATION AND FORESTRY

OF THE

COMMITTEE ON AGRICULTURE
HOUSE OF REPRESENTATIVES

ONE HUNDRED FIFTEENTH CONGRESS

FIRST SESSION

JUNE 13, 2017

Serial No. 115–7

Printed for the use of the Committee on Agriculture
agriculture.house.gov

U.S. GOVERNMENT PUBLISHING OFFICE

25–913 PDF WASHINGTON : 2017

For sale by the Superintendent of Documents, U.S. Government Publishing Office
Internet: bookstore.gpo.gov Phone: toll free (866) 512–1800; DC area (202) 512–1800
Fax: (202) 512–2104 Mail: Stop IDCC, Washington, DC 20402–0001

COMMITTEE ON AGRICULTURE

K. MICHAEL CONAWAY, Texas, *Chairman*

GLENN THOMPSON, Pennsylvania
Vice Chairman
BOB GOODLATTE, Virginia,
FRANK D. LUCAS, Oklahoma
STEVE KING, Iowa
MIKE ROGERS, Alabama
BOB GIBBS, Ohio
AUSTIN SCOTT, Georgia
ERIC A. "RICK" CRAWFORD, Arkansas
SCOTT DESJARLAIS, Tennessee
VICKY HARTZLER, Missouri
JEFF DENHAM, California
DOUG LAMALFA, California
RODNEY DAVIS, Illinois
TED S. YOHO, Florida
RICK W. ALLEN, Georgia
MIKE BOST, Illinois
DAVID ROUZER, North Carolina
RALPH LEE ABRAHAM, Louisiana
TRENT KELLY, Mississippi
JAMES COMER, Kentucky
ROGER W. MARSHALL, Kansas
DON BACON, Nebraska
JOHN J. FASO, New York
NEAL P. DUNN, Florida
JODEY C. ARRINGTON, Texas

COLLIN C. PETERSON, Minnesota, *Ranking Minority Member*
DAVID SCOTT, Georgia
JIM COSTA, California
TIMOTHY J. WALZ, Minnesota
MARCIA L. FUDGE, Ohio
JAMES P. MCGOVERN, Massachusetts
FILEMON VELA, Texas, *Vice Ranking Minority Member*
MICHELLE LUJAN GRISHAM, New Mexico
ANN M. KUSTER, New Hampshire
RICHARD M. NOLAN, Minnesota
CHERI BUSTOS, Illinois
SEAN PATRICK MALONEY, New York
STACEY E. PLASKETT, Virgin Islands
ALMA S. ADAMS, North Carolina
DWIGHT EVANS, Pennsylvania
AL LAWSON, JR., Florida
TOM O'HALLERAN, Arizona
JIMMY PANETTA, California
DARREN SOTO, Florida
LISA BLUNT ROCHESTER, Delaware

MATTHEW S. SCHERTZ, *Staff Director*
ANNE SIMMONS, *Minority Staff Director*

SUBCOMMITTEE ON CONSERVATION AND FORESTRY

FRANK D. LUCAS, Oklahoma, *Chairman*

GLENN THOMPSON, Pennsylvania
JEFF DENHAM, California
DOUG LAMALFA, California
RICK W. ALLEN, Georgia
MIKE BOST, Illinois
RALPH LEE ABRAHAM, Louisiana
TRENT KELLY, Mississippi

MARCIA L. FUDGE, Ohio, *Ranking Minority Member*
TIMOTHY J. WALZ, Minnesota
ANN M. KUSTER, New Hampshire
RICHARD M. NOLAN, Minnesota
TOM O'HALLERAN, Arizona
FILEMON VELA, Texas

CONTENTS

WITNESSES

SMALL WATERSHED INFRASTRUCTURE: CONTINUING THE MISSION, BUILDING UPON SUCCESS

TUESDAY, JUNE 13, 2017

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON CONSERVATION AND FORESTRY,
COMMITTEE ON AGRICULTURE,
Washington, D.C.

The Subcommittee met, pursuant to call, at 10:00 a.m., in Room 1300, Longworth House Office Building, Hon. Frank D. Lucas [Chairman of the Subcommittee] presiding.

Members present: Representatives Lucas, Thompson, LaMalfa, Allen, Bost, Abraham, Kelly, Conaway (*ex officio*), Fudge, Walz, Kuster, Nolan, O'Halleran, and Peterson (*ex officio*).

Staff present: John Weber, Josh Maxwell, Patricia Straughn, Rachel Millard, Stephanie Addison, Anne Simmons, Evan Jurkovich, Liz Friedlander, Matthew MacKenzie, and Nicole Scott.

OPENING STATEMENT OF HON. FRANK D. LUCAS, A REPRESENTATIVE IN CONGRESS FROM OKLAHOMA

The CHAIRMAN. This hearing of the Subcommittee on Conservation and Forestry entitled, *Small Watershed Infrastructure: Continuing the Mission, Building Upon Success,* will come to order. I recognize myself for an opening statement.

Good morning, and welcome to today's hearing.

Nearly 70 years ago, our predecessors exhibited exceptional foresight through their investment in watershed infrastructure projects. The lasting benefits of those investments through the Watershed and Flood Prevention Operations Program, commonly known as P.L. 83–566, have allowed the NRCS to partner with local communities to provide technical and financial assistance to build structures necessary to protect communities, allowing them to thrive.

Since 1948, nearly 12,000 small flood prevention dams have served local communities by providing both economic and conservation benefits. It is unsettling to imagine the destruction of property that would have taken place if these investments had not been made.

While we celebrate the success of these programs, we cannot overlook that their strategic infrastructure is aging and requires upkeep. By the end of 2017, nearly 5,500 structures will have reached the end of their intended life-span. Maintaining and updat-

ing these structures is often unaffordable for the communities that have benefited from the P.L. 83–566 program.

In 2000, understanding the urgency of this issue, I introduced legislation to rehabilitate many of our watershed projects through the Small Watershed Rehabilitation Act. At the time, my message was simple: If we take no action to rehabilitate, we will be left with the cost of removing these structures or faced with constant threats to life and property as these dams continue to age. And we would definitely watch our $8.5 billion investment in the successful partnership wash away.

Those concerns are as important today as they were 17 years ago. I am confident that a modest investment now will pay off greatly over the next 70 years, across rural America.

Both watershed construction and rehabilitation are necessary and important to maintaining and expanding our rural infrastructure, which is why I made those programs a priority, helping secure several hard-fought gains over the past several years.

For example, in the 2014 Farm Bill, we created partnership opportunities to target and leverage Federal conservation funds through the Regional Conservation Partnership Program. Additionally, Congress agreed to $250 million in mandatory funding for small watershed rehabilitation to address the program backlog.

And, finally, I am pleased that the 2017 appropriations language included funding for P.L. 83–566 also. While those represent important steps in working towards the current backlog of P.L. 83–566 programs, more work must be done. This rural infrastructure may be largely out of sight, but it is of critical importance to those communities affected.

I look forward to hearing the testimony today about the success of these programs.

[The prepared statement of Mr. Lucas follows:]

PREPARED STATEMENT OF HON. FRANK D. LUCAS, A REPRESENTATIVE IN CONGRESS FROM OKLAHOMA

Good morning and welcome to today's hearing.

Nearly 70 years ago, my predecessors exhibited exceptional foresight through their investment in watershed infrastructure projects. The lasting benefits of those investments through the Watershed and Flood Prevention Operations program—also commonly known as P.L. 83–566—has allowed NRCS to partner with local communities to provide technical and financial assistance to build structures necessary to protect communities, allowing them to thrive.

Since 1948, nearly 12,000 small flood prevention dams have served local communities by providing both economic and conservation benefits. It is unsettling to imagine the destruction of property that would have taken place if these investments had not been made.

While we celebrate the success of these programs, we cannot overlook that this strategic infrastructure is aging and requires upkeep. By the end of 2017, nearly 5,500 structures will have reached the end of their intended life-span. Maintaining and updating these structures is often unaffordable for the communities that have benefited from the P.L. 83–566 program.

In 2000, understanding the urgency of this issue, I introduced legislation to rehabilitate many of our watershed projects through the Small Watershed Rehabilitation Act. At the time, my message was simple—if we take no action to rehabilitate, we will be left with the cost of removing these structures or faced with constant threats to life and property as these dams continue to age. And we would definitely watch our $8.5 billion investment in this successful partnership wash away. Those concerns are as important today as they were 17 years ago.

I am confident that a modest investment now will pay off greatly over the next 70 years across rural America.

Both watershed construction and rehabilitation are necessary and important to maintaining and expanding our rural infrastructure, which is why I made these programs a priority, helping secure several hard-fought gains over the past several years. For example, in the 2014 Farm Bill we created partnership opportunities to target and leverage Federal conservation funds through the Regional Conservation Partnership Program (RCPP).

Additionally, Congress agreed to $250 million in mandatory funding for small watershed rehabilitation to address the program backlog. And finally, I was pleased the FY 2017 appropriations language included funding for the P.L. 83–566 program.

While these represent important steps to working through the current backlog of the P.L. 83–566 program, more work must be done. This rural infrastructure may be largely out of sight, but it is of critical importance to those communities impacted.

I look forward to hearing testimony today about the success of these programs, and with that, I yield to the Ranking Member for any opening remarks she would like to make.

The CHAIRMAN. And with that, I yield to the Ranking Member for any opening remarks that she would like to make.

OPENING STATEMENT OF HON. MARCIA L. FUDGE, A REPRESENTATIVE IN CONGRESS FROM OHIO

Ms. FUDGE. Thank you very much, Chairman Lucas, and thank you for holding this hearing today. I know that watershed programs are near and dear to your heart, and I am pleased to hear more about them today.

The Watershed and Flood Prevention Operations Program and the Small Watershed Rehabilitation Program are important tools in our conservation toolkit. These programs play an important role in preserving the viability of our farming communities and landscapes.

One of the biggest benefits of the watershed programs is the flexibility and engagement provided at the local level through project sponsors. These projects are largely dictated by local interests to help address resource concerns and the health and productivity of individual watersheds.

With over 1,300 active or completed watershed projects, this program has left a mark around the nation. As I learn more about this program, I am amazed at the scope of the projects that can be undertaken within this authority, from water quality, to soil erosion control, to fish and wildlife enhancement.

This program seems even more important as we acknowledge the effects of climate change. Programs that help address flood mitigation and drought for our farmers only become more important with each passing day. These programs make our watersheds more resilient in the face of escalating extreme weather events.

As you may know, Lake Erie, where I live, faces challenges from toxic algae blooms that wreak havoc on ecosystems and taint drinking water for many Ohioans. As we discuss watershed programs today, I hope to learn more about the advances to improve water quality that may be beneficial to Ohio.

As we begin moving toward the next farm bill, I am looking forward to hearing more about watershed programs and the Regional Conservation Partnership Program which can utilize P.L. 83–566 authority.

I would like to thank you all for being here again, and I thank the witnesses for sharing your time. I yield back.

The CHAIRMAN. The gentlelady yields back.

The gentlelady and I are pleased to note that both the full Committee Chairman and the full Committee Ranking Member are with us today.

Would the Chairman have any comments to make, sir?

OPENING STATEMENT OF HON. K. MICHAEL CONAWAY, A REPRESENTATIVE IN CONGRESS FROM TEXAS

Mr. CONAWAY. Just to thank you and the Ranking Member for holding this important hearing. I yield back.

The CHAIRMAN. Thank you.

Does the Ranking Member, Mr. Peterson, have any comments to make?

OPENING STATEMENT OF HON. COLLIN C. PETERSON, A REPRESENTATIVE IN CONGRESS FROM MINNESOTA

Mr. PETERSON of Minnesota. I do, Mr. Chairman. I thank you and the Ranking Member for holding today's hearing.

I know these watershed programs, especially the Small Watershed Rehabilitation Program, are important to you, as we have discussed this over the years, and you have been a longtime advocate and been part of including it in the farm bill. I am glad that we can have other Members learn more about these programs today.

I am pleased that John Finney, from my district in Minnesota, is joining us at the witness table today. John is the chair of the Red River Management Board, and I have had the pleasure of working with him closely over the years. And thank you to him and to the rest of the witness panels for being with us today.

Watershed programs are incredibly important, as the Chairman said, and part of our conservation toolbox. But, unfortunately, a lot of folks are not really aware of the programs themselves or the benefits that they provide, which is why today's hearing is so useful. For example, a decade ago, the Small Watershed Program relied on earmarks for funding, which despite its broad support in Congress is what led to the program's demise.

As part of the 2014 Farm Bill, we allowed project sponsors to use P.L. 83–566 authorities under the Regional Conservation Partnership Program. This was done to provide both communities and projects the flexibility they need to be successful.

I expect that at this hearing you will hear and learn more about the experience that local watershed districts have had, and in my district, have had utilizing the RCPP P.L. 83–566 funding and the way they have been trying to find practical solutions to expensive and controversial flood control challenges.

I think that this is an important topic. A lot of folks will be interested in learning about this. And I want to thank you and the Ranking Member. I yield back.

The CHAIRMAN. The gentleman yields back.

Mr. CONAWAY. Mr. Chairman, I was derelict in not recognizing Kevin Burns from Wise County, Texas, a panelist on the second panel, a longtime watershed advocate, and a near constituent of mine. Please excuse me for that gross oversight on my part.

The CHAIRMAN. The important observation is duly noted. Thank you, Mr. Chairman.

And with that, the chair would request that other Members submit their opening statements for the record so the witnesses may begin their testimony and to ensure that there is ample time for questions.

I would like to welcome our witness to the table, Mr. Jimmy Bramblett, Deputy Chief of Programs, NRCS, Washington, D.C.

As you can tell, we are a fan of this, Mr. Bramblett, so you are recognized for 5 minutes.

STATEMENT OF JIMMY BRAMBLETT, DEPUTY CHIEF, PROGRAMS, NATURAL RESOURCES CONSERVATION SERVICE, U.S. DEPARTMENT OF AGRICULTURE, WASHINGTON, D.C.

Mr. BRAMBLETT. All right. Very good.

Thank you, Chairman Lucas, Ranking Member Fudge, and Members of the Subcommittee. Thank you all, actually, for the opportunity to be here today to talk about the Natural Resources Conservation Service and our watershed programs.

We appreciate the ongoing support this Subcommittee has demonstrated for voluntary private lands conservation that help us improve the nation's soil, water, and related natural resources. But before I talk specifically about the watershed programs, I would like to make a couple of comments about NRCS' organizational structure and our mission.

We have 2,800 field offices fanned out across the country, and that is important because these field offices provide technical and financial assistance to local landowners. And as you may know or may not know, more than 70 percent of land ownership in this country is held by private landowners. Those individuals make decisions every day that not only impact their operation, but also impacts their neighbors, impacts their watersheds, and impacts, in fact, the entire U.S. population.

Our Conservation Technical Assistance Program basically is the backbone of offering that technical assistance to these private landowners. Through CTA, in combination with our delivery system, we invoke a conservation planning process that basically helps us analyze local landowners' needs, interests, desires, on their property, at their location, and in combination with them develop a conservation plan of operations to help them meet their objectives as well as to help improve their natural resources and productivity for today and for future generations, while at the same time complying with all Federal, state, and local laws.

The sound science that we bring to these private landowners on a daily basis not only helps improve the nation's natural resources, it also informs policy development to make sure that taxpayer investments and conservation achieve the greatest return on investment as is possible.

So with that backdrop, the focus here today on the Watershed Protection and Flood Prevention Act is actually a very enlightening conversation. The Watershed Protection and Flood Prevention Act not only helps us deliver that technical and financial assistance to private landowners where they live, on individual property, but it also gives us the authority to work with communities and through eligible sponsors. And in those communities, we can work with

them and do conservation planning for critical infrastructure activities that help also address broader natural resource issues that may be realized other than by what is happening on an individual farm or a ranch.

The value of such an integrated approach has been demonstrated over the past 80 years, and particularly over the past 63 years with the Watershed Protection and Flood Prevention Act. Since 1947, even with its predecessor, the Flood Control Act of 1944, we have invested in over 2,000 local projects with local sponsors and we have constructed almost 12,000 watershed dams to date.

And through this process, we are realizing on an annual basis almost $2.3 billion a year in average annual benefits. Some examples of those benefits include protecting 610,000 homes, 61,000 bridges, 46,000 businesses.

If you think about farms, an average farm being 200 acres, the 180,000 farms that are being protected would equate to roughly 36 million acres. That is about the size of the State of Georgia, the largest state east of the Mississippi. And it is not just the size of the State of Georgia, it is some of the most productive cropland we all benefit from that is the size of the State of Georgia.

But despite these successes, we are talking about manmade infrastructure here. Manmade infrastructure does require continued attention. And to date, NRCS has identified about 2,000 structures that are high-hazard structures needing attention for public safety concerns. We estimate that it would take approximately $7 billion to address some of those public safety concerns.

And we also think investing in those upgrades today may help us benefit by reducing the overall investment should we continue to delay. Future investments for continued degradation of these type of structures may require more investments in the future.

Congress has also recognized this by continuing to fund this program; recently, in this fiscal year, $150 million for a variety of projects.

Mr. Chairman, Ranking Member, and Members of the Subcommittee, as you can see, the Public Law 83–566 program is a very beneficial program across this country. We have done a lot of work with landowners at larger scales of the Mississippi River Basin, the Chesapeake Bay. We have demonstrated tremendous success at that scale.

But this 250,000 acre watershed scale gives us the ability to really put a lot more focus and energy and attention in an appropriate scale to realize the benefits to our natural resources and to our local communities.

We are always working for ways to try to improve our business practices, to help get more conservation on the ground. Protecting our nation's small watersheds is no small task, and when it comes to protecting lives through proper maintenance and upkeep, it is something USDA does not take lightly.

So with that, I would like to thank all of you for your continued interest in the safety and functionality of our small watersheds, for voluntary conservation, and, of course, for the opportunity to be here today. And with that, I am happy to answer any questions.

[The prepared statement of Mr. Bramblett follows:]

PREPARED STATEMENT OF JIMMY BRAMBLETT, DEPUTY CHIEF, PROGRAMS, NATURAL RESOURCES CONSERVATION SERVICE, U.S. DEPARTMENT OF AGRICULTURE, WASHINGTON, D.C.

Introduction

Chairman Lucas, Ranking Member Fudge, and Members of the Subcommittee, thank you for the opportunity to appear before you today to discuss the Natural Resources Conservation Service (NRCS) watershed programs. I appreciate the ongoing support and leadership this Subcommittee has provided for voluntary, private lands conservation and the improvement of our soil, water, and other invaluable natural resources. Before I dig too deep into the NRCS watershed programs and activities, I want to briefly provide some introductory comments on our structure and mission that help to augment our critical watershed activities.

NRCS provides technical and financial conservation assistance to individual, private landowners. More than 70 percent of land in the United States is held by private landowners. Decisions those landowners make every day not only have an impact on their land, but that of their neighbors, their watersheds, and ultimately the entire U.S. population.

A series of programs (*i.e.,* Environmental Quality Incentives Program, Conservation Stewardship Program, and the Agricultural Conservation Easement Program) have been created and revised through the farm bill process to help NRCS facilitate its unique delivery system, carried out through local field offices that provide assistance to individual landowners across the nation. Through these programs, NRCS has made tremendous strides in helping farmers, ranchers, foresters, and other private landowners restore and enhance our nation's natural resource base in a voluntary, incentive-based fashion. Perhaps most importantly, the decisions surrounding the implementation and prioritization of these programs and funding are made on the local level, through Local Working Groups and State Technical Committees to ensure local needs are addressed.

Proven Success

Our latest science-based modeling under the Natural Resources Inventory (NRI) and assessment through the Conservation Effects Assessment Program (CEAP) continues to show voluntary, incentive-based conservation is effective. In the Chesapeake Bay, voluntary adoption of conservation practices has led to reductions in erosion and sedimentation by over 60 percent, and reductions in nutrient losses, specifically of nitrogen, approached 40 percent. Through a landscape focus to our conservation investments, some 80 percent of the Bay's critical cropland acreage has had conservation measures implemented. NRCS conservation investments in the Bay have resulted in a reduction of 15.1 million tons of sediment per year, enough to fill 150,000 train cars—which would stretch from Washington, D.C. to Albuquerque, New Mexico. Improvements in water quality monitoring data and aquatic habitat identified by external parties also confirms the positive impact of these investments.

This science-to-solutions approach has been demonstrated to positively affect critical wildlife species as well. Through another targeted landscape initiative, our Working Lands for Wildlife Initiative, NRCS has helped private landowners install appropriate science-based conservation practices on over 6.7 million acres. Wildlife species targeted for listing on the U.S. Fish and Wildlife Service's Threatened and Endangered Species List have recovered to the point where a pending listing decision is no longer being considered. As a result, thousands of landowners will not face increased regulatory pressures.

The sound science that NRCS brings to the table not only improves our nation's natural resources, it also directs policy development to ensure that taxpayers receive the greatest return on their conservation investments. The aforementioned accomplishments have been realized through our Conservation Technical Assistance (CTA) Program, the backbone of our Agency's conservation delivery machine. Many customers begin their relationship with NRCS through requests for technical assistance that later evolve into conservation plans that may include financial assistance through one of the farm bill programs. Our CTA Program, in combination with our organizational delivery system, affords us the opportunity to visit with landowners on their property, to analyze their land, learn their objectives, and then collaboratively formulate a plan to help them meet their objectives, comply with Federal, state, and local laws and ordinances, sustaining their operation for future generations.

Landscape-scale approaches are foundational to progress toward meeting today's challenges. In addition to the Chesapeake Bay, and Working Lands for Wildlife initiatives, NRCS is also collaborating with others in critical landscapes to address

water quality concerns in the western portion of Lake Erie, water quantity efficiencies in California's Central Valley and the Colorado River Basin; fisheries improvements in the Pacific Northwest; acid mine drainage remediation needs in Appalachia and the Intermountain West; and flood protection for communities in the Central Plains and the Northeast.

Importance of Watershed and Flood Prevention Operations

In addition to demonstrated success in larger landscapes, NRCS's Watershed and Flood Prevention Operations Program, authorized by the Flood Protection and Flood Prevention Act of 1954, as amended (Public Law 83–566, also known as P.L. 83–566) encourages focused conservation investments in smaller landscapes (*i.e.,* watersheds) of 250,000 acres or less. P.L. 83–566 gained support from successes of a preceding program, the Flood Control Act of 1944 (Public Law 78–534). The Flood Control Act placed a primary focus on watershed protection by preventing floodwater damage and stabilizing stream channels, tributaries, and banks to reduce erosion and sediment transport. P.L. 83–566 extended the authorities of the Flood Control Act of 1944 to capitalize on NRCS's flexibility for delivering additional conservation investments beyond those focused solely on flood damages. Through P.L. 83–566, NRCS can offer conservation practices to individual landowners and work with local communities to create vital infrastructure protecting and restoring natural resources. The value of such an integrated approach has resulted in significant positive contributions to local economies and natural resources.

Since 1947, NRCS, through our watershed programs, has worked with our watershed partners to:

- Invest in over 2,000 projects within local communities for a cumulative total investment of $6.2 billion.
- Construct 12,000 watershed project dams.
- Realize $2.2 billion in average annual benefits. Such benefits come from:
  - 610,000—homes protected.
  - 46,000—businesses protected.
  - 180,000—farms protected.
  - 61,000—bridges protected.
  - 28,000—domestic water supplies protected.
  - 48,000,000—people benefited.

(Source: NRCS Program Operations Information Tracking System database).

Notwithstanding such success, both past and current, man-made infrastructure requires continued attention. NRCS has identified a current need of almost $7 billion to address public safety concerns for some 2,000 structures that have been identified as high hazard. A majority of NRCS watershed dams are over 50 years of age. Investing in needed upgrades today may help mitigate against more expensive future investments as these facilities continue to degrade. This investment could also result in removal of public safety concerns and help to avoid losing a portion of the aforementioned benefits.

The cyclical nature of P.L. 83–566 related funding for NRCS watershed programs introduces a set of unique challenges for program management of projects requiring a multi-year commitment on behalf of eligible project sponsors, permitting agencies, and the private-sector assisting with such work. For example, planning, design, and permitting requires significant up-front non-Federal investments to conduct environmental assessments, secure necessary land-rights, complete requisite engineering designs, and obtain required permits. Non-Federal partners have to make critical risk management decisions related to financial commitments in the face of budget uncertainty for project completion. For the past 4 fiscal years, funding for this program has been:

- FY 2014 = $260 million,
- FY 2015 = $70 million,
- FY 2016 = $12 million, [and]
- FY 2017 = $150 million.

Because public safety cannot be ignored, NRCS has worked with a number of organizations to develop tools and business practices intended to mitigate against risks from limited investments in capital improvements. One example of these efforts includes collaboration with state dam safety officials to develop Emergency Action Plans (EAPs) for high hazard structures. The plans identify potential downstream hazards and which emergency personnel are to be notified in advance of un-

desirable conditions at any given location. These plans are supplemented by annual emergency exercise drills for added preparedness. Finally, NRCS has recently released DamWatch, which quickly alerts essential personnel electronically through email, text message, or pager when dams are experiencing a high rainfall or earthquake event. These efforts allow for the agency's limited resources to be directed to the right place at the right time.

Utilizing Watershed Funding

While these efforts to remain vigilant for public safety have proven successful to date, Congress has also recognized the need for continued conservation, and capital improvement, investments as well. Through the FY 2015 appropriations process, Congress directed NRCS to establish a long-term, multi-year plan to guide needed investments in watershed surveys and planning, and watershed operations as authorized under P.L. 83–566. While completing the plan, NRCS determined a prioritized need to invest in 220 projects. These projects would address a variety of issues, ranging from flood prevention and watershed protection, to agricultural water management, to municipal and industrial water supply. The total cost of these 220 projects is estimated to be $1.4 billion from FY 2017 through FY 2020.

During the current fiscal year, Congress provided $150 million for necessary expenses in accordance with P.L. 83–566 and related laws relating to activities of the Department. This $150 million is to remain available until expended, provided that $50 million be allocated to projects and activities that can commence promptly.

NRCS is preparing to first address a project backlog, remediation of existing structures, and then focus on new projects. Our agency has done a good job of preparing for and prioritizing project work in the face of cyclical funding realities. We use a risk index to identify a combination of physical, economic, and social factors ensuring that taxpayer investments address the highest risks first. Currently, the following are in progress: 70 watershed plans, 80 engineering design efforts, and 30 ongoing construction projects.

Conclusion

Mr. Chairman, Ranking Member, and Members of the Subcommittee, P.L. 83–566 enables NRCS to bring all of the agency's technical, scientific, and financial resources to bear at the appropriate geographic scale—the small watersheds of 250,000 acres or less—where we can have the greatest impact on our nation's resources. This program reflects our commitment to local leadership on critical conservation issues and has a reach that touches every Committee Member's District. NRCS continually seeks to take responsible steps toward streamlining and modernizing our operations, while maximizing opportunities to get more conservation on the ground. Protection of our nation's small watersheds is no small task and when it comes to protecting lives through proper maintenance and upkeep, it is something USDA does not take lightly. I would like to thank all of you for continuing to invest in the safety and functionality of our small watersheds, voluntary conservation, and of course for the opportunity to appear before you this morning. I would be happy to respond to any questions.

The CHAIRMAN. Thank you, Deputy Director.

And the chair would like to remind Members that they will be recognized for questioning in the order of seniority for Members who were at the start of the hearing, and after that Members will be recognized in order of arrival. I appreciate Members' understanding, and I recognize myself for 5 minutes.

Let's visit for a moment, Deputy Director, just in the broad general sense about what we are talking about when we discuss P.L. 83–566 projects. Many people, when they think of dams, think of huge things from Hoover Dam on down, these giant monstrosities designed and built and maintained by the Army Corps of Engineers, a classic example in the general public's mind.

But, P.L. 83–566 dams work under a different concept, correct? Instead of giant structures, you have networks of smaller earthen dams working in an interlocking fashion to provide in many instances tremendous amounts of flood protection, but not one big structure. Fair statement?

But that also means that from the agency's perspective and the community's perspective, there are a lot more of these facilities to maintain, correct?

Mr. BRAMBLETT. That is correct. In general, you are exactly correct on all fronts. These structures basically, when originally planned, were put in the upper reaches of the smaller watersheds to help catch some of that early rainfall. And you are right, they are also positioned and laid out in such a fashion to maximize flood prevention from an early perspective.

The early rainfall, 100 year storms, basically individuals downstream are not going to see any change in the channel, because in addition to being a floodwater-retarding structure and being strategically placed, they are designed for 10 day drawdown. Most of them are designed for a 10 day drawdown, which is where the real beauty and the benefit from these structures come, because that is allowing not only the mitigation of flood downstream, it is also allowing it to dissipate at a rate that doesn't cause any damages.

The CHAIRMAN. And within 10 days be prepared for the next event.

Mr. BRAMBLETT. Exactly.

The CHAIRMAN. Whatever that may be.

And let's talk for a moment about the nature of the structures themselves, the original technology dating back to the 1940s. Science has improved that, the metals in the valve works, the design works, the letdowns, the way we build spillways.

I have had folks tell me in the field that these 50 year designs that we originally went with, with the new technologies and the new materials, while not rated for it, we might potentially get a century's worth of good out of the rehabilitation process. Is that a fair assessment?

Mr. BRAMBLETT. That is a fair assessment. In fact, many of the early structures that were built were built with a 50 year design life. And even into the 1970s, some of that technology was coming on board, and many of the later structures were built with a 100 year design life.

Today, anytime we do a rehabilitation activity, we really work toward trying to get that 100 year design life. And so not only the new technology for the materials that we use, but the way we do planning, the efficiencies that we can gain with some business practices associated with that, help make for a much more efficient delivery of conservation to individuals and to landowners.

The CHAIRMAN. And I would note to my colleagues, there are very few infrastructure projects the Federal Government is involved in or partnering with other entities that have potentially a century's life expectancy. Think of bridges. Think of roads. Think of everything else. This is an exception in that area.

Let's talk for a moment about the nature of the Rehabilitation Program and how this is not just a Federal effort, but the local entities are required to put up resources to do things as a part of that rehabilitation cost coverage.

Mr. BRAMBLETT. That is exactly right. That is one of the beauties of basically all of the voluntary programs that NRCS brings to bear. It is not just Federal taxpayer, the taxpayers that are carrying the brunt of the investment.

NRCS, as I mentioned, works through a voluntary approach. We operate off of a request for assistance. And many times when we provide information to local sponsors as they articulate to us their issues and their concerns, when we talk about the flexibilities and the authorities of Public Law 83–566 and its related legislation, they are willing, sometimes in the face of budget uncertainties, to make some financial commitments on their own to try to progress in addressing those resource issues and concerns.

In the end, though, the way the authorities are set up, generally NRCS provides 65 percent cost-share associated with a lot of these activities and private eligible sponsors provide the other 35 percent.

The CHAIRMAN. That said, of the number of projects that could be completed, because we are only talking about a small percentage of the potential sites in North America that could be addressed in these projects, just off the top of your head, if the resources were available, how many more structures are there at some stage in the process, initial planning, initial consideration on the new construction side, off the top of your head, Director?

Mr. BRAMBLETT. Right. We have roughly 30 projects in construction today and roughly 80 projects in the design phase and another 70 with watershed plans ready to move into the design phase; and then many more in the assessment phase, looking at these structures, looking at the downstream hazards and trying to identify those to get those prepared for planning. And so it is a sequence of preplanning, planning, design, and construction.

The CHAIRMAN. It is fair to say, if a Member represents a district that does not have any structures in place, whether in rehabilitation or new construction, there are a number of opportunities around the country where this technology, these techniques could be used to apply to enhance the flood safety issues.

Mr. BRAMBLETT. That is exactly right. There is still an opportunity with the authorities to address those issues and concerns.

The CHAIRMAN. Thank you, Deputy Chief.

With that, my time has expired. I turn to the Ranking Member and recognize here for 5 minutes.

Ms. FUDGE. Thank you very much, Mr. Chairman.

Thank you for being here as well.

Mr. Bramblett, in your written testimony, you comment on how flexible P.L. 83–566 can be, particularly in delivering additional conservation investments beyond those focused solely on flood damage. Could you talk a bit about the scope and types of projects other than those that directly address flood damage?

Mr. BRAMBLETT. Sure. Originally, in the 1954 legislation, a lot of the work we did, land treatment, when I say *land treatment,* I am talking about that one-on-one conservation technical assistance we offer to private landowners to help them plan and install conservation practices that will reduce soil erosion, improve water quality, increase wildlife habitat.

Some of the early work we did was primarily to make sure that we reduced erosion that possibly could get into these watershed structures and reduce sedimentation, siltation, and try to extend the life of these structures.

As time moved on, the flexibility of this program grew in popularity. And so from a water quality perspective, we had more requests come to us, in addition to just the structural measures, we had many community requests come to us asking for us to address some of those soil erosion, water quality, wildlife habitat-type resources alone. And we have been able in later years to address those as resources have been available to us.

Ms. FUDGE. Thank you.

Ohio, Michigan, and Indiana are currently leading a national RCPP Program designed to reduce the chances of harmful algae blooms developing in Lake Erie's western basin. How has or might P.L. 83–566 be used within such a project?

Mr. BRAMBLETT. P.L. 83–566 can do basically everything that the programs our agency has to offer. That is why I talk about the beauty of the integrated approach from P.L. 83–566.

Many of you are aware of our Environmental Quality Incentives Program, our easement programs, as well as our RCPP Conservation Stewardship Program. Through those programs, we typically work one on one with landowners to address their needs. Through the Regional Conservation Partnership Program, we are looking at a geographic area. Generally, it is a larger geographic area than the 250,000 acres outlined in Public Law 83–566.

As we work with those landowners, we have seen demonstrated success even at those larger scales. In those larger scales, basically what we are finding is we can remove a variety of streams from EPA's 303(d) listing of impaired streams.

Some of the wildlife-focused activities we have done out West, we have brought species back from being on the brink of being listed on the threatened and endangered species list. And what that has allowed is those landowners to avert potential regulations associated with the Endangered Species Act that they might otherwise face.

P.L. 83–566 gives us the ability to work with those private landowners but at the same time work with those leaders in local communities who also are seeing issues. Sometimes when we are working with private landowners we can make a lot of progress. But when community leaders get together and see issues beyond individual farms in a collective fashion, then through eligible sponsors we can connect with them, and then they can help lead and guide some of that local prioritization for conservation planning and conservation investments.

And so with this delivery network that I have talked about, to me, that is one of the beauties of our delivery system, is that we have local people in local communities who understand the local soils, who understand the local climate, who understand the local agriculture, the agricultural economy, the limitations on individuals, and the limitations on communities.

From that integrated approach of both the community and the individual landowner, P.L. 83–566 is a fantastic program to bring to bear.

Ms. FUDGE. Thank you, Mr. Chairman. I yield back.

The CHAIRMAN. The gentlelady yields back.

The chair recognizes the gentleman from Illinois, Mr. Bost, for 5 minutes.

Mr. BOST. Thank you, Mr. Chairman.

Mr. Bramblett, in Illinois we don't have a lot of the small watersheds, but we do face a lot of challenges with the watersheds as they relate to the Mississippi, Ohio, and Kaskaskia River in deep southern Illinois, which are huge watersheds. That being said, P.L. 83–566, that is implemented by the NRCS, how does this program function differently than larger management systems that we do on these larger rivers?

Mr. BRAMBLETT. Well, the authorities of P.L. 83–566 limit us basically to 250,000 acres. The measures that the Corps of Engineers might use on large watersheds, as the Chairman identified, some of those larger structures that come to bear in these larger watersheds, we can apply many of the same structural measures in smaller watersheds of 250,000 acres or less.

If you are thinking in terms of a levee or a dike or something like that, we have installed those type of facilities in smaller communities to help them be protected from flooding on a smaller scale, exactly what you are describing on a larger scale in the Mississippi River.

Mr. BOST. Okay. Also, on these watersheds a lot of things that we face, it is sediment buildup, okay, particularly with the Kaskaskia River, because of the agricultural area around and as a large a watershed as it is. But what I am trying to figure out is, if P.L. 83–566 is put in place up on the watershed further up, and maybe it is disqualified because it is all one plain, but would that stop that sediment as well?

Mr. BRAMBLETT. No. That is actually a very good illustration, and that goes back to the Chairman's observation, about where we placed small watershed dams and watersheds. Generally, we did those upstream in those watersheds to help mitigate flooding originally. But with the land treatment protections upstream of those structures even more, we also prevented additional erosion and sedimentation from moving downstream.

Even in a larger, broader watershed of beyond 250,000 acres, we can use P.L. 83–566 in such a means where we can break up that watershed to smaller 250,000 acre increments where these eligible sponsors have an interest, desire, and a willingness to sponsor such projects and help alleviate the larger, bigger issues that you might see on the Mississippi in the situation like what you are describing.

Mr. BOST. Well, I appreciate that information.

With that, I yield back.

The CHAIRMAN. The gentleman has touched on a very good point. By building these interlocking systems, they benefit everyone from the raindrop that hits the ground to the Atlantic or the Pacific.

With that, the chair recognizes the gentleman from Minnesota, Mr. Peterson, for 5 minutes.

Mr. PETERSON of Minnesota. Thank you, Mr. Chairman.

Mr. Bramblett, did you read Mr. Finney's testimony?

Mr. BRAMBLETT. No, sir, I sure did not.

Mr. PETERSON of Minnesota. Okay. Well, are you going to be here to listen to it?

Mr. BRAMBLETT. Yes, sir.

Mr. PETERSON of Minnesota. Okay. We have been struggling with controlling the water in the Red River because it flows north and

it is flat and there are a lot of problems. And we appreciate the help that we have gotten from NRCS.

And right now they are trying to spend $2.5 billion in Fargo to run the water around Fargo-Moorhead because we haven't been able to control it before it gets there. And we have had problems with the Corps trying to recognize what we are doing and so forth.

But one of the things that is in Mr. Finney's testimony is one of the problems we are having out there is the way they have implemented these cost-benefit deals. They do it by individual watersheds. And what we are doing is we are trying to manage the whole basin.

And the way this gets implemented, I guess, they don't take into account the overall impact, the situation, and so it makes it difficult to make these projects qualify. We tried to get some changes when this RCPP thing was set up, but they weren't completely implemented.

And so whatever you could do to help us work through this, because the amount of money that has been wasted over the years in the Red River Valley with the erosion that has happened and everything else, all the money that we have spent on these floods, we could have controlled all of this with that money easily and been a much better situation for the environment.

We are caught up in it, because the P.L. 83–566 authorities are limited to some certain amount of size and then they want to limit the benefits to that size or something, but that doesn't necessarily always make sense.

Whatever you could do to help us try to get through that and try to have a more effective response it will save the taxpayers money.

Mr. BRAMBLETT. Yes, absolutely. While I am not familiar with that situation, we are more than happy to look at it and provide information back to this Committee and others about what limitations we have within the existing authorities we have and then what kind of potential remediations there might be associated with that.

Mr. PETERSON of Minnesota. See, and I don't know if there are some limitations on your authority that preclude you from doing what needs to be done. If there is, maybe there is a way we could legislatively do something to give you those authorities, because it just seems like a wasted opportunity and a waste of resources to not address it.

Mr. BRAMBLETT. Right. Again, not being familiar with the specific case, it could be a situation with how the watersheds were set up also. There could be some reconfiguration of the 250,000 acres in order to be able to try to achieve the cost-benefit. Maybe that has already been attempted. But if there are other limitations, we are happy to look at that and provide feedback to let you know.

Mr. PETERSON of Minnesota. Yes, that is one of the issues. We did look at trying to make it larger. We had one of the most successful projects we have out there, the North Ottawa Project, which was a subject of a press opportunity last week. That got funded with all state money because it didn't qualify.

And just what it is doing is phenomenal, not only from surrounding area being eliminated from flooding, but the wildlife that has benefited and everything else that goes on with it. If we had

30, 40 of those North Ottawa Projects, they wouldn't have to spend $2.5 billion trying to protect Fargo-Moorhead, whatever you could do.

Mr. BRAMBLETT. Okay. We look forward to seeing that information and providing a response.

Mr. PETERSON of Minnesota. All right. Thank you very much.

I yield back.

The CHAIRMAN. The gentleman yields back.

The chair now recognizes the gentleman from Louisiana.

Mr. ABRAHAM. Thank you, Mr. Chairman.

Thank you, Mr. Bramblett, for being here.

Question: Under the current statute, have you had any problems partnering with any watershed projects that could benefit a community?

Mr. BRAMBLETT. At this point, we, as I mentioned earlier, operate off of a request for assistance. And so being voluntary in nature, and having a backlog, that kind of demonstrates that we really haven't had a problem trying to partner with communities.

Now, there are times when we are working and making information associated with P.L. 83–566 aware to potential sponsors. And so because, as we mentioned earlier, this is a collaboration of Federal and non-Federal resources, sometimes local sponsors work for years with us to try to find the means to put up the non-Federal resources.

But from the P.L. 83–566 side of the equation, it is a very well-received program, and I would have to say we have not had any challenges trying to find partners or working with partners out there across the landscape.

Mr. ABRAHAM. Would you recommend any policy changes, or are there any policy changes that need to be implemented to help streamline the program?

Mr. BRAMBLETT. Right. Well, as I mentioned, we are always looking for improvement on business practices associated with how we deliver the program in a streamlined fashion. We talked about new technology of materials for construction and the like.

Nowadays, we can use LiDAR to do a lot of the improvements in conservation planning associated with these projects.

From a policy perspective, that is the privilege of the Committee, however the authorities come to us and the resources that come along with those authorities. We will work to implement those as efficiently and as best we can.

Mr. ABRAHAM. Okay. Thank you, Mr. Chairman. I yield back.

The CHAIRMAN. The gentleman yields back.

The chair turns to the gentlelady from New Hampshire for 5 minutes.

Ms. KUSTER. Thank you very much, Mr. Chairman. I appreciate it.

Thank you for being with us.

I wanted to talk about what is going on in New Hampshire, which is a reaction to the changes in our climate, which are rather dramatic. It is close to 100° in New Hampshire today, which, in my lifetime, is a rare occurrence, and we are in for another long, hot summer.

Last summer we had a drought for our farmers. But a few years back, just a couple years ago, I have one community in Keene, New Hampshire, that had the 100 year flood 2 out of 3 years. I am definitely concerned about flooding, and I am particularly concerned about the budget cuts that are coming down from the White House.

I appreciate the Chairman bringing this topic to us. I support the programs, but I understand you have a tremendous backlog. And I want to have a discussion, if we could, about how we are going to address the backlog, how we are going to help our farmers and ranchers, and create these dams and preserve our communities from floods, given the cuts that we are facing in your budget and other budgets across the Agriculture Department.

Mr. BRAMBLETT. Thank you so much.

In 2015, Congress asked NRCS to develop a multiyear plan for addressing some of these aging infrastructures, and we basically delivered that report in December 2015. I mentioned in my verbal testimony that we have identified some 2,000 structures that need roughly $7 billion of investment for public safety concerns.

As a big part of that report back to Congress there were roughly 220 projects needing more or less $1.4 billion of investments. And so we have a prioritization mechanism in place. We call it a risk index. And what that does is it looks really at what is downstream of these structures as far as hazard concerns, what is the shape of that valley like downstream, how many people might be impacted, what other kind of utilities and what other kind of infrastructure might be impacted, and then what is the likelihood that the sponsors are going to be able to and willing to participate with us on a collaborative effort to try to address those issues.

Through that process, this is how we have identified and lined projects up in such a fashion where we have those that are in construction right now, followed by those that are in the design phase, followed by those that are in the planning phase.

In New Hampshire, we have one project basically for rehab that is current, but we also have in that preplanning phase that I mentioned earlier 18 watershed structures where we are looking at those assessments downstream to try to get them into that process so we can address those local concerns as quickly as we can.

Ms. KUSTER. If we have bipartisan support on this Committee that we support these projects and want to go forward, how many communities are going to be put at risk when your funding is cut or you don't have sufficient funding?

I mean, that is 18 communities in my state that I would rather protect.

Mr. BRAMBLETT. Right.

Ms. KUSTER. We have had loss of life from floods. We have had tremendous damage to property. We have had whole towns washed away.

If you talk to Vermont that had never had a hurricane until Hurricane Irene came through, millions of dollars, whole towns were cut off, no roads, no bridges getting to them. I mean, this is serious and we need to take care of this. And meanwhile the budget that comes forward is cut. I don't understand how we are going to protect our constituents.

Mr. BRAMBLETT. From an NRCS perspective, what we are doing is trying to take advantage of this integrated approach. And, again, that is the beauty of P.L. 83–566.

Outside of P.L. 83–566, and we talked about bringing on new technology, there is a lot of science just in natural resource management that has unfolded since we started this whole process of watershed protection and flood prevention.

Some of you may have heard of our Soil Health campaign as an example. Soil Health is a mechanism whereby we are working with private landowners to increase the organic matter and the viability of their soils.

Every one percent increase in organic matter holds an additional 27,500 gallons of water. And when you start to multiply that out across all of the acreage above some of these watershed structures, that is a big deal.

And not only does it hold more water for drought times and from a climate change perspective, but also when you have floods there is more aggregate stability, more structure, there is more infiltration. That also helps reduce flooding as well.

Those are just a couple of examples of complementary activities that we have with that individual landowner delivery system that I keep talking about, along with the integrated capacity of the community delivery system under P.L. 83–566.

When we can work with individuals, we can make a lot of progress and we can do a lot of good things. When we can work with communities and individuals, we can do a lot more.

Ms. KUSTER. Well, thank you.

My time is up. I thank the chair for having the hearing. And I hope you will use your clout with the Appropriations Committee to get the funding we need. Thank you.

The CHAIRMAN. I promise my colleague every day in every way.

The gentlelady yields back.

The chair now turns to the gentleman from Mississippi for 5 minutes.

Mr. KELLY. Thank you, Mr. Chairman and Ranking Member, again, for holding this important meeting.

Thank you for being here.

Seven, 8 years ago, I didn't understand the value of watersheds and backwater levees, and I thought the Corps of Engineers just handled all the flooding things. It was in 2013 when we had the Mississippi River flood in Mississippi. And as a serving guardsman, I got to go down there and was shocked to find out that the majority of the things that we were depending on to save our citizens from a massive flooding and the levees and dams breaking, it was not the Corps of Engineers. It was these watershed projects and these backwater levees and all those things. I came to really value the importance of those things.

That being said, that 2013 flood stressed those levees and those backwater levees and watersheds to the point that there is damage done. When you stress something to that degree, it is imperative that we continue to reinvest in this program because, as most people say, an ounce of prevention is worth a pound of cure. If we don't put the money on the front-end, we will pay for property damage on the back-end.

So that being said, Mr. Bramblett, you note in your testimony that NRCS strives to not only preserve resources, but also to make the taxpayers get the most out of their investment. How does the collaborative approach stretch dollars farther?

Mr. BRAMBLETT. Through this program, as well as a lot of other programs, but as has been highlighted earlier here, we provide Federal resources but only to a certain extent. Non-Federal resources come into play.

That way, not only do collectively we as Federal taxpayers have an investment in these resources, but those who are living in the local community and realize those benefits also have that investment. And the other thing about that, it is not just that investment. They have that ownership, that sense of achievement, that success, that appreciation, that social capital.

Everything that goes with being part of a project like this is realized as we are successful in constructing, completing, averting flood damages, improving soil quality, improving water quality, reducing soil erosion, increasing productivity. All of those things just make all local communities feel much better.

In addition to that, when we do these projects, not only are we trying to make sure that there is that balance of Federal and non-Federal resources that come to bear for the investment part of it, but we pursue, as Mr. Peterson was talking about, a pretty rigorous cost-benefit analysis to make sure that whatever Federal taxpayer benefits are being invested, there is a greater return on that investment than what is actually put forth.

And then, finally, I would just point out that as we are talking about some of the risk associated with these aging infrastructures, we have mentioned this before, but it bears mentioning again, and that is making sure that as we have this backlog right now those structures and those situations that have the highest risk are the ones that we invest in first as well.

Mr. KELLY. And I also think people don't realize, we are all pretty parochial in Congress or seem to be, but it matters what Illinois does with their watersheds even though I am way down in Mississippi, and it matters what Arkansas does and what Mississippi does when it applies to New Orleans, because all those run to the same headwater which runs into those places.

Mr. Bramblett, with the recent appropriation for P.L. 83–566, how quickly will local communities be able to move forward on construction for rehab of new projects?

Mr. BRAMBLETT. As I mentioned, we have 30 dams in construction right now, 80 in the design phase. With the allocation that we recently received, we expect to expend all of those funds within 12 months. That just shows you, as the process continues to unfold, we continue to work with local sponsors.

I mentioned that they often are making critical risk management decisions from a financial perspective, many times in the face of uncertain budget circumstances. But it is pretty amazing to watch them work with us, enjoy, understand, appreciate the process and the partnership between the Federal and the non-Federal resources, and continue to work to a point where they can be ready to go in helping put conservation practices on the ground, works of

improvement, other community construction activities as soon as resources become available.

Mr. KELLY. Thank you.

Mr. Chairman, I yield back.

The CHAIRMAN. The gentleman yields back.

The chair now recognizes the gentleman from Arizona for 5 minutes.

Mr. O'HALLERAN. Thank you, Mr. Chairman.

Mr. Bramblett, first of all, I appreciate the work that the agency does. It does an outstanding job given the funds it has. I just want to briefly go over a couple things.

When you had indicated $7 billion to address public safety, that is just for the 2,000 structures that are at very high risk. Is that right?

Mr. BRAMBLETT. That is correct.

Mr. O'HALLERAN. And then you go onto, they include the 5,400 structures by the end of 2017 that are at risk also but at a lower level. And then we have unmet needs in new construction on top of that. The $7 billion is not the real number. There is an extended number past that. What is that number?

Mr. BRAMBLETT. Well, it is a dynamic system, and the dynamic system in that every year we have more dams come out of life, or rather meet their 50 year age requirement. Others are meeting their end of design life. And then we have others that still maybe need to be addressed because of high public safety concerns.

For example, when we originally built these 12,000 watershed structures, only 970 of them were built as high hazard structures. But being from Arizona, you understand the urban sprawl of Phoenix, me being from Georgia, I understand the urban sprawl of Atlanta, and so what we had originally planned to have only 970 high hazard dams, now we have over 2,000, almost 2,100 high hazard dams.

And any day of the week, in any structure of these 12,000 structures across the country, someone can put a mobile home below that structure and make it a high hazard dam. The exact figure is constantly changing.

The best answer I can give you with respect to where we are today is the report that we gave in December 2015 regarding the 2,000 for $7 billion we have 220 projects that are on a higher critical need for $1.4 billion.

Mr. O'HALLERAN. And I believe that partnerships are important in this process, but it appears that the current Administration and two previous Administrations have all decided that the burden should fall mostly on local government and local organizations and not the Federal Government, although we built many of these structures.

And it helps us to improve, as the gentleman from Louisiana indicated, clearly the entire downstream process that is going on, whether it is Federal lands or private lands that are downstream from these structures.

I have 12 Native American Tribes in my district. I have a tremendous amount of rural communities. I represent about ½ the State of Arizona as far as landmass. And so drought is a major concern to everyone across my district and across the state.

What changes would you like to see in the next farm bill or the budgeting process also to prioritize and enhance drought tolerance?

Mr. BRAMBLETT. As I mentioned before, some of the policy ramifications come from this Committee and others in Congress. If you have proposals that you would like us to react to, we are more than happy to look at those and give you some feedback on how that might mesh with the existing statute, how we deliver that particular program.

Some of the other activities, I know it is a different animal out West when we are talking about soil health and range as it is in the East *versus* highly managed cropland *versus* landscape situations in the West. But the principles of P.L. 83–566 have been applicable across the board, whether it is agricultural water management, rural water supply. Some of those authorities that this program has to offer are there to come to fruition.

The challenge that we constantly face is the fact that we do have a backlog and local communities and sometimes these more expensive projects without the Federal investment would have a hard time making those improvements in and of themselves.

Mr. O'HALLERAN. You would agree that the Federal investment prior to this equation cannot be just passed off to the side, that we don't have any skin in the game, we need to have skin in the game to protect those Federal lands that are also at risk.

Mr. BRAMBLETT. It has been my experience in 20+ years of doing watershed planning at this scale that there are some communities that without that Federal investment would not be able to install those works of improvement themselves.

And in many cases, where they have not been able to, there are other Federal resources below that, such as Federal highways, Federal interstates, and other Federal public lands as well that could sustain damages if those works of improvements are not realized.

Mr. O'HALLERAN. And then the only other difference that I can see, and this is just the scale of size in the West as far as the watersheds and even sub-watersheds in relationship to the current statute.

Mr. BRAMBLETT. And that is a really good point. I was in Colorado last week, and the first thing they asked me, are you amazed about how wide open it is? And yes, I am always amazed every time I go West about how wide open it is.

Having said that, with the current authorities that we have, we do continue to try to construct projects or multifaceted projects, if you will, to address scaling issues, like those identified by Mr. Peterson or maybe some of the things that you are facing in Arizona.

Mr. O'HALLERAN. Thank you, Mr. Chairman.

The CHAIRMAN. The gentleman yields back.

The chair now turns to the gentleman from California for 5 minutes.

Mr. LAMALFA. Thank you, Mr. Chairman.

Mr. Bramblett, welcome today. Again, I have a lot of interest in this DamWatch Program that you are speaking to us about here today. And I have it is not really related as a Federal project, but I have the Oroville Dam, right. I can see it from my front window,

so to speak. It is monitoring the levee infrastructure, all that, extremely important.

Obviously, a project like that being a state project or Federal ones, I imagine they are using a lot of the technology that you are talking about here that can be used more on a district basis or a private basis where you have levees and dams on that smaller scale.

Can you walk us through how the collected information is used when you receive that to allocate efforts, resources after some type of alert has come across, or even if there is not an alert situation, just how that would integrate into a regular maintenance schedule? How is that information applied? It is through an app, right?

Mr. BRAMBLETT. Right. I need to give you a little bit of background information to fully answer your question. And we talked a lot about public safety, and we have talked about the need for capital and investments for upgrades and improvements.

That said, public safety can't be ignored. And so we continue to work with local sponsors, even though these structures are their responsibility, to try to help them address public safety issues and concerns.

One of the ways we do that is each year for these high hazard structures we go out with them and do an operation and maintenance inspection. And as a result of that, if we identify issues and concerns, we alert them to those.

In some cases, they have the resources to try to develop the designs for remediation, in other cases they depend on us to develop designs. In some cases, they have the resources to address it, in other cases they don't. We are talking almost 12,000 structures here.

In addition to having that annual operation and maintenance inspection, we also have on these high hazard structures developed what we call emergency action plans. And this is part of the assessment activity and some of this preplanning effort that I talked about a little bit earlier.

What we do as a part of that process is we look downstream, and, God forbid, should there be a dam failure, we identify what that flood zone would be. We call it a breach zone. That emergency action plan is meant to identify what structures are in play, what utilities, what bridges, who the local emergency management personnel happen to be, what their phone numbers are, what their contacts are.

This DamWatch system basically is a means of collecting all that information along with the original designs associated with these structures, so that if there ever is a situation that we can get to and address in a quick fashion, we know the original design information. That helps us more efficiently address any kind of catastrophic event that may be unfolding.

So far, we have been fortunate, even though we have had even in 2016 these high hazard structures, and this highlights the public safety issue, we have had these emergency spillways or the portion of this dam that flows water before it overtops, 54 of those flowed in 2016. It is happening out there.

What happens with DamWatch basically is we utilize USGS' alert system for stream gauges, for seismic activity. And we have

all this information that I just described in this DamWatch system. What DamWatch then helps us do is it helps us send out electronic automated alerts to those critical personnel that are identified in this emergency action plan.

Depending on the simulated rainfall, we will take that as the example, depending on the simulated rainfall, there is a certain stage of triggering that goes to these individuals to begin monitoring the situation. That is not just local emergency management officials. That is state emergency management officials as well as Federal emergency management officials.

Mr. LAMALFA. That is all in real-time then as you——

Mr. BRAMBLETT. That is all real-time information. And it is for all of our watershed structures, 11,000 of our watershed structures, 11,000 of our 12,000 watershed structures right now.

Mr. LAMALFA. With the preplanning you talked about here, what if you had a very severe situation or lesser ones, use the preplan, and then as the data comes in what is actually happening there, you keep track of what water levels are looking like. Is this going to reach some kind of an alert stage where you have to start planning for something maybe a little worse?

Mr. BRAMBLETT. Right. We are taking the next rainfall from Doppler Radar. We know based off of the soil information our agency has and land use what the runoff is going to be like. We can simulate what the water levels are going to be in these structures.

Mr. LAMALFA. Let me ask, does it look different for an emergency event than it does for this ongoing maintenance?

Mr. BRAMBLETT. Well, the difference between ongoing maintenance and this type of activity, the ongoing maintenance basically is trying to make sure that there is no large-scale vegetation that appears on the embankments, the earthen embankments, that there is regular mowing, that if there are routine maintenance activities associated with a trash rack that collects trash before it goes into the riser, needs to be replaced. Those are examples of regular type of ongoing maintenance. This type activity is more of a monitoring for public safety.

Mr. LAMALFA. Yes, sir. I better cut off there.

I will yield back, Mr. Chairman. Thank you.

The CHAIRMAN. The gentleman yields back.

Would the gentleman yield for one moment before we dismiss our witness.

The discussion we have had today about all the planning and the organization that is going into these structures, the maintenance and the emergency plans and everything, it is coordinated. The success of this program is really quite astounding, whether it would be a Federal Government program or anyone else's. But part of the problem we have historically had is, in a body where all the grease goes to the squeaky wheel, this works so well it is hard to get people's attention about maintaining and expanding the success. That is the difficult part.

The gentleman yields back. I yield back.

The chair and the Ranking Member wish to thank the Deputy Chief for a very thorough presentation today. And you are dismissed, sir.

Mr. BRAMBLETT. Thank you so much.

The CHAIRMAN. And with that, we would like to, when they are ready, welcome the next panel of witnesses to the table.

While our witnesses are coming to the table, I would like to begin the introduction. Mr. Jimmy Emmons, President of the Oklahoma Association of Conservation Districts, from Leedey, Oklahoma. We also have Kevin Burns, Wise County Commissioner from Decatur, Texas. We have Mr. John Peterson, Director of the Government Relations, Land Improvement Contractors of America, from Burke, Virginia. And Mr. John Finney, President of the Red River Management Board from Humboldt, Minnesota.

And with that, whenever you are ready, Mr. Emmons, you may begin. You are recognized for 5 minutes.

STATEMENT OF JIMMY EMMONS, PRESIDENT, OKLAHOMA ASSOCIATION OF CONSERVATION DISTRICTS, LEEDEY, OK

Mr. EMMONS. Good morning. My name is Jimmy Emmons. I want to thank the Committee, Chairman Lucas, Ranking Member Fudge, for this opportunity today. It is a great honor, and I do not take it lightly.

I am a farmer and rancher from Dewey County in western Oklahoma. My wife Ginger and I farm 2,000 acres of farmland, run cattle on about 7,000 acres of rangeland. The Emmons home place has been in our family since 1926.

I am speaking to you this morning because I serve on the District Conservation Board there in Dewey County, the local sponsor of two watershed program projects, 22 dams, multiple land treatment practices associated with these projects. I live and farm around these projects as we speak.

There are more than 600 of these flood protection dams within a 75 mile radius of my farm. I am very passionate about stewardship and conservation as it relates to our soil and our water resources.

It would be easy for me to testify about the rich history of the watershed programs in part because western Oklahoma and the watershed programs go way back. I can recount one story my grandfather told me about a small drainage ditch he started on our farm in 1934 that became a gash 40′ wide and 50′ deep in one night.

That ditch turned out to be a warning sign that we still talk about 83 years later known as the deadly Hammond Flood, which killed 17. That piece of our history is just one of the reasons that Oklahomans now have 2,107 watershed program dams and countless conservation practices. The USDA Small Watershed Program changed the face of western Oklahoma, and when it did, it changed our future.

When I became a grandfather, it sharpened my thinking about my future. My 4½ year old grandson now is my motivation to speak up about the watershed programs. The program represents an estimated $15 billion investment in conservation infrastructure.

As a local project sponsor, it is essential that we are good stewards of this investment. This requires a healthy Federal, state, local partnership that brings administrative, technical, and financial assistance to bear on matters relating to the watershed programs infrastructure.

If you travel on the county roads in my area and state highways, even Interstate 40, some portion of that road is protected by a watershed programs dam.

The local economy is driven in part by grain, cattle, oil, and natural gas that relies daily on this protection. The roads and bridges that carry our children to and from school are protected by these dams. Our schools, along with other key elements in the community, are protected by these dams. The partnership between NRCS and local sponsors is critical in keeping this protection in place.

Nationally, in 2018—we have talked about this, this morning—will be a milestone of the watershed programs where nearly ½ of the 11,840 dams will reach their engineered expected life that were constructed by SCS and NRCS. We are reaching a critical point this coming year.

While nine out of ten Oklahomans live and work within 20 miles of the watershed program dams, many of these folks are unaware of the solace that they do. If we let this investment in protection slip away it won't take long for them to be affected. The watershed programs needs Congressional attention if the future Americans want to enjoy the same safety, protection, benefits, and productivity the watershed programs presently delivers.

In 2000, Representative Lucas led the development of the rehabilitation legislation that ensured our nation's investment in the watershed programs had the opportunity to continue. The legislation gave the Congress the ability to reinvest in these structures. Congress has taken the right step in the direction with local sponsors. Statewide partners have responded with O&M dollars, rehabilitation matching funds, technical and other financial assistance.

I cannot overemphasize the importance of the Congress, the USDA, and NRCS full partnership in the watershed programs.

In closing, where I live, we have something we call *farm sense.* Farm sense is a good thing. Some folks have it; some folks don't. Farm sense would tell me, if I invested $750,000 in a tractor, tillage and seeding equipment, and refused to grease that and safely operate that before it goes to the field, knowing that that equipment would have a significant capital investment that I put into it and still would not protect it.

We have invested $15 billion into conservation infrastructure. It is no different. Farm sense tells me that Congress needs to reinvest in this important conservation program.

Thank you.

[The prepared statement of Mr. Emmons follows:]

PREPARED STATEMENT OF JIMMY EMMONS, PRESIDENT, OKLAHOMA ASSOCIATION OF CONSERVATION DISTRICTS, LEEDEY, OK

Mr. Chairman and Members of the Subcommittee:

Good morning, my name is Jimmy Emmons, I want to thank the Committee, Chairman Lucas and Ranking Member Fudge for the opportunity to speak to you today. It is an honor and an opportunity I do not take lightly.

I am a farmer and rancher from Dewey County in western Oklahoma where my wife Ginger and I farm 2,000 acres of cropland and run cattle on 7,000 acres of rangeland. The Emmons home place has been in our family since 1926. I'm speaking to you this morning because I serve on the Dewey County Conservation District board.

We are local sponsors of two USDA watershed program projects (Barnitz Creek and Quartermaster Creek Watersheds) and the 22 project dams and the multiple

land treatment practices associated with these watershed projects. I live and farm in and around these projects. Six of the 22 flood control dams in Dewey County are considered high hazard dams with the threat of loss of life if the dams were to fail. The Dewey County Conservation District with the assistance of NRCS has currently rehabilitated four of these dams. (Barnitz Creek Watershed Dams No. 1, 5, 11 and 14).

There are more than 600 of these flood protection dams within a 75 mile radius of my farm. I am also deeply involved and committed to soil and water conservation issues at the local, state and national levels. I am passionate about stewardship and conservation as it relates to our soil and water resources. I also currently serve as President of the Oklahoma Association of Conservation Districts.

Watershed Rehabilitation Program

Watershed Dam Rehabilitation is a critical component of the Watershed Protection and Flood Prevention Program. NRCS and its local sponsors are responsible for over 11,800 flood control structures nationwide. This flood control and conservation related infrastructure affects 2,000 watersheds and they represent nearly ⅓ of all dams ever built by the Federal Government. Every year this system saves an estimated $2 billion through flood damage prevention. Another way to view these benefits is by the number of people and communities who benefit directly from watershed projects. The existing projects are protecting over 610,000 homes, 46,000 businesses, 180,000 farms and ranches, 61,000 bridges, and 28,000 domestic water supplies. As a result, over 48 million people across the United States benefit from the watershed program every year.

Many dams today are in a far different setting than when they were constructed. Population has increased; residential and commercial development has occurred upstream and downstream from the dams; land uses have changed; sediment pools have filled; and concrete and metal components have deteriorated. Many of these dams do not meet current state dam safety regulations that have been enacted and revised with more stringent requirements than when the dams were built. In addition, many of these structures built by NRCS had a design life of only 50 years. Since most of this construction occurred from the 1940's to the early 1970's, many of these dams are now past their design life and are in need of rehabilitation.

Chances are as you travel in my area whether on county roads, State Highways or Interstate 40 some portion of the road you travel receives flood protection from an upstream USDA Small Watershed Program Flood Control dam. The local economy that is driven in part by grain, cattle, oil and natural gas relies daily on this protection. The roads and bridges that carry our children to and from school are protected. In several cases the school itself along with other key elements of community are protected. Just as it is across much of the nation, the water that these flood control lakes collect is also essential to our economy and quality of life in western Oklahoma.

Many of our most productive farms and our healthiest soils are located in these protected watersheds. There are many less obvious benefits that come in the form of the prosperity and opportunity made possible by these projects. The partnership between USDA and local sponsors that brought us this protection is extremely important in keeping it in place. CY 2018 will be a milestone year for the watershed program when more than 50% of the 11,840 dams engineered and constructed by SCS/NRCS will have exceeded their original evaluated life.

Nine out of ten Oklahomans live or work within 20 miles of a watershed program dam. These folks may be unaware of the watershed program, but if we let this investment in protection slip away it won't take long for them to be affected. I'm sure a similar statement could be made for our neighboring states. The watershed program needs Congressional attention if current and future Americans are to enjoy the same safety, protection, benefits, and productivity the watershed program has given us. Rehabilitation is necessary to ensure dams continue to protect lives, businesses and homes. Failure to provide rehabilitation of these dams could result in dam breaches which would have catastrophic consequences. The flooding crisis and potential failure of the Oroville Dam in California this past February illustrates the need for infrastructure operation, maintenance and repair of dams. While Oroville Dam is not an NRCS dam its does show what could happen when dams are not properly repaired or maintained.

In 2000, Mr. Lucas led the development of rehabilitation legislation that ensured the nation's investment in the watershed program had the opportunity to continue into the future. Under the Dam Rehabilitation Program, dams are selected for rehabilitation through a competitive grant process and Federal are funds are limited to 65% of a project's cost. This commitment from state and local partners is necessary

to ensure that sponsors are fully committed to a project. This legislation gave us the pathway and the procedure for reinvestment.

As the significantly invested local sponsors of watershed projects, state and local partners have felt that we have suffered from an inadequately funded Federal partner for much of the past decade. In my opinion, Congress has taken a step in the right direction by wisely investing through the 2014 Farm Bill and the 2017 Omnibus Appropriations bill. Local sponsors and state watershed program partners have responded with O&M dollars, rehabilitation matching funds, technical and financial assistance. I cannot over emphasize the importance of Congress and the USDA–NRCS as full partners in the watershed program. We hope these recent investments are a signal to USDA about the importance of these programs.

It would be easy for me to spend my time before you this morning talking about the rich history of the watershed program in my part of the world because western Oklahoma and the watershed program go way back. I could recount the story my grandfather shared about a small drainage ditch across our farm that in 1934 became a gash in the landscape 40′ wide and 25′ deep literally overnight. Folks in the area still talk about the deadly Hammon Flood that killed 17 Oklahomans. That flood, that piece of our history, is just one of the reasons that Oklahoma is now covered with 2,107 watershed program dams and countless conservation practices. The USDA Small Watershed Program changed the face of western Oklahoma and when it did . . . it also changed our future.

When I became a grandfather it sure sharpened my thinking about the future. My 4½ year old grandson, a budding farmer and rancher in his own right, is my motivation to talk to you about the present and the future as it relates to the benefits the watershed program continues to bring to our nation. The program represents an estimated $15 billion investment in conservation infrastructure. As responsible citizens and local project sponsors, it is essential that we are good stewards of this previous investment. This requires a robust Federal, state and local partnership that brings administrative, technical and financial assistance to bear on matters relating to this infrastructure created by the watershed program. From routine operation, maintenance and repairs to full-fledged dam rehabilitation each of the partners has an important and specific role.

In closing, where I live there's something we call "Farm Sense". Farm sense is a good thing. Some folks have it, some don't. A day or 2 on the farm quickly reveals who has a good measure of farm sense. A person with farm sense wouldn't invest $750,000 in a new tractor and tillage equipment and then refuse to grease the equipment every time it goes to the field, fail to change belts, hoses, filters and fluids regularly or leave it parked outside where the tires can dry rot in the sun and the mice and packrats can devour the wiring. Knowing they depend on that equipment and have lots of capital tied up in it they would take care of it and do everything they could to hold its value and protect the investment. A $15 billion investment in conservation infrastructure is no different. Farm sense tells us its time for the partnership to reinvest.

As the Subcommittee moves toward the next farm bill and the 2018 budget bill comes into focus I encourage you to support and provide adequate funding for new watershed projects and for the rehabilitation of aging watershed dams. Thank you.

ATTACHMENT

Flood Control Dams in Dewey County

Oklahoma has 2,107 flood control dams in 61 counties. These dams have been constructed through local watershed project sponsors with financial and technical assistance from the USDA Natural Resources Conservation Service (NRCS) authorized through Public Law 78–534 (Washita River Watershed) and Public Law 83–566 Watershed Protection and Flood Prevention Program. Twenty-two of these dams are in Dewey County.

The primary purpose of flood control dams is to reduce flooding. The secondary benefits of the dams address a myriad of public needs such as water supply, water quality, soil health, water management, wetland enhancement, fish and wildlife habitat, and recreation. Flood control dams improve public safety, contribute to a healthy economy and support a strong nation.

Watershed projects also include the installation of natural resource conservation practices such as terraces, waterways, ponds, gully repair, and pasture and rangeland plantings. These conservation practices improve water quality and soil health and reduce sedimentation into the lakes formed by the dams.

Operation and Maintenance of Dams

The annual operation and maintenance of dams is the responsibility of project sponsors (local units of governments such as conservation districts).

Operation is the administrative and management activities necessary to ensure the dams function as designed and remain safe. Operation work includes annual dam inspections and inspection immediately following heavy rains.

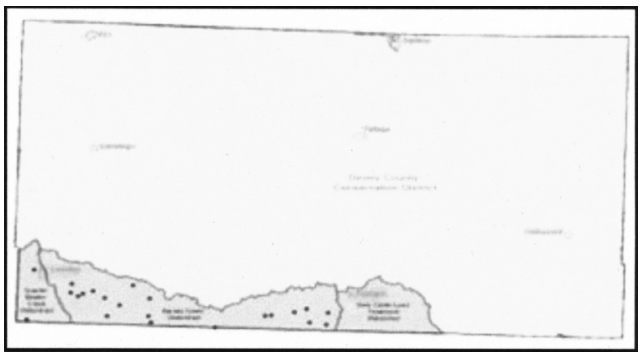
Maintenance work includes removing trees from dams and spillways, repairing erosion damage, repairing damage to the spillway and dams after heavy rainstorms, and keeping the principal spillway inlet towers cleared of debris.

Operation and Maintenance Needs

Operation and maintenance of dams can be expensive and labor intensive. $4 million is needed to operate and maintain all 2,107 flood control each year. Only through continued investment in operation and maintenance will future generations enjoy the promise of safety these dams offer.

Annual Benefits

The 2,107 flood control dams and conservation practices in watershed projects provide $91 million in average annual benefits. The table on the back of this page lists the annual benefits provided by watershed projects in Dewey County.



Rehabilitation and Dam Safety

As dams age some will need rehabilitation to remain safe and protect the people that live or work downstream.

At the conclusion of 2016, 260 flood control dams in the state have been classified as high hazard. Of these 115 do not meet current state or federal safety criteria. Approximately $300 million is needed to upgrade the 115 dams.

Six of the 22 dams in Dewey County are classified as high hazard and have the potential for loss of life if they should fail.

The number of high hazard dams will continue to increase as long as residential and business development is allowed downstream of the dam in the breach flood area.

NRCS can provide 65 percent of the rehabilitation costs and technical assistance to rehabilitate high hazard dams. Local project sponsors provide 35 percent of the cost and obtain any needed additional land rights.

As of December 2016 thirty-five dams in the state have been rehabilitated and 18 others are in various stages of planning, design or construction.

Average Annual Watershed Benefits (Entire Watershed)

Watershed Name	Dams in Watershed	Dams in Dewey County	Monetary Benefits*	Farms/ Ranches Benefited	Bridges Benefited	Wetlands Enhanced/ Created (acres)	Reduced Sedimentation (tons of soil)
Barnitz Creek	76	20	$716,340	225	25	1,734	520,184
Quartermaster Creek	36	2	$666,760	134	19	743	154,228
Total	**112**	**22**	**$1,383,100**	**359**	**44**	**2,477**	**674,412**

*Monetary benefits include reduction in flood damages to crops, roads, bridges, fences, *etc.,* and may include other benefits such as irrigation, municipal and industrial water supply and recreation.

Conservation Districts are a primary sponsor of most watershed projects in Oklahoma. Listed below is the conservation district located in Dewey County that has

watershed projects and other conservation agencies that can be contacted for more information about the watershed program.

Dewey County Conservation District,*
306 S. Broadway,
Taloga, OK
deweyccd@conservation.ok.gov

The Oklahoma Conservation Commission is the lead state agency for upstream flood control programs and provides assistance and guidance to conservation districts.

The USDA Natural Resources Conservation Service (NRCS) is the Federal agency that administers the watershed program and provides technical and financial assistance to the local project sponsors.

Oklahoma Conservation Commission,
2800 N. Lincoln Blvd. Suite 160,
Oklahoma City, OK 73105–4210
(405) 521–2384
Web Page: *http://www.ok.gov/conservation*
Twitter: *https://twitter.com/conservation_ok*
Facebook: *https://facebook.com/conservationok*

Natural Resources Conservation Service,
100 USDA, Suite 206,
Stillwater, OK. 74074–2655
(405) 742–1204

The CHAIRMAN. Words well spoken, Mr. Emmons. And the gentleman yields back.

The chair now recognizes the Honorable Kevin Burns for 5 minutes.

STATEMENT OF HON. KEVIN BURNS, COMMISSIONER, WISE COUNTY, TEXAS, DECATUR, TX

Mr. BURNS. Chairman Lucas, Ranking Member Fudge, and other Members, thank you very much for this opportunity to speak today. I am Kevin Burns from Decatur, Texas. I have been serving the citizens of Wise County for 15 years as County Commissioner. I have been a teacher, a volunteer fireman, small-business owner, small rancher. And I still raise some cattle and hay crops in a small way in Wise County.

I am the past chair of the National Watershed Coalition. It supports watershed sponsors with training through conferences, materials, and then some boots-on-the-ground, hands-on training in operation and maintenance in cooperation with NRCS, and I have enjoyed that opportunity.

My written testimony contains some national facts and figures about the benefits of the watershed programs, but what I really want to share with you today is, and why I traveled here, is just to talk about what happens on a daily basis in my experiences in Wise County and what it means to us.

Wise County has 108 flood control structures in our little 900^2 mile county. We have 85 dams that normally contain a pool of water, and I learned today that that the slow release was 10 days. I didn't know that until today. I just knew that they worked very well. We have 23 grade stabilization structures that are just small levees with V-cuts to either slow or direct the flow of water.

**This Publication is issued by the Oklahoma Conservation Commission as authorized by 65 O.S. 2001 § 3–110.*
Copies have not been printed but are available on the agency website. January 2017.

I was lucky enough when I ran for Commissioner that the late former Wise County Judge Charles Wilhite came see me. This old family friend can to me with a little different attitude. He wanted to give me a little education, telling me that at the time we had 80 dams in the county. He also told me about a regional multi-state drought that we had between 1950 and 1957.

Our economy in Wise County was mostly agricultural based, so most of the folks had to move into the city to get a job. Our economy was terrible. What little commerce was going on in the county was killed overnight, or almost overnight, by rainfall in 1957. It rained 24″. It washed out 85 bridges in the county. What little was going on came to a halt. That was catastrophic.

The county had yet to invest anything locally in P.L. 83–566. The problem was solvable, and they had chose, because of budget, not to invest. It was in our best interest, obviously, at the time, that we needed to start investing. In 1961 we completed our first project and went on from there. We are well protected now.

A major part of my responsibilities is roads. We have 990 miles in our county. I maintain 340 of them in my precinct. Forty-six of those flood control structures are in my precinct because of the highly erodible soils and the change of elevation. They are near and dear to my heart.

The importance of those dams was exemplified in 2015, in the spring. Our yearly average rainfall fell in the month of May that year. We had nine washouts in my precinct.

Now, realize the difference here: 85 bridges washed out in 1957, and now just nine small washouts. And those nine small washouts were in areas unprotected by P.L. 83–566 dams. They are incredibly effective.

I have heard arguments that these P.L. 83–566 dollars, it needs to be a local investment and not a national investment. But we do put skin in the game. We put in conservation practices above these dams. We get the right-of-ways. And it is just not local benefits. Those benefits go downstream. There are areas outside of our county, other counties. And the lakes that are formed provide recreational opportunities, and two major lakes downstream from my county provide the water supplies for the City of Fort Worth and surrounding Tarrant County.

The NRCS district really needs to plan and do some new projects. We have several deficiencies in my county. My story of this program benefiting my county is one of thousands across the nation. I appreciate you letting me share it with you. As you move forward in the 2018 Farm Bill, I encourage you to provide adequate funding for this program. It is much needed.

And thank you very much for your time.

[The prepared statement of Mr. Burns follows:]

PREPARED STATEMENT OF HON. KEVIN BURNS, COMMISSIONER, WISE COUNTY, TEXAS, DECATUR, TX

Mr. Chairman and Members of the Subcommittee:

I'm Kevin Burns from Decatur, Texas. First, thank you all for the opportunity to speak today. I've had the privilege of serving the citizens of Wise County almost 15 years as County Commissioner. I've been a teacher, a volunteer fireman, small business owner, and small rancher prior to running for local office.

I serve the State of Texas on the Board of Directors for the conference of urban counties. Wise County is not considered an urban county having only about 70,000 people in 900[2] miles, but our growth rate and proximity to the Dallas/Ft. Worth Metroplex qualify us to join that group. I'm a past chair of the National Watershed Coalition, which supports Watershed sponsors with training through regional conferences, hands on training, and resource materials.

I still raise cattle and hay crops in rural Wise County near Decatur, TX. I've never thought of myself as a conservationist, but I was taught to maintain land that I owned or leased and to be conscious that the practices we do on the land affects its productivity in the future. That stewardship of our nation's resources is one of the things I wish to talk to you about today.

While the United States Department of Agriculture (USDA) may be better known for providing a financial safety net for farmers and ranchers, USDA also provides an actual safety net for our rural communities. The Watershed and Flood Prevention Program (watershed program) is a vital, but often overlooked, infrastructure program within the Natural Resources Conservation Service (NRCS) portfolio.

The watershed program authorizes NRCS to work with local units of government, like conservation districts and city/county governments, to install watershed protection and improvement projects that provide communities with flood prevention, agriculture water management, municipal water supply management, fish and wildlife habitat enhancement, as well as public recreation development.

These projects create and protect vital infrastructure while conserving natural resources and contributing to local economies. The watershed program focuses on both the design and construction of structural water control measures and on land treatment measures. Watershed planning provides a basis for partnering at state and local levels to identify and co-invest in projects reflecting the highest priority needs.

Flood prevention and reliable water quality created by the watershed program are essential to developing and maintaining strong rural communities. Watershed projects not only protect lives, property and reduce flood damages, but also create economic growth and strengthen local economies. Flood protection is essential to prevent the unnecessary loss of infrastructure and capital to developing economies in rural America.

Investing in the watershed program expands opportunities for natural resource conservation and provides important national economic and environmental dividends for all Americans. There are countless successful examples that verify the value the watershed program brings to rural areas in the form of water supply, recreation, flood protection, and sustainable economic development. Watershed program projects are an economic engine that make participating communities more productive places to live, work and play.

More than 11,800 flood control structures have been constructed in 2,000 watersheds nationwide and they represent nearly ⅓ of all dams ever built by the Federal Government. Every project requires that a portion of the watershed must be covered with installed best management conservation practices. Every year this system of flood control lakes and conservation measures protects over 47 million Americans and saves an estimated $2 billion through flood damage reduction.

In a recent report to Congress,[1] NRCS estimates that this program, by avoiding and reducing flood damages, annually provides more than $352 million in benefits to agriculture and more than $462 million in benefits to non-agricultural uses, such as roads, bridges, and homes. Other benefits, such as erosion control, water conservation, water quality improvement and irrigation efficiency, exceed $441 million on agricultural lands and over $957 million in recreation, fish and wildlife, rural water supply, and municipal and industrial water supply, annually.

The watershed program also plays an important role in protecting resources vital to the agricultural economy as well. Agricultural water management includes measures that help to manage water supply for agriculture and rural communities. Measures include drainage water management, ground water recharge, irrigation management, water conservation, water quality improvement, and rural water supply.

The watershed program is federally-assisted, but locally planned and implemented. Local project sponsors use local resources to maintain constructed project measures which contribute directly to a stronger national economy and a responsible national environmental future.

Wise County has 108 flood control structures built under authority of Public Law 83–566 established by the United States Congress in the mid 1950s. We have 85 dams that normally contain a small pool of water and a larger pool with a slow controlled release during flood conditions. We have 23 grade stabilization structures

[1] *Report to Congress, USDA–NRCS, Watershed Protection and Flood Prevention Program Multi-Year Plan.*

that merely retard or direct water flow. These dams protect our county roadways which is a major portion of my responsibility as County Commissioner. My county has 990 miles of road. I am responsible for the maintenance of 340 miles in Precinct 2. Forty-six of those 108 dams are in my Precinct.

I was lucky enough to be visited by the late former Wise County Judge Charles Wilhite during my first campaign. Judge Wilhite stressed the importance of the P.L. 83–566 program and gave me a short local history lesson that I would like to share with you. There was a regional/multi state drought from 1950 to 1957 that brought considerable hardship to our region. Our local economy was mostly agriculture based. It was tough to make a living, so a large portion of population moved from the area to find jobs in the city. That drought was relieved almost overnight in a flood in 1957.

What little commerce going on in the county was further hindered due to that 24″ rainfall over a weekend in 1957 that washed out 85 bridges in my county alone. Even though the population had dwindled and revenues were low, the commissioner's court, the Wise County Water Control and Improvement District, and the Wise County Soil and Water Conservation District started investing local match funds and participating in the P.L. 83–566 programs, with our first project completed in 1961.

I am fortunate to live in an area in which there continues to be cooperation between those and other entities to maintain our flood control dams. The importance of those dams was exemplified in the flooding in my county in the spring of 2015. We received more than our yearly average of rainfall in the month of May that year. We had a 14″ rainfall in one afternoon in a small area of Precinct 2 and only had nine road washouts that made roads impassable. Please note the difference here; we had nine spots that were impassable opposed to the 85 bridges that were washed out prior to the dams being built. All of those washouts were in watersheds not yet protected by P.L. 83–566 projects. All roads were passable in Precinct 2 in the drainage protected by P.L. 83–566 dams.

I've heard arguments against funding the P.L. 83–566 program that claim that it should be funded with local dollars. Local project sponsors do provide their share of the cost of projects in providing easements, right of ways, the cost of installing conservation practices, cost of working with landowners and more. But the benefits of these projects are not all local. These projects provide benefits many miles downstream often in other counties or even other states. These projects provide not just local benefits, but state and national benefits. Many of the lakes formed by flood control dams provide recreational areas, water supplies and hunting and fishing opportunities that are utilized by people from many miles away.

Another benefit of the watershed program is the enhancement of water quality in urban areas. We recently developed a relationship with the Tarrant Regional Water District to help us maintain our dams and install conservation practices. The water district serves an area downstream from the watershed projects in Wise County that includes the majority of the population in Congressional District 12 and a small portion in District 13. Watershed projects and conservation practices in Wise County help protect both water quantity and quality in two major lakes downstream managed by the water district. These lakes provide water supplies for the City of Fort Worth and other areas of Tarrant County.

My passion for the program was cultivated when first taking office by former Commissioner's Court members and conservation district members that lived through the floods in 1957, but now it is reinforced by the demonstrated benefits during my term in office. There are opportunities to provide benefits to many more citizens in this country through the P.L. 83–566 program.

The recently passed FY 2017 Appropriations bill acknowledges the need for this important infrastructure program and appropriated $150 million for Watershed Operations. We thank Congress for that support. As Members of Congress, you are key partners in extending the benefits of the watershed program. Your support for the program is vital. Thank you.

The CHAIRMAN. Thank you, Commissioner.

Mr. Peterson, you are recognized for 5 minutes.

STATEMENT OF JOHN W. PETERSON, DIRECTOR OF GOVERNMENT RELATIONS, LAND IMPROVEMENT CONTRACTORS OF AMERICA, BURKE, VA

Mr. PETERSON. Mr. Chairman, Members of the Subcommittee, I am representing the Land Improvement Contractors of America

today, and it is our contractors that have installed many of these watershed dams throughout our nation.

In my previous years with the Soil Conservation Service I also have planned projects, designed dams, constructed dams as a project engineer, and directed the watershed programs nationally. While serving as the Executive Director of the National Watershed Coalition, I worked with Chairman Lucas as he championed the Small Watershed Rehabilitation Act.

I am now also Chairman of the Northern Virginia Soil and Water Conservation District, and we have a watershed project in our district that has had four dams rehabilitated.

There are about 2,100 watershed projects in the United States covering 145 million acres of projects in every state; 11,845 dams have been constructed. The total average annual benefits is nearly $2.3 billion.

Conservation practices are a vital part of each of these projects. They also increase the service life of the dams by reducing sediment accumulation. There are watershed dams in 218 Congressional districts. The watershed as the logical unit for dealing with natural resource problems has long been recognized.

In 1993, record flooding occurred across the Midwest, 50 deaths occurred, and damages approached $15 billion. I also managed the emergency watershed programs then and was involved in that disaster recovery.

After the floods passed, Iowa looked at their watershed projects and the flood damage reports in four of their counties, and the result was graphic. The areas that had watershed projects installed requested far less disaster assistance.

A program evaluation also demonstrated that the actual benefits of costs in these projects was about 2.2:1, and the studies showed that more benefits were obtained than had been originally claimed. The actual adjusted economic benefits exceeded those planned by 34 percent. And those numbers are low, because many of these projects have exceeded their evaluation life, and the benefits continue long after.

When properly maintained, these dams will provide benefits indefinitely. In addition, there is more infrastructure protected today than there was when the projects were planned.

Chairman Lucas' Oklahoma has been a leader in these watershed projects. Oklahoma has 129 projects in 64 counties. These projects contain 2,107 dams and provide Oklahomans with $91.5 million in average annual benefits. Ranking Member Fudge's Ohio has 27 watershed projects covering over 1.8 million acres; 77 dams have been built.

Ohio also has many nonstructural watershed projects underway. Twenty-four of Ohio's 77 dams are high hazard, and some need to be rehabilitated to meet current dam safety standards.

I am also very proud of my own watershed Pohick project just across the Potomac River. This was the first project planned in the United States where the watershed was being converted totally from rural to urban use. All the dams are planned as high-hazard structures, and the project also developed new guidelines for erosion and sediment control in urban areas.

The Pohick project is operated and maintained by Fairfax County, and I would invite your Subcommittee Members to come over across the river sometime and visit us. We will give you a tour, and you would be very impressed.

So why should the Federal Government be involved with these watershed programs? Well, they are not federally owned but federally assisted and locally owned. They are locally initiated. They consider environmental values. They address the needs of low-income and minority communities. And best of all, they are programs people actually like.

Local conservation districts, the NRCS, and state conservation agencies combine to make a very effective delivery system for providing technical assistance to people. But that delivery system is currently strained.

A healthy Federal partner is critical to this partnership. A delivery system is in place, but by continually downsizing NRCS, we are eroding the most effective and efficient means of working with people that has ever been developed anywhere.

This system and its ability to produce food and fiber is the envy of the entire world. In my view, these watershed infrastructure programs are national priorities.

Chamber of Commerce CEO Tom Donohue recently wrote, "According to a new Chamber poll, fully 70 percent of Americans want the Federal Government to invest in infrastructure." Our watershed project infrastructure should be a major part of that investment.

Thank you for this opportunity.

[The prepared statement of Mr. Peterson follows:]

PREPARED STATEMENT OF JOHN W. PETERSON, DIRECTOR OF GOVERNMENT RELATIONS, LAND IMPROVEMENT CONTRACTORS OF AMERICA, BURKE, VA

Opening

Mr. Chairman and Members of the Subcommittee:

Mr. Chairman and Members of the Subcommittee, I am John W. Peterson from Burke, VA, and I am honored to be asked to testify on the value and benefits of USDA's Watershed Protection and Flood Prevention Act (P.L. 83–566), the Flood Control Act (P.L. 78–534), and the Watershed Rehabilitation Amendments of 2000 (P.L. 106–472), representing The Land Improvement Contractors of America (LICA). LICA Member contractors have constructed many of our nation's flood control dams, and helped install most of the other conservation practices on our farms and ranches. I present this testimony in support of what I consider the most beneficial water resource conservation infrastructure programs ever developed in the United States. LICA understands full well the need to use our tax dollars wisely. That makes the work of your Subcommittee very important. It also makes it imperative that the Federal programs we have are those that provide real benefit to society, and are not programs that would be nice to have if funds were unlimited. LICA believes these watershed programs are examples of those rare programs that address our nation's vital natural resources infrastructure, do so in a way that provide benefits in excess of costs, and are programs that serve as models for the way all Federal programs should work.

I will admit my bias in support of these beneficial programs. In my 40 years with the old Soil Conservation Service (SCS), called the Natural Resources Conservation Service (NRCS) since 1994, I have planned watershed projects in MN, OH, IN, and AZ; designed watershed dams in MN, OH and IN, constructed watershed dams as a project engineer in MN, and directed the watershed program nationally for USDA in Washington, D.C. After retiring from USDA, and while serving as the Executive Director of the National Watershed Coalition (NWC), I worked with Oklahoma Representatives Lucas and Watkins, and the late Senator Paul Coverdell (GA) and Senator Blanche Lincoln (AR), as Chairman Lucas championed the passage the Small

Watershed Rehabilitation Amendments of 2000, P.L. 106–472. A good friend, Dr. Dan Sebert from Pawnee, OK, replaced me as the NWC Executive Director. He and the NWC are extremely good watershed program references. Coming full-cycle, I am also now the Chairman of the Northern Virginia Soil and Water Conservation District (NVSWCD). Our District is the cosponsor of the Pohick Watershed Project, along with Fairfax County. Four of our Pohick Watershed's six flood-control structures have been rehabilitated in recent years, some with assistance from the Rehabilitation Act. I believe my watershed program experience has given me a perspective that I hope is helpful to you.

General Watershed Program Observations

There are about 2,100 Natural Resource Conservation Service (NRCS) assisted watershed projects in the Unites States, covering 145 million acres, with projects in every state. In 1,271 of these projects, 11,845 flood control (or floodwater retarding) dams have been constructed by local watershed sponsors with NRCS assistance. In most cases, a local Soil and Water Conservation District (SWCD) is one of the local sponsors. In some cases, they are assisted by other cosponsors such as watershed districts or county government. The total average annual monetary benefits these projects produce is $2,257,132,064 (2016 dollars). Nearly $2.3 billion. That is very significant! I have attached a listing of the number of watershed dams located in each state as attachment. In addition, over 282,000 acres of wetlands and over 9 million acres of upland wildlife habitat has been created or enhanced by watershed projects. Conservation practices that improve water quality are a vital part of all watershed projects. Practices such as terraces, waterways, grass buffers, strip cropping, and grade stabilization structures, are used to prevent soil erosion and reduce sediment. They also increase the service life of dams and their ability to provide flood damage reduction. There are watershed project dams in 218 Congressional Districts across the nation.

Note that I called these flood control dams floodwater retarding dams. I am sure you all remember the Great Midwest Flood of 1993. From May through September of 1993 record flooding occurred across ND, SD, NE, KS, MN, IA, MO, WI and IL. 50 deaths occurred and damages approached $15 billion. I also managed USDA Emergency Watershed Program then, and was involved in USDA's disaster assistance to the damaged areas. This flood wasn't caused by a single rainfall event, but was more of a prolonged hydro-meteorological event. The rains came to the area, stalled, and stayed for months. One thing that flood event taught me is that we humans don't really control floods. We are very good at reducing flood damages, but we do not control floods. Since then I have referred to these watershed dams as floodwater retarding dams, not flood control dams.

However, the Great Midwest Flood also proved the many benefits of the watershed programs. After the floods passed, my SCS colleagues in IA, one of the states effected, looked at watershed projects and 1993 flood damage reports in four Iowa Counties, Crawford, Union, Mills, and Decatur. The result was graphic. The areas that had watershed projects installed requested far less disaster assistance.[1] Roger Schnoor, who at that time was the President of the Iowa Watersheds organization (now disbanded) said "*These watershed projects stood out like protected islands in a sea of damage.*"

This is just one of several such evaluations that occur across the country that have demonstrated that watershed projects significantly reduce the need for emergency recovery following major floods.

The USDA assisted watershed programs address multiple natural resource objectives. Objectives that can be addressed are flood damage reduction, watershed protection (erosion and sediment control), water quality improvement, rural water supply, water conservation, fish and wildlife habitat improvement, recreation, irrigation, water management, groundwater recharge, *etc.* That is flexibility emphasizing multiple uses.

People should understand these Federal watershed program funds are only a part of the total that is committed to this vital national, conservation purpose. The local project sponsors in these "federally assisted" endeavors also have a tremendous investment. As a minimum, they provide all the land, easements, and rights-of-way costs for construction of the structures, as well as being responsible for 100% of the operation and maintenance costs for the life of the structure. Congress increasingly talks of wanting to fund those investments in our nation's infrastructure that will sustain us in the future. Water quality and watershed infrastructure management provide that sustainability, and should be a national priority.

---

[1] An Iowa NRCS PDF showing Crawford, Union, Mills and Decatur Counties entitled "Watershed Projects and 1993 Flood Damage Reports in Four Iowa Counties."

My colleagues on this panel have done an excellent job of telling you about the programs themselves. I will concentrate on what these projects have done, their benefits. And those benefits are very substantial.

I will start by mentioning the results of a complete watershed program evaluation. The most current program evaluation I know of,[2] demonstrated the actual ratio of benefits to costs in all those projects completed as planned, was approximately 2.2:1. And the study showed that more benefits were obtained from these projects than had been originally claimed. The actual adjusted economic benefits exceeded the planned benefits by 34%.

The watershed projects produce $2,257,000,000 in average annual benefits (2016 dollars). And those benefits are low because many of these projects have exceeded their "evaluation life" (the economic evaluation that calculates when the anticipated benefits will have repaid the projects costs), and when properly maintained, repaired, and failing components replaced, those dams will continue providing benefits indefinitely. In addition, there is considerably more infrastructure being protected by these projects today than when they were first planned. Properly maintained, our U.S. watershed program dams will serve us far longer than their economic evaluated life. And I would add that 2018 is a milestone year in the watershed program as more than 50% of the projects dams will have exceeded their evaluated life, and their benefits continue.

The evaluation also mentioned that the projects provided a wide range of social benefits, benefits that enhance the quality of people's lives. Many of these benefits are not included in the calculation of monetary effects because of the difficulty in assigning monetary values. Yet these social benefits cannot be ignored simply because quantification is difficult. Some of these societal benefits are reducing;

- the threat of loss of life.
- health hazards such as insect breeding pools, sewage overflows, and chronic wet conditions that are particularly hazardous to the elderly and children.
- significant risk and inconvenience associated with damage to roads and bridges.
- disruption of necessary services such as police and fire protection, and the need for emergency equipment.
- pollution of drinking water.
- pollution of water used for water-based recreation.
- interruptions of utilities.

What if other Federal programs did so well? Recent budget proposals to limit funding for the Watershed Operations and Watershed Rehabilitation Programs which help communities improve water quality, control erosion, reduce flood damages, protect people's lives, and improve local infrastructure, is short sighted. There are also proposals to reduce funding for USDA's Conservation Technical Assistance (CTA) Program, the very lifeblood of voluntary conservation in the United States. These proposals would eliminate programs that produce net benefits to society as a whole. That simply makes no sense. We in the conservation community should talk more about how these programs benefit all of society, not just in rural areas, but everywhere.

One other national benefit worth mentioning is the availability of DamWatch, a new web-based application that provides real-time monitoring of rainfall, snowmelt, stream flow, and seismic events that could pose potential threats to dam safety. It will help watershed project sponsors monitor and manage dams so they can better prevent and protect against hazardous, costly and potentially catastrophic events.

Project Benefits in Select States

Chairman Lucas's Oklahoma has long been a leader in these watershed programs. OK has 129 watershed projects in 64 counties. These projects contain 2107 flood damage reduction dams, and provide Oklahoman's with $91.5 million in average annual monetary benefits. And Chairman Lucas's 3rd Congressional District has 1,040 dams providing his district with $34.5 million in average annual monetary benefits. Oklahoma is probably the best state in having good watershed historical information. Much of that is due to the work of a good friend Larry Caldwell, P.E. (NRCS Retired), who has personally kept that information current. He also keeps national information current.

Ranking Member Fudge's Ohio has also been active. There are 27 watershed projects in Ohio covering over 1.8 million acres. To date 77 floodwater retarding dams have been built. Ohio also has a number of non-structural watershed projects

[2] *Evaluation of the Watershed Protection and Flood Prevention Program,* USDA–SCS.

underway. Twenty-four of Ohio's 77 dams are classified as high hazard, and some do need to be rehabilitated to meet current dam safety standards. The current cost estimate for upgrading all Ohio's watershed dams to meet Ohio Dam Law is $6.3 million.

In my own Commonwealth of Virginia, NRCS has assisted sponsors with construction of 109 single-purpose flood control dams and 41 multiple-purpose structures. Dams have been installed in 35 watersheds within 27 counties across Virginia at an original cost of over $151 million. Over time, the recreational benefits have exceeded the levels expected during the planning process for many of the sites that were built. Of the 41 multiple-purpose structures, 25 were built with recreation as a purpose. Of those, 11 have public access recreational facilities. Ten of the 15 structures built with water supply as the only secondary purpose also have public recreation. The big surprise was that 16 of the single-purpose flood control dams also have public recreation facilities. Together, 25% of the dams have public access recreation. Fishing, boating, camping, hiking, and bird watching are just a few of the recreational benefits. From the social perspective, the dams have become part of the fabric of the community. In several places, there are lake-based events that bring tourism into the county. All of these activities bring value to the community that is measured not only in the associated economics, but in giving an appreciation of nature, improving physical and mental health, and contributing to the quality of life. NRCS can be proud of the way that the people have made these reservoirs a part of their daily lives. In addition to flood damage reduction, 15 of these structures provide community water supply and 37 are used for public recreation. Between 2005 and 2016, NRCS also helped communities rehabilitate ten of those dams at a total project cost of over $22.3 million.

A Very Unique Project, Pohick Watershed, Fairfax County, VA

I am very proud of a watershed project just across the Potomac River in Fairfax, County, VA, in the shadow of our nation's Capital. It is the Pohick Creek Watershed Protection and Flood Prevention Project[3] whose sponsors are my own Northern Virginia Soil and Water Conservation District which I serve as Chairman, and Fairfax County, represented by the Department of Public Works and Environmental Services (DPWES), and County Park Authority (PA). The original Work Plan calculated the b/c ratio to be 1.4:1. The watershed area is 22,690 acres, and the watershed population in 1965 was only 4,767 people. In 2000 the population had grown to 117,000, and it is about 150,000 today, in a County of nearly 1.2 million, about 14% of the state's population and the most populous County in the Commonwealth. This project planning began in 1965 when erosion from construction activity had virtually destroyed several residential lakes. In addition, a multimillion-dollar sewer referendum opened up the Pohick Watershed for residential and commercial development. These circumstances caused public concern that rapid conversion of land from rural to urban uses was creating irreversible damage to streams and the pleasant hillsides. Planning this watershed project resulted in many national firsts. This was the first watershed project planned in a watershed being converted totally from rural to urban land use. All the dams were planned as high-hazard structures providing protection from the 100 year frequency storms downstream. And the project brought forth new guidelines for erosion and sediment control (land treatment) in urban situations. An erosion and sediment control ordinance was passed by the county in 1967. That ordinance later became the model for the erosion and sediment control law passed by the Commonwealth of VA in 1967. In addition to dealing with urban erosion and sediment control, the project contains six floodwater retarding dams. The County says the major benefits of the project are that it:

- Protects stream valleys from flooding.
- Promotes orderly residential and commercial development.
- Expands water based recreation opportunities for residents.
- Protects wildlife habitat in flood plain areas.
- Influenced the establishment of effective erosion and sediment control ordinances.
- Serves as a laboratory for new ideas on urban soil & water conservation measures.
- Reduces siltation in rivers and lakes.
- Challenges developers and landowners to protect the natural environment.
- Preserves open space in stream valleys.

[3] Pohick Creek Watershed Work Plan, Fairfax County, VA. January 1967.

- Eliminates unsightly and expensive concrete rip-rapped channels.
- Provides aesthetic backdrop for adjacent residential and commercial development.
- Provides improved storm water quality to the Potomac River and & the Chesapeake Bay.

The Pohick Watershed Project is operated and maintained by the County DPWES and PA, and they are one of the best project sponsors in the entire United States. Our dams are impeccably maintained, and constantly used for recreation by residents. I would invite any of you Subcommittee Members to travel to Fairfax County for about 4 hours some day, and I will arrange for County Officials to join me in giving you a first-hand tour. You would be impressed.

I will share a comment from the Chairman of our Fairfax County Board of Supervisors, Sharon Bulova, on how she feels about the Pohick Watershed and the relationship the County has with NRCS.

> *The county would not have been able to upgrade the emergency spillways on four of our P.L. 83–566 high hazard dams to comply with current dam safety standards in a timely fashion without the great partnership and funding through the NRCS. The county's P.L. 83–566 high hazard dams can now safely convey the storm water flows from a probable maximum precipitation event which correlates to roughly 27″ of rain in a 6 hour period as a result of these recent upgrades. The lakes are considered a valued asset by our community, providing flood protection for many downstream residential and commercial properties, roadways and a railroad while also serving as a recreational amenity. These lakes also have been designed and serve to improve downstream water quality in the Pohick Creek watershed, the Potomac River and Chesapeake Bay by capturing sediment and other pollutants. NRCS has made a positive impact on the health, safety and welfare of Fairfax County.*
>
> Chairman SHARON BULOVA, Fairfax County, VA.

Why Watershed Programs?

The watershed as the logical unit for dealing with natural resource problems has long been recognized. P.L. 83–566 offers a complete watershed management approach, and should have a prominent place in our current Federal policy emphasizing watersheds and total resource management based planning. Proper watershed management improves water quality. Why should the Federal Government be involved with these watershed infrastructure programs?

- They are infrastructure programs whose objectives are the sustaining of our nation's precious natural resources for generations to come.
- They are not federally owned, but federally assisted, locally sponsored and owned, operated and maintained. They do not represent the continued growth of the Federal Government.
- They are locally initiated and driven. Decisions are made by people affected, and respect private property rights.
- They share costs between the Federal Government and local people. Local sponsors pay between 30–40% of the total costs of P.L. 83–566 projects.
- They produce net benefits to society.
- They consider and enhance environmental values. Projects are subject to the discipline of being planned following the National Environmental Policy Act (NEPA), and the Federal "Principles and Guidelines" for land and water projects. That *is* public scrutiny!
- They are flexible infrastructure programs that can adapt to changing needs and priorities.
- They are programs that encourage all citizens to participate.
- They can address the needs of low-income and minority communities.
- They are targeted to address the most serious resource problems.
- And best of all—they are programs the people like!

Every state in the United States has benefited from the Small Watershed Program.

Some Suggestions

There are some suggestions I would like to make concerning this very important watershed legislation. I believe the objectives of this legislation should be expanded to include more non-structural water quality practices, and allow the law to provide

cost-sharing in developing rural water supplies (without water there is no rural development).

With the "downsizing" the NRCS has experienced, I would be remiss if I did not express concern as to their ability to provide adequate technical support to these watershed programs. NRCS technical staff has been significantly reduced, and budget constraints have not allowed that expertise to be replaced. Traditional fields of engineering and economics are but two examples where expertise has been lost. I see many states where NRCS capability to support their responsibilities is seriously diminished. This is a disturbing trend that should be halted. This downsizing has a very serious effect on state and local conservation programs. Local Watershed and Conservation Districts and the NRCS combine to make a very effective delivery system for providing the technical assistance to local people—farmers, ranchers and rural communities—in applying needed conservation practices and watershed programs. But that delivery system is currently strained! A healthy Federal partner is critical to this partnership success. Many states and local units of government also have complementary programs that provide financial assistance to land owners and operators for installing measures that reduce erosion, improve water quality, and maintain environmental quality. The NRCS provides conservation districts, through agreement with the USDA Secretary of Agriculture, "on the land" technical assistance for applying these measures. The delivery system currently is in place, and by downsizing NRCS, we are eroding the most effective and efficient coordinated means of working with local people to solve environmental problems that has ever been developed. Our system and its ability to produce food and fiber is the envy of the entire world. In my view, these watershed infrastructure programs are most important in terms of our national priorities.

U.S. Chamber of Commerce President and CEO Tom Donohue recently wrote, "After years of talking about failing infrastructure, we finally have the bipartisan buy-in, political will, and public support to do something about it. The President has pledged to act on this priority—and the public supports it. According to a new U.S. Chamber poll, fully 70 percent of Americans want the Federal Government to invest in infrastructure. By similar margins, the poll showed that Americans understand that infrastructure investment will grow the economy, help businesses, and create jobs." Our watershed project infrastructure should be a major part of this infrastructure investment.

The Land Improvement Contractors of America (LICA) dates to 1951, and represents those earthmoving contractors that have installed many of the watershed dams and most of the conservation practices on our nation's landscape over time. They work closely with Soil & Water Conservation Districts and their motto is "Dedicated to the Professional Conservation of Soil & Water." The focus of LICA is to encourage high standards of workmanship in resource management land improvement practices, and to promote private enterprise in land improvement contracting. Training and safety are key LICA activities. They have also worked very closely with NRCS over the years.

Let me close by sharing the *LICA Creed*.

The LICA Creed

Land, the Foundation of the Nation,
the basis of all wealth,
the heritage of the wise, the thrifty and prudent,
the poor man's joy and comfort,
the silent partner of man,
the producer of food, fiber, and fuel.
The basis of factories,
the foundation of banks,
all that man builds is from the land.
We often take it for granted, or even abuse it,
and yet many unthinking and unknowingly pass the land by.
What man finally does with the land will be the deciding factor of his survival.

LICA and I pledge our full support to you as you continue your most important work. I have nearly sixty years' experience in natural resource watershed infrastructure conservation, and would be pleased to serve as a resource as needed, as would our contractor members.

Thank you for allowing me this opportunity.
Respectfully submitted by:

JOHN W. PETERSON,
Director of Government Relations,
Land Improvement Contractors of America (LICA).

ATTACHMENT

Accumulation By State Or Territory	Program Funding Code Or Project Authorization					Total
	P.L. 83–566	P.L. 83–534	Pilot	RC&D	Other	
Alabama	100	0	0	7	0	107
Arizona	21	0	2	2	0	25
Arkansas	181	0	24	3	0	208
California	15	0	1	0	0	16
Colorado	87	0	55	3	0	145
Connecticut	29	0	0	1	0	30
Florida	10	0	0	0	0	10
Georgia	218	117	12	10	0	357
Hawaii	8	0	0	1	0	9
Idaho	3	0	0	0	0	3
Illinois	55	0	11	0	0	66
Indiana	132	0	0	2	0	134
Iowa	1,066	485	29	35	0	1,615
Kansas	800	0	14	17	0	831
Kentucky	182	0	17	1	0	200
Louisiana	35	0	0	0	0	35
Maine	16	0	0	0	0	16
Maryland	16	0	0	0	0	16
Massachusetts	29	0	0	1	0	30
Michigan	13	0	0	0	0	13
Minnesota	37	0	8	6	0	51
Mississippi	188	367	0	5	0	560
Missouri	1,148	0	30	25	0	1,203
Montana	16	0	0	3	0	19
Nebraska	619	0	106	13	0	738
Nevada	8	0	0	0	0	8
New Hampshire	24	0	0	0	0	24
New Jersey	19	0	0	1	0	20
New Mexico	75	0	2	2	0	79
New York	52	0	2	5	0	59
North Carolina	101	0	11	2	0	114
North Dakota	39	0	10	1	0	50
Ohio	48	0	16	0	0	64
Oklahoma	987	1,107	6	7	0	2,107
Oregon	6	0	0	0	0	6
Pennsylvania	82	0	0	9	0	91
South Carolina	97	0	7	1	0	105
South Dakota	33	0	2	21	3	59
Tennessee	133	0	9	1	0	143
Texas	697	1,242	60	4	0	2,003
Utah	40	0	3	2	0	45
Vermont	4	0	0	0	0	4
Virginia	118	29	3	0	0	150
Washington	3	0	0	0	0	3
West Virginia	77	81	7	4	1	170
Wisconsin	85	0	2	1	0	88
Wyoming	12	0	0	1	1	14
Puerto Rico	2	0	0	0	0	2
Totals	**7,766**	**3,428**	**449**	**197**	**5**	**11,845**

The CHAIRMAN. Thank you, Mr. Peterson.
Mr. Finney, you are recognized for 5 minutes.

STATEMENT OF JOHN FINNEY, PRESIDENT, RED RIVER MANAGEMENT BOARD; CO-CHAIR, RED RIVER RETENTION AUTHORITY, HUMBOLDT, MN

Mr. FINNEY. Good morning, Mr. Chairman, Ranking Member, and Members of the Committee. My name is John Finney, and I serve as the President of the Red River Watershed Management Board of Minnesota and the co-Chairman of the Red River Retention Authority. I farm with my brother Dan near the Canadian bor-

der along the Red River up north where we experience frequent flooding and extended inundation of floodwater on our land.

The Red River Retention Authority represents 22 Red River watersheds and water resource districts in North Dakota and Minnesota. The Retention Authority is a joint powers agreement between the Minnesota Red Board and the North Dakota Red River Joint Water Resources districts.

The mission of the Retention Authority is to implement the long-term flood solutions plan set forth by the Red River Basin Commission, and you have an attachment that would have that report in it.

Since the devastating flood of 1997, the Red River Board and the North Dakota Joint Board, the Retention Authority, along with several partners, have implemented projects that would provide over 185,000 acre-feet of flood storage upstream. While this is significant, it is only about ⅕ of the basin goal.

These projects reduce flooding, improve water quality, and enhance wildlife habitat and recreation. An acceleration of these efforts has occurred with the initiation of 20 RCPP, Regional Conservation Partnership Program, watershed planning efforts throughout the Red River Basin.

During the development of the 2014 Farm Bill, the Retention Authority worked with our Federal Congressional delegations in Minnesota and North Dakota to modify existing policies and add a cost-share funding component to implement retention projects. A few key enhancements were suggested to modify the USDA P.L. 83–566 Program. These proposed modifications include eliminating the requirement under economic and environmental principles and guidelines for water resources and implementation studies from cost ratio calculations based on each individual project and instead allow flood control projects to be based an overall basin plan.

Since our original suggestions to modify the P.L. 83–566 Program were not fully addressed, local watershed districts have encountered challenges with identifying and calculating the true and total benefits from implementing flood retention and flood damage reduction and environmental enhancements projects. Traditional benefit-cost analysis used by USDA for water resource projects makes the likelihood of future Federal funding to assist with retention project construction difficult.

The priority of the Red River Board and the Retention Authority and its member districts is to demonstrate that the continued planning and implementation of these types of projects will enhance the infrastructure of rural America, improve water quality, and establish critical wildlife habitat for all basin residents.

I propose that the Federal cost-share for the planning and implementation of flood retention and flood damage reduction projects should be based on their economic, ecological, and social benefits provided to the entire Red River Basin, comparable to the justification of various USDA conservation programs. This approach would be a significant improvement to the formula for Federal funding assistance that encourages the public-private partnership for the Red River Basin watersheds.

For rural America to compete with this program, there needs to be a modification of existing programs or new programs created

that allow partnerships to thrive and encourage project implementation. These changes would assist in strengthening and achieving the partnership goals identified in the RCPP program.

The 2014 RCPP program was an excellent start to assist organizations like our Red River Board and the Retention Authority to reach their goals. The foundation has been laid to plan and build distributed retention projects to alleviate local watershed and basin flooding problems while incorporating environmental enhancements to improve water quality, wildlife habitat, water supply, and recreation.

Collectively we must continue to assist one another in achieving a safe and economical, productive Red River of the North basin. Please consider implementing these proposed changes to provide for USDA funds to be utilized for watershed and water resource projects using a variable cost-share rate based on true and identified needs not only of the RCPP watersheds, but the entire Red River basin.

Thank you for the opportunity to provide testimony to you today. We sincerely appreciate your continued efforts in drafting the new farm bill.

[The prepared statement of Mr. Finney follows:]

PREPARED STATEMENT OF JOHN FINNEY, PRESIDENT, RED RIVER MANAGEMENT BOARD; CO-CHAIR, RED RIVER RETENTION AUTHORITY, HUMBOLDT, MN

John Finney, President, Red River Watershed Management Board (RRWMB), Minnesota and Co-Chair, Red River Retention Authority (RRRA), farmer and resident of the Red River Basin.

Good morning Mr. Chairman and Members of the House Agriculture Committee.

My name is John Finney and I serve as the President of the RRWMB of Minnesota and as Co-Chair for the RRRA. I also farm with my brother, Dan Finney, near the Canadian border along the Red River of the North where we experience frequent flooding and extended inundation of floodwater on our farm.

The RRRA represents 22 Red River of the North Basin watersheds and water resource districts in North Dakota and Minnesota. The RRRA is a partnership between the Minnesota RRWMB and the North Dakota RRJWRD. The genesis of the RRRA is to implement the Long Term Flood Solutions plan set forth by the Red River Basin Commission (see *Attachment A*). The RRRA's basin wide goal is a 20% reduction in peak flows on the Red River of the North main stem and to reduce local watershed flooding by distributed watershed storage of floodwaters in upstream floodwater retention projects.

Since the devastating flood of 1997, the RRWMB, RRJWRD and RRRA along with many Federal, state and local partners have implemented projects which have provided over 185,000 acre-feet of flood storage. While this is significant, it's only about ⅕ of the basin goal.

These projects reduce flooding to residents and properties, improve water quality, and enhance wildlife habitat and recreation. An acceleration of these efforts has occurred with the initiation of 20 Regional Conservation Partnership Program (RCPP) watershed planning efforts throughout the Red River of the North Basin. The RRRA secured USDA RCPP funding in May of 2015. As a result, 20 small watershed plans in thirteen major watersheds in the Red River Basin are currently being developed throughout the basin (see *Attachment B*).

In the development of the 2014 Farm Bill, the RRRA worked diligently with our Federal Congressional delegations in MN and ND to modify existing policies and add a cost-share funding component to the proposed farm bill to implement retention projects. A few key enhancements were suggested to modify the USDA Natural Resources Conservation Service (NRCS) Small Watershed Protection program, or P.L. 83–566 program. The "P.L. 83–566 watershed" program could be much more successful in the Red River basin if the suggested program modifications were made to address basin-wide resource issues in addition to the current local watershed resource issues.

These proposed program modifications include; eliminate the requirement under economic and environmental principles and guidelines for water resources implementation studies for individual benefit to cost ratio calculations on each individual project and instead allow flood control projects to be based upon an overall basin plan (see *Attachment C;* pages 10 and 11: RRRA Consolidated Subcommittee reports dated March 28, 2011 for other specific recommendations).

Since our original suggestions to modify the P.L. 83–566 program were not fully addressed, local watershed districts working with their consultants in planning the 20 RCPP watersheds have encountered challenges with identifying and calculating the true and total benefits from implementing flood retention and flood damage reduction and environmental enhancement projects. Traditional benefit-cost analysis used by USDA for water resource projects makes the likelihood of future Federal funding to assist with retention project construction difficult.

A priority of the RRWMB, RRRA and its affiliated member watershed and water resource districts is to demonstrate that the continued planning and implementation of projects will enhance the infrastructure of rural America, improve water quality in lakes and streams, and establish critical wildlife habitats for all Red River basin residents. Determining the value of input costs of fertilizer or the revenue generated from hunting can be calculated, but valuing societal benefits of having adequate water quality and wildlife habitat is much more subjective and controversial.

I propose that Federal cost-share for the planning and implementation of flood retention and flood damage reduction projects should be based on their economic, ecological and social benefits provided to the entire Red River of the North basin from a programmatic perspective comparable to the justification of various USDA Conservation Programs. This approach would be a significant improvement to the formula for providing Federal assistance that encourages a "Public-Private-Partnership" for the Red River of the North basin as well as small watersheds. For rural America to compete with this program, there needs to be modification of existing programs or new programs created that allow partnerships to thrive and encourage project implementation. These changes would assist in strengthening and achieving the partnership goals identified in the RCPP program.

The 2014 RCPP was an excellent start to assist organizations like the RRWMB and the RRRA, which I represent, to reach their goals. The foundation has been laid to plan and build distributed retention projects to alleviate local watershed and basin flooding problems while incorporating environmental enhancements to improve water quality, wildlife habitat, water supply and recreation. Collectively, we must to continue to assist one another in achieving a safe and economically productive Red River of the North basin.

Please consider implementing these proposed changes to provide for USDA funds to be utilized for watershed and water resource projects using a variable cost-share rate based on true and identified needs not only of RCPP watersheds but the entire Red River of the North basin.

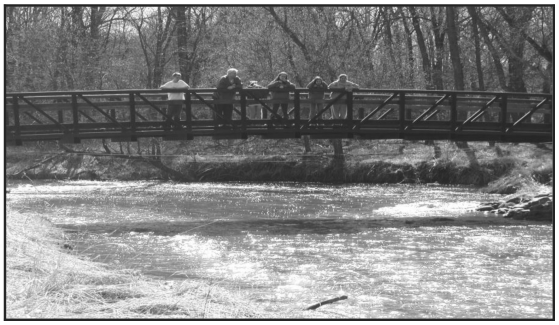
Thank you for the opportunity to provide testimony to you today. We sincerely appreciate your continued efforts in drafting the new farm bill.

[ATTACHMENT A]

Red River Basin Commission's Long-Term Flood Solutions for the Red River Basin

Report Includes:

- LTFS Executive Summary.
- Conclusions and Recommendations for Action.
- Funding Timeline for Project Implementation Costs: Along the Red River of the North and Tributaries.



September 2011

Red River Basin Commission

Moorhead Office,
119 5th St. S., Ste. 209,
P.O. Box 66,
Moorhead, MN 56561–0066
218–291–0422
218–291–0438 Fax
1–866–629–4498 Toll Free
staff@redriverbasincommission.org

Winnipeg Office,
410–112 Market Ave.,
Winnipeg, MB
R3B 0P4
204–982–7250
204–982–7255 Fax

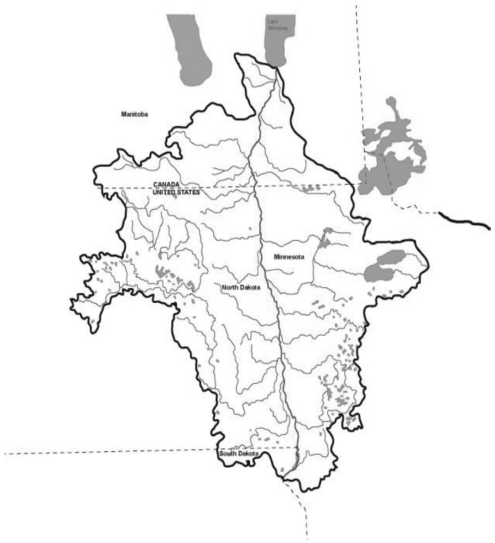
www.redriverbasincommission.org

Vision

A Red River Basin where residents, organizations, and governments work together to achieve basin-wide commitment to comprehensive integrated water stewardship and management.

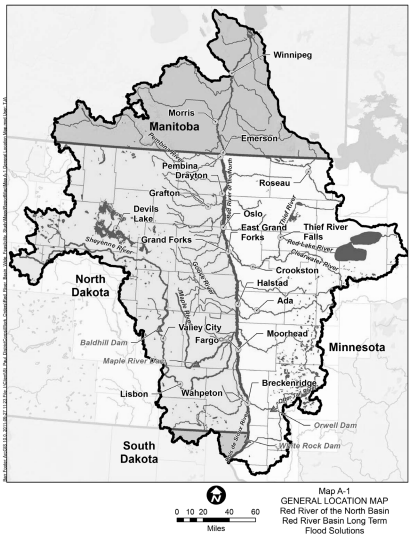
Mission

To create a comprehensive integrated basin-wide vision, to build consensus and commitment to the vision, and to speak with a unified voice for the Red River Basin.



Red River Basin Commission's Long-Term Flood Solutions for the Red River Basin

The Red River Basin is an international, multi-jurisdictional watershed of 45,000[2] miles, with 80 percent of the basin lying in the United State[s] and 20 percent in Manitoba, Canada. Eighteen Minnesota counties and 22 North Dakota counties lie wholly or partially in the basin. The economic impact of the basin, from both urban-generated activity and a vibrant agricultural economy, is significant. This basin is home to more than half a million people, and serves as a jobs, education and medical hub, in addition to a world-renowned agricultural producer.



Need for Action

The increase in frequency and magnitude of flooding in the Red River basin is unmistakable. The spring flood of 1997 that decimated the metro center of Grand Forks-East Grand Forks and gravely threatened areas throughout the basin introduced a decade of flooding. Since 2000, the basin has experienced damaging flooding

in all but 2 years. Since 1997, most sites along the main stem have seen levels of flooding at or close to 100 year levels, some in more than one flood event. And tributary areas have experienced up to 500 year flood levels during the past decade. We know today that larger floods are both possible and probable.

The Impetus

Before the major flood waters of 2009 had even receded, state legislators in North Dakota and Minnesota asked the Red River Basin Commission (RRBC), as an international basin-wide organization, to spearhead the effort to develop a comprehensive, proactive plan that responds to and mitigates flooding throughout the watershed. Corresponding with the legislative charge were appropriations of half a million dollars from each state to execute the project. The RRBC was uniquely positioned for this endeavor given its ongoing organized effort to further commitment to shared land and water stewardship goals in the basin, including the goal of flood damage reduction.

The Process

The LTFS study process brought together professional and citizen water managers from all levels and from all the reaches of the basin. In addition to hands on involvement from the RRBC Board of Directors, umbrella committees were assembled (Policy, Technical) and specific issue workgroups to dissect the issues and identify solutions. In addition, a number of outside experts and agencies were contracted to develop information and analysis for central questions addressed in the study.

Most importantly, the study was a grass-roots effort. It was launched with an extensive public engagement process of 21 public flood forums held in the Minnesota, North Dakota and South Dakota portions of the basin, with more than 1,000 attendees in total.

Citizens' experiences, problems and concerns with flooding in the basin were solicited, together with suggestions for solutions. It was this public input that helped shape the study's committees and issues to explore. A second series of public meetings was held in spring of 2011 in order to gather feedback from citizens on the primary directions and conclusions of the study. That feedback helped to guide final conclusions and recommendations. The results of the overall study findings are presented in this report to assist the basin's residents, community leaders, water managers and policy makers.

Assumptions for Future Conditions
Pertinent to the LTFS plan development
adopted by RRBC Board 2010

Components of the LTFS plan are intended to be developed and implemented over the next 50 years. It is important to understand the assumptions under which this plan was developed. The following describe basic assumptions about several issue areas in the Red River basin that are key to plan development.

Agriculture will continue to be the dominant land use through out the basin. Adequate surface drainage has been and will continue to be integral to maintaining productivity of cropland. Subsurface drainage is likely to become increasingly popular.

Current development trends will continue into the foreseeable future. The major urban centers and communities will continue in their present locations. Major metro areas will continue to grow. Future development will occur in compliance with floodplain management regulations.

Floods will continue into the future. Floods larger than historically experienced can be expected to occur.

Flood damage reduction will need to be implemented in the basin based primarily on the identified needs of the basin residents and their willingness to provide or seek the funding necessary to implement the measures which they believe are appropriate, effective, and justified. State and Federal agencies will support the implementation of the various measures based on their policies, regulations and availability of funding. Flood damage reduction is just one issue that affects the sustainability of the region.

Other key resource issues need to be considered as this plan is developed and implemented, including droughts, water supply, water quality, recreation and other natural resource areas.

Guidelines for Protection in the Basin

Before the LTFS study, the only site protection guideline for levels of protection was the Federal (FEMA) requirement that mortgaged structures in 100 year floodplains (or lower) carry flood insurance. The problem with these guidelines for the Red River basin is that 100 year flood levels have been experienced on most reaches of the main stem and far surpassed in some tributary areas. RRBC developed baseline goals for levels of flood protection during the project.

Level of Flood Protection Goals

The LTFS review of current local protection policies and practices revealed that the basin lacks adequate guidelines on levels of protection appropriate for various basin locations. The following goals for levels of protection were developed as part of the study and approved by the RRBC to serve as a guideline for the residents of the Red River basin, its communities, and state/provincial and Federal agencies, as they plan and implement future local protection projects (see *Appendix D, Table D–3*). The intended outcome of the goals is to provide a long-term objective for communities and sites that will cumulatively reduce the risk of flooding and flood damages from potential floods of larger size than the basin has experienced in the recent past. The goals can help move the basin beyond a mode reactive to the last large flood to a proactive mode of using risk and damage assessments to put adequate protection into place to reduce flood risk across the basin.

Level of Flood Protection Goals for the Red River Basin

Area Protected	Estimated Recurrence Interval
Major urban/metropolitan areas [1–2, 4]	500 year or greater
Critical infrastructure [1–2]	500 year or greater
Cities/municipalities [1–2]	200 year or greater
Rural residences & farmsteads [1–2]	100 year or greater
Agricultural cropland: Summer flood	10 year or greater
Transportation [2–3] Critical transportation system and emergency service links	200 year or greater

Notes:

[1] Protection for urban areas, critical infrastructure, cities, rural residences, and farmsteads should all have appropriate freeboard (*i.e.,* contingency or risk and uncertainty allowance) with any projects designed to provide the specified level of protection.

[2] If a flood of record has occurred which exceeds the specified level of protection goal, the flood of record should be used in place of the specified level of protection goal.

[3] The critical transportation systems should be maintained passable during a flood of the described level of protection to assure safe and reliable transportation and provision of emergency services. The transportation system should not increase flooding problems either upstream or downstream.

[4] Includes Fargo-Moorhead, Grand Forks-East Grand Forks, and Winnipeg.

The Red River Basin Commission (RRBC) is a group of people working together to achieve common goals for water protection and management within the Red River Basin.

119 S. 5th St. PO Box 66 Moorhead, MN 56561 218–291–0422
410–112 Market Ave. Winnipeg, MB R3B 094 204–982–7250
staff@redriverbasincommission.org
See the full report on our website:
www.redriverbasincommission.org

Current Levels of Protection *Versus* Needs in the Basin

Although the strategy of local protection dates back many decades in the basin, the extent of existing site protection is still modest. The following table summarizes the levels of local site protection currently in place at basin communities and then compares that with RRBC's levels of protection goals to identify the gaps and the needs. The table reveals that flood protection for events exceeding the 100 year level is an exception and that almost a third of the communities, on the average, have no permanent protection. Of those communities having permanent protection, fewer than half are protected to a 100 year level or higher.

Comparison of Existing Flood Protection with Recommended Guidelines for Level of Protection

City/Location	RRBC Recommended Guideline for Level of Flood Protection	Existing Level of Protection Existing Protection meets					RRBC Recommended Guideline for Level of Flood Protection?
		500 year	200 year	100 year	Less than 100 year	No Permanent Protection	
Red River Main Stem							
Wahpeton, ND	200 year			X			No
Breckenridge, MN	200 year			X			No
Fargo, ND	500 year				X		No
Moorhead, MN	500 year				X		No
Perley, MN	200 year				X		No
Hendrum, MN	200 year				X		No
Halstad, MN	**200 year**		**X**				***Yes***
Nielsville, MN	200 year					X	No
Grand Forks, ND	500 year		X				No
East Grand Forks, MN	500 year		X				No
Oslo, MN	**200 year**	**X**					***Yes***
Drayton, ND	200 year				X		No
Pembina, ND	200 year			X			No
St. Vincent, MN	200 year				X		No
Noyes, MN	200 year			X			No
Emerson, MB	200 year			X			No
Morris, MB	200 year			X			No
Winnipeg, MB	**500 year**	**X**					***Yes***
Minnesota Tributaries							
Georgetown	200 year				X		No
Ada	200 year				X		No
Shelly	200 year				X		No
Climax	200 year					X	No
Crookston	200 year				X		No
Warren	200 year			X			No
Alvarado	200 year			X			No
Argyle	200 year			X			No
Hallock	200 year				X		No
Roseau	200 year				X		No
North Dakota Tributaries							
Abercrombie	200 year				X		No
Valley City	200 year				X		No
Lisbon	200 year				X		No
Horace	200 year			X			No
West Fargo	**500 year**	**X**					***Yes***
Enderlin	200 year			X			No
Casselton	200 year			X			No
Mapleton	200 year			X			No
Harwood	200 year				X		No
Argusville	200 year			X			No
Devils Lake	200 year			X			No
Minnewaukan	200 year					X	No
Grafton	200 year				X		No
Neche	200 year				X		No

Flood Routing Models

Using MIKE 11, a flow routing model, the LTFS study was able to use the modeling information from sub-basins to predict the effect that reduced flows due to additional floodwater storage sites from the tributaries would have on various points on the main stem Red River.

20% Reduction Model

(Based on WMC MIKE 11 Model and tributary hydrologic models)
(cla 1/16/2011)

Tributar[y] Areas	Planned by WSDs				Original Allocation			
	Peak Flow Reduction (cfs)	Peak Flow Reduction (%)	Volume Reduction (%)	Volume Reduction (acft)	Peak Flow Reduction (%)	Volume Reduction (%)	Volume Reduction (ac ft)	Reduction Focus
Summary of Tributary Flow Reductions 1997 Spring Flood								
BdS R @ White Rock	1,048	13%	16%	51,219	20%	20%	61,760	Store early water
Rabbit R @ TH 75 ung	1,425	31%	39%	47,639	35%	26%	24,377	Peak flow reduction
BdS ungaged	0	0%	0%	0	13%	9%	12,119	No reduction
Ottertail R @ Orwell	0	0	0	0	0%	0%	0	No reduction
Ottertail ung	500	13%	12%	7,217	13%	12%	7,217	Peak flow reduction
Wildrice ND @ Abercrombie	3,150	32%	6%	23,702	35%	17%	57,908	Peak flow reduction
Fargo ungaged	3,000	13%	13%	30,433	13%	13%	30,433	Store late water
Sheyenne R @ Harwood	2,401	23%	11%	68,395	23%	11%	68,395	Peak flow reduction
Rush R @ Amenia	508	35%	13%	4,324	35%	13%	4,324	Peak flow reduction
Buffalo R @ Dilworth	2,549	30%	17%	36,091	35%	17%	38,158	Peak flow reduction
Wild Rice MN @ Hendrum	2,315	23%	20%	76,545	35%	20%	74,385	Peak flow reduction
Halstad ung	7,500	13%	13%	81,002	13%	13%	81,002	Store late water
Goose R @ Hillsboro	2,820	35%	16%	35,356	35%	16%	35,356	Peak flow reduction
Marsh R nr Shelly	135	3%	8%	6,819	51%	18%	15,247	Peak flow reduction
Sand Hill R @ Climax	43	1%	18%	19,184	35%	21%	22,161	Peak flow reduction
Red Lake R @ Crookston	5,200	18%	8%	74,830	35%	13%	119,097	Peak flow reduction
RLR ung	1,600	12%	10%	11,427	12%	10%	11,427	Store late water
GF ungaged	4,400	12%	10%	32,015	12%	10%	32,015	Store late water
Turtle Rnr Arvilla	90	10%	13%	4,615	10%	13%	4,615	Store late water
Forest R @ Minto	300	14%	7%	5,875	14%	7%	5,875	Store late water
Snake Rung	1,334	24%	16%	20,210	16%	15%	17,128	Store late water
Middle R @ Argyle	751	20%	13%	8,371	35%	23%	15,067	Store late water
Park R @ Grafton	2,422	47%	31%	40,739	35%	20%	26,462	Peak flow reduction
Tamarac R ung	1,150	24%	13%	11,533	13%	12%	7,179	Store late water
Drayton ung	1,370	8%	10%	22,208	8%	10%	22,208	Store late water
S Br Two R @ Lake Bronson	503	12%	26%	21,735	27%	14%	15,208	Store late water
Tongue R @ Akra	50	7%	4%	1,580	7%	4%	1,580	Store late water
Pembina R @ Neche	1,900	13%	9%	51,113	13%	9%	51,113	Peak flow reduction
Emerson ung	3,000	7%	7%	23,364	7%	7%	23,364	Store late water
Average/Total		17%	13%	817,540	22%	13%	885,177	

Mainstem Locations	Upstream Contributing Drainage Area	Peak Flow Reduction (cfs)	Peak Flow Reduction (%)	Upstream Tributary Volume (ac ft)	Upstream Tributary Volume Reduction (ac ft)	Upstream Tributary Volume Reduction (%)		
Summary of Mainstem Flow Reductions 1997 Spring Flood								
Wahpeton	4,010	2,723	21%	801,206	106,075	13%		
Fargo	6,210	5,459	19%	1,425,717	160,209	11%		
Halstad	15,430	14,236	20%	3,307,686	426,566	13%		
Grand Forks	21,690	14,985	14%	5,149,686	606,198	12%		
Drayton		20,679	16%	5,912,194	719,749	12%		
Emerson		25,861	20%	6,915,848	817,540	12%		

Less than allocation or goal.
Meets allocation or goal.
Exceeds allocation or goal.
Hydrologic models not completed.

Potential Retention Projects

From the Mike 11 modeling, individual watershed district can identify potential sites to achieve their allocation towards the 20 percent reduction on the main stem Red River. Here, Minnesota's Bois de Sioux Watershed District in the very southeast portion of the basin put forth possible projects to be considered that would more than meet a 20 percent reduction.

Impoundment Sites included in Flow Reduction Strategy Bois de Sioux Watershed District

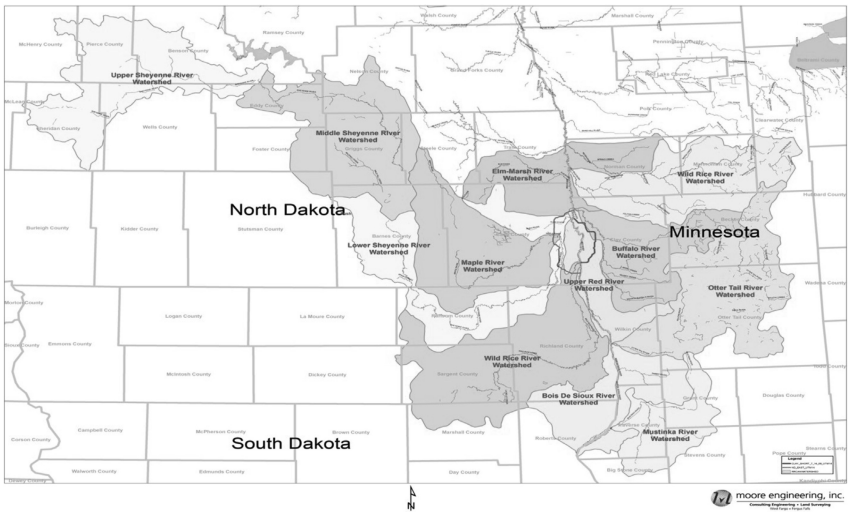
4/19/2009

	Gated Storage (ac ft)	Ungated Storage (ac ft)	Total Storage (ac ft)	RRBC 20% plan Reduction (ac ft)
White Rock watershed				
Red Path	13,100	3,100	16,200	
Red Path West	5,501	545	6,046	
Eldorodo 7	1,700	755	2,455	
Big Lake	463	1,325	1,788	
Moonshine Lake	2,723	686	3,409	
Moonshine 13	1,520	328	1,848	
Moonshine 4	885	322	1,207	
Leonardsville 31E	1,046	413	1,459	
Dollymount 30	5,484	872	6,356	
Leonardsville 31W	1,592	350	1,942	
Tara 12	3,071	843	3,914	
Leonardsville 12	6,630	1,031	7,661	
Croke 17	2,142	605	2,747	
Dollymount 24	1,499	552	2,051	
Walls 36	1,897	850	2,747	
Moose Head	1,622	896	2,518	
Walls 30	3,831	937	4,768	
Delaware 17	1,695	518	2,213	
Everglades	1,965	890	2,855	
Township Slough	3,802	950	4,752	
South Dakota site(s)	8,771	2,193	10,964	
Subtotal	**70,939**	**18,961**	**89,900**	**61,760**
Rabbit watershed				
North Ottawa	16,160	2,050	18,210	
Brandrup S23	3,020	980	4,000	
Bradford S34	3,042	627	3,669	
Lawrence S19	5,892	1,061	6,953	
Tintah S34	833	160	993	
Daniels	867	223	1,090	
Subtotal	**29,814**	**5,101**	**34,915**	**24,377**
Bois de Sioux Ungaged				
Subtotal	0	0	0	12,119
Total BdS watershed	**100,753**	**24,062**	**124,815**	**98,256**

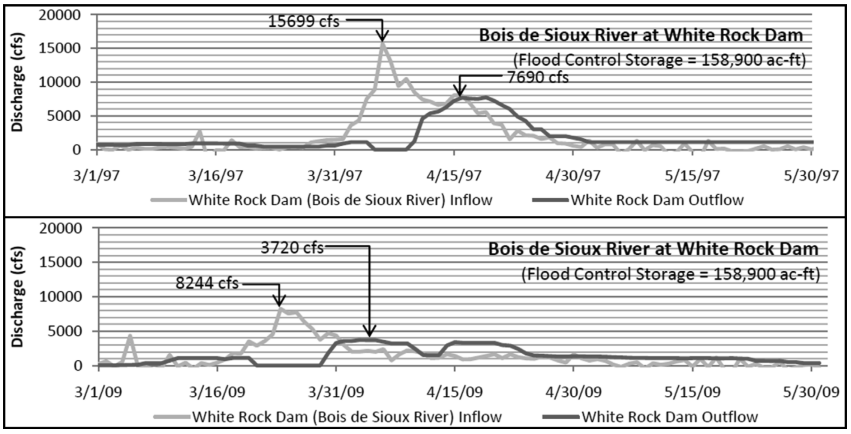
Status of New Hydrologic Model Development (HMS) Using LiDAR Data

(all colored watersheds are underway)

Red River Watershed, North Dakota/Minnesota



Uncertainty of Storage Discharges Along The Red River of the North at White Rock Dam for the 1997 and 2009 Floods



Potential Effects of Storage on Cities

The potential effects of flow reduction were evaluated in several ways. In the following table, the approximate potential flow and stage reductions from the 1997 flood are computed for each of six points on the main stem using the proposed reduction allocations and proposed storage for sub-basins upstream of each of the six sites (see *Appendix D, Table D–17*). The resulting flow reductions range from 17% at Grand Forks-East Grand Forks to 24% at Emerson. The resulting stage reductions for the 1997 flood would have ranged from 1.3′ near the border at Emerson to 2.8′ at Grand Forks-East Grand Forks.

Effects of Potential Additional Flood Storage on 1997 Flood Stages

Upstream/Tributary Drainage Areas	Total Volume of 1997 Flood (MIKE 11 Model) (ac ft)	Peak Flow of 1997 Flood (MIKE 11 Model) (cfs)	Potential Additional Storage in Watershed (ac ft)	Modified Peak Flow with Potential Storage (cfs)	Peak Flow Reduction of Potential Storage (ac ft)	Peak Flow Reduction of Potential Storage (%)	Approx. Peak Stage Reduction of Potential Storage (ft)
Bois de Sioux @ White Rock Dam		7,820	78,900	6,770	1,050	13%	
Rabbit River @ TH 75 ungaged		4,570	34,900	3,140	1,430	31%	
Bois de Sioux ungaged		8,540	*0*	8,540	*0*	0%	
Otter Tail River @ Orwell Dam		1,500	*0*	1,500	*0*	0%	
Otter Tail River ungaged		3,800	*11,000*	3,300	500	13%	
Wahpeton/Breckridge	**742,000**	**12,890**	**124,800**	**10,170**	**2,720**	21%	**2.4**
Wild Rice River @ Abercrombie		9,930	75,500	6,780	3,150	32%	
Fargo ungaged		23,000	*42,000*	20,000	3,000	13%	
Fargo/Moorhead	**1,450,000**	**28,570**	**242,300**	**23,110**	**5,460**	19%	**2.3**
Sheyenne River @ Harwood		10,300	*120,000*	7,900	2,400	23%	
Rush River @ Amenia		1,450	14,900	940	510	35%	
Buffalo River @ Dilworth		8,370	63,000	5,820	2,550	30%	
Wild Rice River @ Hendrum		10,150	*118,000*	7,840	2,310	23%	
Halstad Ungaged (includes Elm River)		57,000	*142,000*	49,500	7,500	13%	
Halstad	**3,310,000**	**71,390**	**700,200**	**57,190**	**14,200**	20%	**1.7**
Goose River @ Hillsboro		8,060	*62,000*	5,240	2,820	35%	
Marsh River near Shelly		4,070	*0*	3,930	140	3%	
Sand Hill River @ Climax		4,370	*39,000*	4,320	50	1%	
Red Lake River @ Crookston		28,980	270,000	19,580	9,400	32%	
Red Lake River ungaged		13,600	*20,000*	12,000	1,600	12%	
Grand Forks ungaged		36,400	*56,000*	32,000	4,400	12%	
Grand Forks/East Grand Forks	**5,130,000**	**110,750**	**1,147,200**	**91,750**	**19,000**	17%	**2.8**
Turtle River near Arvilla		930	11,500	840	90	10%	
Forest River @ Minto		2,100	*10,000*	1,800	300	14%	
Snake River ungaged		5,510	*30,000*	4,180	1,330	24%	
Middle River @ Argyle		3,710	*26,000*	2,960	750	20%	
Park River @ Grafton		5,110	50,300	2,690	2,420	47%	
Tamarac River ungaged		4,820	*13,000*	3,670	1,150	24%	
Drayton ungaged		17,170	39,000	15,800	1,370	8%	
Drayton	**5,820,000**	**128,320**	**1,327,000**	**102,320**	**26,000**	20%	**1.7**
South Branch Two Rivers @ Lake Bronson	4,060	*27,000*	3,560	500	12%		
Tongue River @ Akra	680	*3,000*	630	50	7%		
Pembina River @ Neche	14,300	*90,000*	12,400	1,900	13%		
Emerson ungaged	42,000	*41,000*	39,000	3,000	7%		
Emerson	**6,740,000**	**129,800**	**1,488,000**	**98,800**	**31,000**	24%	**1.3**

Indicates that Flow Reduction Goals were exceeded.
Indicates that Flow Reduction Goals were met.
Indicates that Flow Reduction Goals were not met.

Results of Complimentary Floodplain Management Approaches

Reducing flood risk in the Red River basin requires the working together of the three complimentary approaches of floodplain management: (1) nonstructural attention to the physical floodplain and land use practices, both urban and rural, together with participation in Federal programs such as NFIP; (2) local site protection for vulnerable damage sites such as communities, urban centers and, as possible, agricultural lands; and (3) reduction of peak flood flows through a basin-wide effort.

Level of Protection at Cities along the Red River

City/Location	Level of Protection							
	RRBC Recommended Guideline	Current Conditions Meets RRBC Recommended Guideline?	Future Conditions Including Planned Upgrades	Meets RRBC Recommended Guideline?	Future Conditions Including Planned Upgrades plus Potential Upstream Flood Storage	Meets RRBC Recommended Guideline?	Additional Measures Needed to Meet RRBC Recommended Guideline?	Peak Flow Reduction of Potential Storage (%)
Red River Main Stem								
Wahpeton, ND	200 yr	100–125 yr	No	100–125 yr	No	<200 yr	No	**Yes**
Breckenridge, MN	200 yr	100–125 yr	No	100–125 yr	No	<200 yr	No	**Yes**
Fargo, ND	500 yr	<100 yr	No	>200 yr	No	>200 yr	No	**Yes**
Moorhead, MN	500 yr	<100 yr	No	>200 yr	No	>200 yr	No	**Yes**
Georgetown, MN	200 yr	<100 yr	No	100 yr	No	>200 yr	**Yes**	No

Level of Protection at Cities along the Red River—Continued

City/Location	Level of Protection							
	RRBC Recommended Guideline	Current Conditions Meets RRBC Recommended Guideline?	Future Conditions Including Planned Upgrades	Meets RRBC Recommended Guideline?	Future Conditions Including Planned Upgrades plus Potential Upstream Flood Storage	Meets RRBC Recommended Guideline?	Additional Measures Needed to Meet RRBC Recommended Guideline?	Peak Flow Reduction of Potential Storage (%)
Perley, MN	200 yr	<100 yr	No	100 yr	No	>200 yr	**Yes**	No
Hendrum, MN	200 yr	<100 yr	No	100 yr	No	>200 yr	**Yes**	No
Halstad, MN	200 yr	250 yr	**Yes**	250 yr	**Yes**	>250 yr	**Yes**	No
Shelly, MN	200 yr	<100 yr	No	100 yr	No	>200 yr	**Yes**	No
Nielsville, MN	200 yr	*	No	100 yr	No	>100 yr	No	**Yes**
Climax, MN	200 yr	*	No	100 yr	No	>100 yr	No	**Yes**
Grand Forks, ND	500 yr	250 yr	No	250 yr	No	>500 yr	**Yes**	No
East Grand Forks, MN	500 yr	250 yr	No	250 yr	No	>500 yr	**Yes**	No
Oslo, MN	200 yr	>200 yr	**Yes**	>200 yr	**Yes**	>200 yr	**Yes**	No
Drayton, ND	200 yr	<100 yr	No	<100 yr	No	<100 yr	No	**Yes**
Pembina, ND	200 yr	100 yr	No	100 yr	No	>100 yr	No	**Yes**
St. Vincent, MN	200 yr	<100 yr	No	>100 yr	No	200 yr	**Yes**	No
Noyes, MN	200 yr	100 yr	No	100 yr	No	>100 yr	No	**Yes**

*No permanent protection.

Summary of Damages Prevented by Potential LTFS Projects

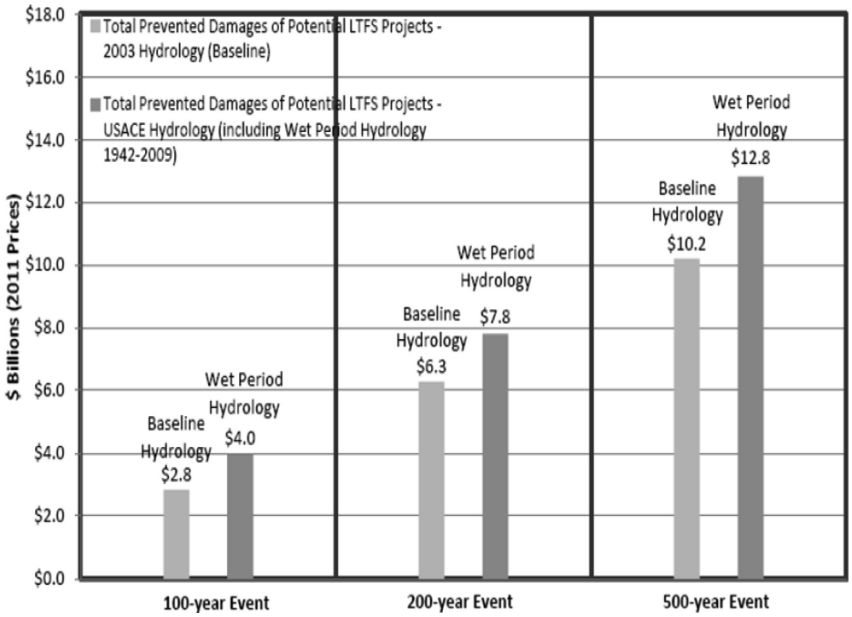
The following figure summarizes the estimated damages prevented by the potential LTFS local protection projects, combined with a 20% flow reduction on the Red River main stem. Prevented damages are estimated for 100 year, 200 year and 500 year floods.

Prevented damages are computed for both (1) baseline hydrology, or that currently used by the USACE and (2) wet period hydrology, or that recommended by the current USACE feasibility study for Fargo-Moorhead flood protection.

Depending on the hydrology used, damages prevented by the potential LTFS projects will range from about $3 to [$]4 billion for a single 100 year flood, from $6.5 to [$]8 billion for a single 200 year flood, and from $10 to [$]13 billion for a single 500 year flood.

Working together with sound, proactive floodplain management, the potential LTFS projects can make a profound, measureable difference far into the future for the Red River basin.

Total Prevented Damages of Potential LTFS Projects—Red River Basin



Part IV: Moving Ahead With Integrated Action

10 Conclusions and Recommendations for Action

The basin of the Red River of the North, historically subject to widespread chronic flooding, regularly sustains millions of dollars in economic damages for each flood event. The **Red River Basin Commission** (RRBC) identified the following conclusions on structural and nonstructural strategies needed for permanent flood solutions in the basin and recommendations for action for states (individually and collectively) and the Federal Government to consider as they fund and implement Long Term Flood Solutions (LTFS) for the Red River Basin in Minnesota and North Dakota. These recommendations are built around the basin-wide LTFS "Level of Protection Goals" adopted by the RRBC in 2010 together with related flood risk reduction needs. The recommendations aim to move basin leaders from the usual response of reacting to the most recent major flood experience to a proactive, long-term plan with appropriate protection levels basin wide. If implemented, these recommendations will significantly reduce the risk of flood damages, and minimize disruption and economic loss and thus facilitate and expedite recovery after spring and summer floods.

These recommendations cannot be successful without the dedicated local, state and Federal participation in funding and commitment to implement.

1. Immediate Needs/Critical Risks: Fargo-Moorhead, Devils Lake

- Under current conditions, the Fargo-Moorhead metropolitan area could get, in a major 500 year level flood, **$9 to $10 billion or more in basin damages,** according to the USACE.
- **Current levels of protection for Fargo-Moorhead are inadequate.** Protection should be increased to enable a successful 500 year flood fight.
- Protection measures for Fargo-Moorhead should be **economically viable** and provide the **least level of adverse impacts** to others.
- A **diversion** of the Red River around Fargo-Moorhead would provide the protection needed to endure a successful 500 year flood fight if it were supplemented by retention and other available options to achieve the RRBC's proposed LTFS level of protection goals.
- **Retention** to achieve the potential 20 percent flow reduction on the main stem should be aggressively pursued upstream of Fargo-Moorhead to decrease the du-

ration, scope, and level of floods in the Fargo-Moorhead area, downstream communities, and rural areas.

Recommendation for Action 1.1

The **flood protection trajectory** that has increased protection in the Fargo-Moorhead metro area since the 2009 flood should continue. State and Federal funds, with local government cost share, should continue supporting ongoing dike construction, property acquisitions, flowage easements, and flood infrastructure projects to be able to fight at least a 100 year flood, and upwards of a 500 year flood in the long-term.

Recommendation for Action 1.2

Progress towards the proposed $1.77 billion **diversion should be continued** utilizing local, state, and Federal funds so that, combined with current flood protection strategies, this community will have the capacity within 10 years to wage a successful flood fight equal to or greater than the LTFS 500 year flood.

Recommendation for Action 1.3

Retention upstream of the Hickson and Abercrombie stream gage for a flow reduction of 20 percent (minimum) should be advanced with shared funding by the F–M flood Diversion Authority working with local and joint water boards, using city, local, state, and Federal funds.

Recommendation for Action 1.4

Leaders in state government in North Dakota and Minnesota, along with key local government officials and with input from the Diversion Authority and Federal agencies, should convene by early 2012 to determine the **non-Federal cost share formula for the Locally Preferred Plan ($1.77 billion) diversion,** and related $3.5 million operational estimates.

- **Rising levels of water in the Devils Lake** region have increased the potential for a natural overflow that could discharge approximately 14,000 cubic feet per second (cfs) of water into the Sheyenne River, triggering prolonged flooding and catastrophic downstream water quantity and quality problems in the Sheyenne and Red Rivers. This crisis should continue to be addressed with immediate local, state and Federal action.

Recommendation for Action 1.5

The recommendations developed by **the Devils Lake Executive Committee** through the work of the Devils Lake Collaborative Working Group should continue to be supported by the state of North Dakota, local authorities, and Federal and Tribal governments to guard against critical risks.

Recommendation for Action 1.6

The RRBC and IRRB should distribute information with downstream interests and jurisdictions providing **progress and timelines** on Devils Lake activities.

Recommendation for Action 1.7

A comprehensive model using real-time data to determine the effects of **releases of Devils Lake water** via the various outlet channels on the Sheyenne and Red Rivers should be examined by local leaders and state and Federal agencies to determine needs and related costs. The examination should include the integration of various models already in use by the USGS, the NWS, the NDSWC, and the USACE and be facilitated by the RRBC.

2. Cornerstone Solutions: Floodplain Management

2A Floodplain Management—Nonstructural Strategies

- A majority of the basin population lives adjacent to the Red River main stem and its tributaries at the lowest geographic elevation subject to flooding with **no comprehensive, basin-wide approach to floodplain management,** nor is there a mechanism to align the variations in local, state, and Federal rules, regulations, and approaches.
- **Nonstructural floodplain management strategies** should be an integral component of reducing flood damage risks in the basin.
- The most effective overall technique for living with floods is for basin citizens to take **personal responsibility for their own flood risk** and for the sustainability of our natural resources.
- Minnesota and North Dakota should fund and administer **flood mitigation policy** consistently throughout the Red River basin so that a flood event in excess of the 100 year becomes the benchmark for managing the risk of flooding,

regulating development in the floodplain, and for developing flood risk reduction projects around existing and newly developed areas.

Recommendation for Action 2A.1

State floodplain regulations and local zoning ordinances should contain criteria for **new residential, commercial, industrial, and agribusiness development** that requires the largest of the following protection standards:

- 100 year flood plus 3′.
- 200 year flood plus 1′.
- flood of record plus 1′.

Recommendation for Action 2A.2

Buildings located in at-risk areas where structural measures cannot accomplish the recommended flood protection levels or are not economically feasible should be publicly acquired and removed over the next 3 to 5 years.

Recommendation for Action 2A.3

Local governments in the basin should **update floodplain ordinances** in the next 3 years, **not permit new development in areas of high risk of flooding** immediately adjacent to the Red River and tributaries, **and minimize the use of variances,** unless protected by elevation or another acceptable FEMA strategy.

Recommendation for Action 2A.4

A review of basic **floodplain regulations and programs** should be undertaken by appropriate agencies and stakeholders of local, state and Federal standards, to include:

2A.4.1 An evaluation of the appropriate **standards and regulations for development** throughout the basin, including the adequacy of the 100 year regulatory minimum standard (to include FIRMS) and the consideration of future standards to reduce losses;

2A.4.2 An analysis of community and state compliance with the **flood insurance** program, to include an analysis of proposed mandatory flood insurance for structures protected by dikes, identification of impediments to, and potential tools and resources for, participation in FEMA's community Rating System, determination of the feasibility of insurance development, and a strategy to prompt a basin-wide reduction in flood insurance rates;

2A.4.3 An analysis of the use of **variances by local governments;** the reasons for and consequences of using variances for individuals, communities, and state; and most effective way(s) to track and document the use of variances.

Recommendation for Action 2A.5

Every community and county in the basin should work toward joining or improving their rating through the national FEMA **Community Rating System** to achieve lower flood insurance premiums for their residents (40–45 percent discounts) by 2015 as part of their mitigation plan update.

Recommendation for Action 2A.6

A **Floodplain Bill of Rights,** to include a floodplain map and flooding history, should be developed by RRBC with local government, realtors, builders, developers, FEMA, and state agency participation (2012).

Recommendation for Action 2A.7

RRBC should develop **education materials** on the floodplain related to the floodplain, insurance, personal decisions, and the Floodplain Bill of Rights, to be distributed to the public, realtors, lenders, and others (2012).

Recommendation for Action 2A.8

The USACE nonstructural assessment of identified structures has been completed for the F–M diversion project along the main stem in six counties deemed economically feasible for **nonstructural mitigation.**

2A.8.1 The USACE should **expand its assessment** along the entire main stem.

2A.8.2 A **local sponsor** should be identified to provide the non-Federal cost share of 35 percent and implement the mitigation in the next 3 to 5 years.

2A.8.3 Congress should **authorize such a project and appropriate approximately $12 million** in funding for the 65 percent Federal cost share to mitigate.

Recommendation for Action 2A.9

Minnesota and North Dakota should use their respective state Silver Jackets (Flood and Hazard Mitigation) teams to regularly communicate issues regarding flood mitigation efforts in the Red River Basin. Silver Jackets team members from Minnesota and North Dakota should contribute to a **collaborative interstate strategy for flood recovery and projects for mitigation efforts** for the Red River of the North basin, to be coordinated with the RRBC and others as deemed appropriate.

2B Floodplain Management—Raising Levels of Protection

- Comprehensive and strategic level of protection goals are needed for the entire basin. To this point, existing levels of protection have been based most often on the most recent flood experience, political will, and funding availability.
  - The Minnesota and North Dakota legislatures should use the RRBC *Level of Flood Protection Goals* as a guide to future basin flood risk reduction strategies. (*See "Level of Flood Protection Goals" adopted by the RRBC Board (2010) in LTFS Report, Ch. 8. Analysis assumes required freeboard.*[)]

Major Urban/Metropolitan Areas

  - **Fargo-Moorhead** (see Section 1. Biggest Risks).
- **Grand Forks-East Grand Forks.** Over the next 20 to 25 years, Minnesota and North Dakota should support increasing protection to a **500 year flood level for Grand Forks-East Grand Forks** by improving the cities' current 200 to 250 year protection with upstream retention that achieves the potential minimum 20 percent flow reduction on the Red River main stem at Grand Forks.
- **Winnipeg** has elevated its level of protection to 700 years by recent expansion of their diversion following the 1997 flood. Since its construction and subsequent first use in 1969, the floodway has operated over 20 times and prevented more than $10 billion in flood damages. This model shows the importance of long range planning to realize the protection required from potential large floods.

Recommendation for Action 2B.1

Grand Forks and East Grand Forks should each request the **500 year or greater level of protection** through the appropriate state and Federal legislative avenues. Planning should recognize the degree to which the strategy of retention can assist in achieving this level of protection for the two cities.

Recommendation for Action 2B.2

The RRBC shall facilitate an exchange between officials in **Winnipeg, Manitoba,** and Fargo-Moorhead local government officials, the F–M Diversion Authority, and the public for the purpose of **sharing Winnipeg's experiences and expertise on the development and expansion of that city's diversion,** including engineering, construction, and operation and maintenance of the Red River Floodway.

Critical Infrastructure:

- **Critical infrastructure needs to be protected from flooding to the greatest levels practical.** If adversely affected by flooding, infrastructure such as water and waste water facilities, airports, hospitals, transportation, regional communications facilities, or chemical storage sites can experience major disruptions, resulting in harm to the people, economy, and environment of the basin.

Recommendation for Action 2B.3

Over the next 3 to 5 years, state emergency management officers shall facilitate the identification and documentation of **at-risk critical basin infrastructure** and report to the state legislatures in the annual LTFS update.

Small Cities and Municipalities:

- By 2015, cities in Minnesota and North Dakota on the main stem, tributaries, and in other flood prone areas should achieve protection to the **100 year level or 3′ of freeboard the largest flood in their area plus 3′** of freeboard, whichever is greater.
- Once cities have achieved this level of protection, additional protection should be pursued towards achieving greater than **200 year flood protection** using upstream retention. Flood flow reduction from upstream retention can further complement the current levees and other strategies underway or contemplated.

Recommendation for Action 2B.4

Community structural projects in collaboration with the RRWMB and RRJWRD should be funded in the next state funding cycle for each respective state. *See attached funding timeline table D–31 and Level of Protection Appendix D, D–3.1, p. 12 with state, local and Federal funding.*

Rural Residences and Farmsteads:

Funding ring dikes or elevating of buildings for **rural residents and farmsteads** in flood prone areas should protect to 3′ above the 100 year level or 3′ above the largest flood in their area, whichever is greater.

Recommendation for Action 2B.5

Structural projects identified in collaboration with the RRWMB and RRJWRD for **rural areas, including ring dikes and rural property acquisitions,** should be funded beginning in the next state funding cycle through 2015 for each respective state. For those projects that become necessary only after future floods, funding shall become available in subsequent funding cycles. *See attached funding table D–31 and Level of Protection Appendix D, D–3.1, p. 12.*

Agricultural Cropland:

- **Agriculture is an economic mainstay** of the basin, with basin farms experiencing composite net returns of $3 billion or more annually.
- **Adequate drainage,** whether surface or tile, is crucial to crop production in the basin.
- Studies such as the **timing analysis study** suggest that improvements to drainage systems in areas that contribute consistently to the rising side of the Red River flood hydrograph (early water) have the potential to help reduce Red River flood peaks if they can move runoff through the system ahead of flood peaks. (*Minnesota Flood Damage Reduction Workgroup Technical Paper No. 11*)
- At this time, no comprehensive, systematic approach exists to **coordinate the release of water in the current drainage system** based upon this timing analysis. Recent improvements in modeling, flow data, and elevation data can be utilized to better manage water to reduce flooding on the Red River.
- The **strategies that slow water** or hold it on the land slightly longer (while allowing for timely movement in the drainage system) are best implemented through land use and easement programs that take into account landowner impacts, as well as benefits to the local area the main stem.
- Potential exists to appropriate **new Federal funding for land management** to the basin through the next U.S. farm bill that will assist landowners in reducing runoff, reducing erosion, and improving water quality. This effort will come through programs administered by the Natural Resource Conservation Service or its designee.

Recommendation for Action 2B.6

The RRRA, RRWMB, and RRJWRD, with appropriate state agencies, local government, and commodity group participation and support, should **develop a multipurpose drainage strategy** for agricultural land that evaluates the following:

2.10.1 Designed and engineered for both private benefits and public water management objectives.
2.10.2 Temporary detention (slowing down of water) by land management practices and land use changes.
2.10.3 Side inlet controls for all ditches.
2.10.4 Use of drainage for peak flow reductions and erosion control.
2.10.5 Rate and volume of water related to field and drain capacity.
2.10.6 Timing and movement of water in an equitable manner.
2.10.7 Landowner incentives and needs.
2.10.8 Adding drainage components to hydrologic models.
2.10.9 Need for studies, strategies, moratoriums, and additional information.

Recommendation for Action 2B.7

River channel maintenance such as snagging and clearing of trees, including the removal of trees that have or are at risk of falling into rivers and waterways, should be continued as necessary to maintain open waterways systems. The two states should continue to fund this effort: under current policies, North Dakota at its level of about $1 to $2 million, and Minnesota to restore its historic level of $150,000 per year.

Recommendation for Action 2B.8

For purposes of achieving long-term flood retention and other benefits, Minnesota should provide state funding through bonding of $10 million a biennium for the Red River basin through the Board of Water and Soil Resources for **Reinvest In Minnesota** (RIM) easements to match **or supplement Federal USDA conservation funding** such as the Wetland Reserve Program, Conservation Reserve Program, EWP, and Environmental Quality Assurance Programs to achieve long term flood retention to leverage Federal funding in the next 5 year farm bill and for other benefits.

Recommendation for Action 2B.9

A basin **wetland bank** whereby farmers/landowners can purchase and exchange wetland credits should be developed by Minnesota, North Dakota, and South Dakota in partnership with NRCS and the local joint water resource districts in North Dakota and joint watershed districts in Minnesota.

Recommendation for Action 2B.10

The following **pilot projects, demonstrations, and studies** should be authorized and funded:

2B.10.1 Drainage as a Flood Reduction Tool Analysis: The RRRA, with appropriate state agency support, shall initiate an analysis of how to better utilize the **surface drainage system** to lower spring flood hydrographs by removing water on the rising side of the hydrograph consistent with the early, middle, and late zones.

2B.10.2 Culvert Inventory: An analysis outlining the advantages, disadvantages, benefits, and costs of a **basin-wide culvert inventory** gathered at the local water board level should be completed by RRBC and presented to the appropriate local and state entities with recommended funding from local, state, and Federal sources (2012).

2B.10.3 Culvert Size Demonstration Project: A demonstration project in partnership with NRCS and affected local water boards should be implemented to analyze the flow reduction benefits of **small distributed and culvert-sizing retention.** The project, estimated to cost about $1.5 million, should be 75/25 percent Federal/non-Federal cost shared (2012).

2B.10.4 Ag Damage Report: The 1980 and 2002 basin **agriculture flood damage reports** should be updated and documented in a continuously updated data base, with Federal funds provided through USDA to provide local project benefit/cost information to assist in local impoundment strategies at the local landowner and water board level.

2B.10.5 Wetland Water Level Management Pilot Project: Within the next 2 years, a pilot project should be funded by NRCS in cooperation with the RRRA and other appropriate state and Federal agencies to **draw down wetlands in the autumn enabling spring storage** and determining benefits and impacts for habitat and retention.

2B.10.6 Multi-Purpose Pilot Project: A demonstration project with funding and participation from farm and commodity groups and other interested parties should be developed and implemented in 2012, with RRBC assistance, to gather data on the timing and impacts on flooding from the following: **tile drainage, surface drainage, wetland restoration, early water ditch drainage, and culvert sizing.**

2B.10.7 Tile Drainage Study: A **tile drainage analysis** by the RRRA through the Basin Technical and Scientific Advisory Committee under the staff direction of the International Water Institute should be funded by the RRWMB and RRJWRD and completed in 2012.

2B.10.8 Buffer Strip: Buffer strips should be established and enforced at the local level for all natural, altered, and man-made waterways to a minimum of 16.5′ (1 rod) and a maximum of 50′ or more with incentives provided to landowners to reduce sediment for water quality and maintenance cost benefits and to slow the flow of water into the waterways.

Recommendation for Action 2B.11

The **rural flood control systems** that protect agricultural productivity and the economy from spring and summer floods should continue to be implemented throughout the basin. The goal is to reduce crop loss and to reduce planting delays by moving water off of land by mid-May in the spring and maximize flood control designs for peak run off for a 24 hour summer rainfall event with a 10 year reoccurrence interval.

Critical Transportation System and Emergency Services:

- The **Red River basin** covers approximately 45,000[2] miles or 28 million acres, a majority directly in active agricultural production, with an extensive system of highways, roads, and bridges that provide for the movement of goods and people to enhance the economic output of the region.
- The RRBC should facilitate discussions with regional organizations, state and Federal departments of transportation, and EMOs, to identify a strategy **for critical transportation preservation** including potential road elevations during 100, 200, and 500 year flood levels compatible with the LTFS level of protection goals.
- **Critical transportation and emergency services** throughout the basin are inconsistent with each other and fail to operate effectively for a typical flood event.

Recommendation for Action 2B.12

Minnesota and North Dakota should each explore the issues surrounding **dedicating a portion of state aid for highway funding for culvert sizing and related road modifications** that benefit basin flood damage reduction strategies and introduce legislation to change state law if necessary. The RRBC shall assist with facilitation the discussion and analysis, by the end of 2013.

Recommendation for Action 2B.13

An analysis of planned and proposed **road elevations** for 100, 200, and 500 year flood protection at township, county and state levels for emergency, population sustainability, and agricultural and economic production needs shall be developed. Engineering expertise funded and directed by the RRWMB, RRJWRD, and appropriate state agencies should identify needs by location and hydrologic impacts on flooding by change of flows, elevation of the flood stage, and other related impacts using the new LiDAR data.

Recommendation for Action 2B.14

Minnesota and North Dakota should develop through their Departments of Transportation, a state and local funding **strategy to assist in county and township flood-related road repairs** and implement additional flood mitigation efforts once the protection goals are achieved and Federal emergency aid under a disaster declaration is less likely.

Recommendation for Action 2B.15

The RRBC should facilitate discussions with relevant regional organizations, state and Federal departments of transportation, and emergency management offices to identify a **strategy for critical transportation preservation,** including potential road elevations during the 100, 200, and 500 year flood levels, and to identify state and Federal funding needs.

2C Floodplain Management—Retention

- No **comprehensive, basin-wide strategy** exists to implement the LTFS minimum 20 percent flow reduction goal for the main stem while achieving local tributary flood damage reduction.
- The impacts of retention are often dependant **on timing** and location. Not all sites are equally beneficial for local tributary and basin main stem flood damage reduction.
- Flow reduction through retention as demonstrated by **modeling** can reduce flows and stages on the Red River main stem as well as provide local benefits on tributaries. However, due to the variability of flood events, retention must be used in conjunction with other structural and non-structural measures to achieve the LTFS goals that will result in basin-wide improved levels of protection.
- The minimum goal for flow reduction on the Red River main stem at the **international boundary** for a 100 year flood equates to around 1.5 million acre-feet of storage upstream accounting for timing of flow and costing approximately $1.5 billion.
- Retention using the minimum **20 percent flow reduction goal basin-wide** can be achieved over the next 20 years if local, state, and Federal funds are leveraged to provide comprehensive local, tributary and main stem benefits for residents, property, and the environment.
- **Retention** that will cumulatively achieve the basin minimum 20 percent flow reductions over the next 20 to 25 years should be managed to improve flood control, improve water quality, include natural resource enhancement opportunities, and provide potential water supply during extended droughts.

- Numerous small, aged P.L. 83–566 **flood control dams** throughout the basin could provide additional capacity for flood storage retention with refurbishment.

Recommendation for Action 2C.1

Federal funding should be provided for retention at $25 million per year or $500 million over the next 20 years, with Minnesota, North Dakota, and local governments providing cost share funding for retention to achieve a minimum 20 percent reduction in peak flows on the Red River.

Recommendation for Action 2C.2

Cost for retention projects should be shared among Federal (50 to 75 percent), states of Minnesota and North Dakota (25 to 35 percent), and the RRWMB, RRJWRD and local water boards (10 to 25 percent) over a period of 20 years staying within the current local joint board two mil levy.

Recommendation for Action 2C.3

A **review of federally operated reservoirs,** identifying the potential for increased storage during flood events, should be conducted by USACE and state agencies, and Wildlife Management Areas by the USFWS, reporting to relevant state agencies and the RRRA.

Recommendation for Action 2C.4

The newly formed RRRA should work with each water management board to **plan, design, and implement retention,** to achieve 25 percent of the retention goal every 5 years for their respective areas, with the goal of achieving the minimum 20 percent flow reduction for the Red River main stem over 20–25 years.

Recommendation for Action 2C.5

A **project prioritization methodology** for the use of Federal funds reflecting local and main stem needs and benefits should be developed by the RRRA by 2012.

Recommendation for Action 2C.6

The **permitting process** for water retention projects should be coordinated by the RRRA and a Federal agency liaison in the basin working with appropriate state and Federal agencies to help streamline the process to decrease timelines for project implementation, allow a one-stop permitting process, and provide general permits for certain projects.

Recommendation for Action 2C.7

NRCS and/or the states of Minnesota and North Dakota should provide $400,000 to **expand the Project Planning and Permit Evaluation demonstration project** to the entire Red River basin through the International Water Institute as part of the USACE Basin Watershed Feasibility Study.

Recommendation for Action 2C.8

Public outreach on retention programs and a survey to determine landowner interest in storing water on their land should be completed in 2 years by the RRWMB and RRJWRD (or the RRRA) to assist in future planning for retention projects and determine achievable timelines and cost expectations that correspond to local participation.

Recommendation for Action 2C.9

Regarding the ongoing USACE Red River Basin-wide Feasibility Study:

2C.9.1 The current ongoing **study shall be continued with Federal funding at $1 million per year** and corresponding $1 million non-Federal match.

2C.9.2 The updating of HMS (hydrologic modeling system) of the remaining major watersheds should be completed by the end of 2012. This modeling will provide the tools necessary to **identify retention projects** on tributaries that provide local benefits and cumulatively benefit the basin.

2C.9.3 Modeling of the remaining main stem Hydrologic Engineering Centers River Analysis System **HEC–RAS** reach to the Canadian border presently underway, including the work needed to tie all the main stem reaches together into one model from White Rock, South Dakota, to the Canadian border, should be completed by the end of 2012.

2C.9.4 The HEC–RAS main stem model, in conjunction with the new watershed HMS models, should be finalized in such a way that they can be utilized to provide the basis for a RRRA "**Project Prioritization Process**" needed for evaluating proposed projects, their effectiveness, and downstream impacts in contributing to the RRBC's flow reduction goals on the major tributaries and Red River main stem.

Recommendation for Action 2C.10

NRCS, in conjunction the RRRA, shall **evaluate P.L. 83–566 and other dams that have flood control capacity in the basin to determine the feasibility of restoration** for the purpose of adding potential flood water retention storage, including the identification of specific structures for rehabilitation, specific strategies and funding necessary, and proposed timelines. NRCS shall issue its findings to the RRRA by September 30, 2012. Federal funding of up to $6 million is needed for the evaluation and an additional estimated $10–$15 million for refurbishment.

3. Information and Tools for Maximizing Efforts Going Forward

- The Red River Basin, a vast geographic area of three states and one Canadian province, **has great need for cooperation** across boundaries for uniform data and information gathering efforts, an understanding of our differences, and a shared vision of what needs to be accomplished.
- The current local, state, and Federal partnership in comprehensive flood risk reduction strategies is **disjointed and operates in a piecemeal fashion.**
- **Each flood varies,** creating unique issues regarding preparation and protection needs.
- **Levels of protection** recommended by RRBC for the LTFS Report will provide the safety net needed and allow for variations in floods, weather, and forecasting.
- **Further improvements in flood forecasting** such as new data sets, modeling improvements, and real time information to account for variables related to precipitation and temperature are needed to build upon those instituted after the 1997 flood.
- **Additional efforts and information** are needed as a guide for the future as updated needs become evident.

Recommendation for Action 3.1

The RRBC shall, for the next 10 years, conduct an **annual evaluation of flood mitigation progress towards the implementation of the LTFS Report Recommendations.** This evaluation shall be submitted to Minnesota, North Dakota, South Dakota, and Manitoba.

Recommendation for Action 3.2

Jurisdictional Multi-Boundary Coordination should be implemented wherever possible through the RRBC.

3.2.1 The Minnesota, North Dakota, and South Dakota governors and the Manitoba Premier should meet at least once every 2 years, along with the relevant legislative committee chairs of the state and provincial governments, to receive an **update on progress towards the LTFS recommendations** on flood reduction strategies, water quality, water quantity, and other relevant natural resource issues.

3.2.2 With the assistance of RRBC, the **International Legislators Forum** among Manitoba, Minnesota, North Dakota, and South Dakota legislators should be continued to discuss current topics, including flood risk reduction strategies.

3.2.3 Minnesota should coordinate through the Board of Water and Soil Resources and the state legislature the **inclusion of all subwatersheds** on the Minnesota side as Watershed Districts (Ottertail) and membership in the RRWMB (Ottertail and Buffalo-Red Watershed District).

3.2.4 Federal agencies should utilize their **regional structures in innovative new ways** to accommodate Red River basin hydrologic boundaries.

3.2.5 When necessary, RRBC shall coordinate a **jurisdictional meeting** of heads of state, legislative leaders, and key agency officials to prompt dialogue and development of unified action on such issues.

Recommendation for Action 3.3

LTFS should be expanded to include the entire Red River basin:

3.3.1 Manitoba should continue funding RRBC's efforts to model the 20 percent **flow reduction strategy in Manitoba** and also continue and accelerate the gathering of Light Detection and Ranging (LiDAR) data, at $70,000 through 2012.

3.3.2 **South Dakota** and local leadership should determine the feasibility of establishing watershed organizations in Roberts and Marshall counties through the International Legislators Forum within the next 2 years.

Recommendation for Action 3.4

RRBC should coordinate development of a basin-wide strategy and identification of funding sources for **improving flood forecasting** during 2012 among local, state, provincial, and Federal agencies.

3.4.1 The generation of **relevant time appropriate data** (real time rain and snowmelt, soil moisture, frost depth information, and other information) and improved modeling through a volunteer network and the development of a real time network shall be addressed.

3.4.2 The feasibility of establishing an **on-site decision support service** to the region during spring and summer flood events by hosting a U.S. National Weather Service hydrologist in the basin shall be considered, as well as identifying a funding source for such an effort.

Recommendation for Action 3.5

The USGS, RRWMB, RRJWRD, and their member water boards, NDSWC, MNDNR, and other key stakeholders, should **develop a stream gage strategy** by 2012 with associated costs and funders for the basin for the main stem Red River and its tributaries that will support the new hydrologic and hydraulic models that will provide a long term record for accurate, timely, and consistent flow data for model development, aid in flood reduction strategies, and include water quality modeling needs in the next 2 years.

Recommendation for Action 3.6

RRBC should **update the LTFS Report in 2021** with the inclusion of Manitoba and South Dakota and shared funding from the four jurisdictions.

4. Resources to Implement

- Minnesota and North Dakota, cost-sharing with local, state, and Federal funds, should implement actions consistent with the LTFS to maintain the basin's social, economic, and environmental welfare and protection from future large floods, as this investment over the next 10 years will significantly **reduce the risk of $11–$13 billion in losses** from a large flood and protect the economic output of the basin.

Recommendations for Action 4.1

The States of Minnesota and North Dakota, cost-sharing with local and Federal partners, should make a **financial investment** of about $3.54 billion over the next 10 years to immediately address flooding in the basin with a structural approach.

4.1 **Funding in Minnesota** needed for the next 10 years is $270.9 million, from local and state sources.

4.2 **Funding in North Dakota** needed for the next 10 years is $536.4 million from local and state sources.

4.3 **Local funding** at the RRWMB and RRJWRD levels should be increased and maintained at a two mil levy.

See attached funding timeline table D–31 and ***Level of Protection Appendix D,*** *D–3.1, p. 12 with state, local and Federal funds.*

Table D–31 Funding Timeline for Project Implementation Costs along the Red River of the North and Tributaries [6–7]

Local Protection Projects	Total Project Cost	Remaining Project Costs 1st Ten Years (Starts 1 July 2011)					Remaining Funding for Future (After 2021)	Notes
		Total Funding	Federal Funding	Non-Federal Funding [1]	Non-Federal Funding in Minnesota	Non-Federal Funding in North Dakota		
Red River Main Stem								
Red Farmstead and Rural Residence Ring Dikes	$17.0	$3.2	$1.8		$0.4	$1.0	TBD	[8]
Red Minnesota Rural Area Buyouts	$12.0	$12.0			$12.0		TBD	
Red North Dakota Rural Area Buyouts	$7.0	$7.0	$3.6			$3.4	$0.0	
Red Stanley Township, Cass County, ND Levees	$4.0	$4.0				$4.0	$0.0	
Red Breckenridge, MN	$41.0	$0.7			$0.7		$0.0	
Red Oxbow, ND	$0.4						$0.0	
Red Fargo/Moorhead Diversion Project	$1,770.0	$1,770.0	$785.0	$985.0			$0.0	[1, 6]
Red Fargo, ND—Other Non-Diversion Projects	$200.0	$200.0				$200.0	$0.0	
Red Moorhead, MN—Other Non-Diversion Projects	$70.0	$25.0			$25.0		$0.0	
Red Oakport Twp, MN	$33.0	$8.7			$8.7		$0.0	
Red/Buffalo Georgetown, MN	$3.2	$3.2			$3.2		$0.0	
Red Perley, MN	$2.7	$0.3			$0.3		$0.0	
Red Hendrum, MN	$2.5	$0.3			$0.3		$0.0	
Red/Marsh Shelly, MN	$3.0	$2.0			$2.0		$0.0	
Red Nielsville, MN	$3.0	$1.8			$1.8		$0.0	
Red/Sand Hill Climax, MN	$3.0	$2.3			$2.3		$0.0	
Red Oslo, MN	$9.0	$9.0			$9.0		$0.0	

Table D–31 Funding Timeline for Project Implementation Costs along the Red River of the North and Tributaries[6–7]—Continued

Local Protection Projects	Total Project Cost	Remaining Project Costs 1st Ten Years (Starts 1 July 2011)					Remaining Funding for Future (After 2021)	Notes
		Total Funding	Federal Funding	Non-Federal Funding[1]	Non-Federal Funding in Minnesota	Non-Federal Funding in North Dakota		
Red Drayton, ND	TBD							
Red Pembina, ND	$0.1						$0.0	
Red St. Vincent, MN	$2.9	$2.9			$2.9		$0.0	
Tributaries								
Sheyenne/Maple/Rush Rivers (ND)								
Sheyenne Valley City, ND	$60.0	$60.0	$39.0			$21.0	$0.0	
Sheyenne Fort Ransom, ND	$2.8	$2.8					$0.0	
Sheyenne Lisbon, ND	$10.0	$10.0					$0.0	
Sheyenne Kindred, ND	$3.0	$3.0					$0.0	
Sheyenne Horace, ND							$0.0	[2]
Sheyenne West Fargo, ND							$0.0	[2]
Sheyenne Reile's Acres, ND							$0.0	[2]
Maple Enderlin, ND	$0.3						$0.0	
Maple Mapleton, ND	$0.1						$0.0	
Rush Amenia, ND	TBD							
Sheyenne Harwood, ND							$0.0	[2]
Sheyenne Reed Township, Cass County, ND	$4.5	$4.5	$1.8			$2.7	$0.0	
Wild Rice River (MN)								
Marsh Ada, MN	$9.4	$6.0			$6.0		$0.0	
Felton Ditch Felton, MN	$2.7	$2.7			$2.7		$0.0	
Wild Rice Buyouts	$1.5	$0.3			$0.3		$0.0	
Red Lake River (MN)								
Cty Ditch 1 Thief River Falls, MN	$1.0						$0.0	
Red Lake Crookston, MN	$40.0	$6.0			$6.0		$0.0	
Middle/Snake Rivers (MN)								
Snake Alvarado, MN	$3.0	$3.0			$3.0		$0.0	
Middle Argyle, MN	$0.8	$0.3			$0.3		$0.0	
Park River (ND)								
Park Grafton, ND	$42.1	$41.0	$31.6			$9.4	$0.0	
Pembina River (ND)								
Pembina Neche, ND	$3.0	$3.0	$1.9			$1.1	$0.0	
Roseau River (MN)								
Roseau Roseau, MN	$40.0	$20.0	$14.0		$6.0		$0.0	
Devils Lake (ND)								
Devils Lake Devils Lake, ND (City of)	$150.0						$0.0	
Devils Lake Minnewaukan, ND	$10.5						$0.0	
Devils Lake Fort Totten, ND	$120.0	$120.0	$120.0				$0.0	
Devils Lake Tolna Coulee—Control Structure	$14.0	$13.4	$9.9			$3.5	$0.0	[3]
West End Outlet	TBD						$0.0	[6]
East End Outlet	$85.0	$85.0				$85.0	$0.0	
Gravity Outlet	$17.0	$17.0				$17.0	$0.0	
Buyouts	TBD						$0.0	
Raise Federal aid roads	$190.0	$190.0	$190.0				$0.0	
Raise township roads	TBD						$0.0	
Raise railroads	$97.0	$97.0	$64.7			$32.3	$0.0	[4]
Increase Upper Basin Storage	$75.0	$75.0				$75.0	$0.0	
Subtotal—Local Protection—In United States	*$3,166.3*	*$2,812.4*	*$1,338.2*	*$985.0*	*$92.9*	*$380.4*	*$0.0*	
Upstream Storage Projects								
Potential Upstream Storage Projects	$1,463.0	$700.0	$350.0		$175.0	$175.0	$763.0	[5]
Other Flood Related Activities								
Pilot Projects	$10.0	$5.0	$2.5		$1.3	$1.3	$5.0	
Decision Support Network	$4.0	$4.0	$2.0		$1.0	$1.0	$0.15/yr	
Forecasting	$2.0	$2.0	$1.0		$0.5	$0.5	$0.15/yr	
FEMA Flood Plain Mapping with LiDAR data	TBD							
Transportation Upgrades	TBD							
404 Retention Permitting Coordination	$1.0	$1.0	$0.5	$0.3	$0.3	$1.0		
Drainage	TBD							
Conservation Program Funding	TBD							
Subtotal—Other Flood Related Activities	*$17.0*	*$12.0*	*$6.0*	*$0.0*	*$3.0*	*$3.0*	*$6.0*	
Total for United States in Red River Basin	**$4,646.3**	**$3,524.4**	**$1,694.2**	**$985.0**	**$270.9**	**$558.4**	**$769.0**	

TBD To be determined.

Notes:

[1] The estimated amounts of the Federal and non-Federal Fargo/Moorhead LPP Diversion project total costs are based on the Fargo-Moorhead Metropolitan Area Flood Risk Management project Supplemental Draft Feasibility Report and Environmental Impact Statement, April 2011. Final cost-sharing amounts between the non-Federal partners have not yet been determined.

[2] Additional local protection included as a part of the Fargo-Moorhead LPP North Dakota diversion project cost listed under Fargo and Moorhead at the top of this table.

[3] Tolna Coulee cost includes $14 million for the control structure to prevent significant erosion in case of a natural overflow.

[4] Cost-sharing for raising railroad embankment at Devils Lake estimated to be ⅓ cost-shared by Burlington Northern Santa Fe Railway, ⅓ by Amtrak, and ⅓ by the North Dakota Department of Transportation through a U.S. Department of Transportation grant.

[5] Federal participation in potential upstream storage projects is assumed to be available through future U.S. farm bill at approximately 50 percent cost-sharing; however, actual Federal funding availability and cost-sharing amounts is uncertain. Also, implementation of projects in each state is assumed to be at comparable levels, however this will depend on project implementation schedules by each state.

[6] Operation and maint[enance] (O&M) costs of projects are not included in this tabulation, even though in some cases the O&M costs may be substantial. O&M costs are typically a non-Federal or local responsibility and should also be considered in the implementation decision for a project.

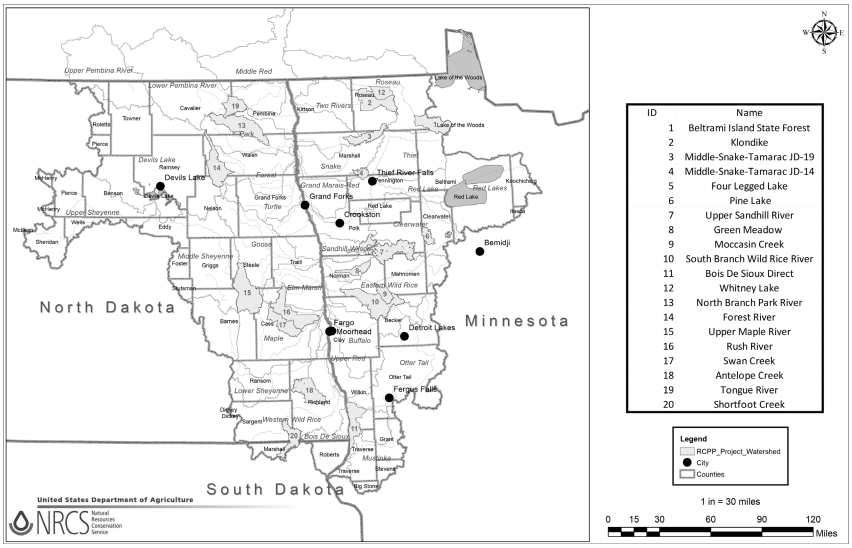
[7] Information on specific projects at individual communities can be found on the City Assessment tables in Appendix C.

[8] Funding for farmstead and rural ring dikes depend on the number of landowners requesting assistance. A rough estimate based on funding from recent years is included.

Barr Factor Arc GIS 10.0. 2011–09–27 11:23 File: *15Client\St.Paul_DistrictCorps\Work_Orders\Red_River_Basin_Wide_Feasibility_Study\Maps\ReportMap\MapA-1GeneralLocationMap.mod.* User ID: TJA.

[ATTACHMENT B]

Red River Basin of the North RCPP Watershed Project Areas



[ATTACHMENT C]

Red River Retention Authority Consolidated Subcommittee Reports

March 28, 2011

Retention Committee

Water Management Sub-committee

Chair: Gary Peterson

New Farm Bill Funding[:]

- Continue further study on the viability of tiling as a water retention practice[:]
  - ✔ Collaborate with the RRRA Basin Technical and Scientific Advisory Committee on water retention strategies, specifically ag water management for both surface and sub-surface water.
  - ✔ Utilize the NRCS Conservation Innovative Grants program in a pilot watershed to provide scientific findings on the potential of using tile systems to retain water in the soil profile.
  - ✔ Develop a cooperative agreement with USDA Agricultural Research Service, Cooperative Extension Service, and the land grant universities from University of Minnesota, North Dakota State University, and South Dakota State University to:
    - ○ Continue research on the impact of tiling on water retention.
    - ○ Continue to evaluate the impacts of tile drainage on water quality and wetland health.
- Provide Red River of the North Basin financial assistance through Agricultural Water Enhancement Program (AWEP) and Conservation Stewardship Program (CSP) for bundled agricultural water management practices[:]
  - ✔ Nutrient management.
  - ✔ Pest management.
  - ✔ Erosion control.
  - ✔ Buffer and filter strips.
  - ✔ Water control structures on tile outlets.
  - ✔ Downstream retention ponds.

- Based on scientific research, continue to provide low interest rate loans through the "Conservation Loan Program" administered through the Farm Service Agency (FSA) to implement ag water management systems through the NRCS (drain tile).
- Prioritize Red River of the North Basin Environmental Quality Incentives Program (EQIP) Agricultural Water Enhancement Program (AWEP) sub-program financial assistance for the design and installation side water inlet structures.

Wilkin County, Minnesota side water inlet.

Sub-committee observations:

Tile has potential to be used as a water management tool in the Red River Basin. Experts from North Dakota State University, the Energy and Environmental Research Center, the tiling industry, International Water Institute and private landowners have conducted or are working on short-term studies on this type of water management. The preliminary findings show a need for further evaluation and study.

There appears to be the potential to gain efficiencies in water retention, protect public safety, improve soil health and water quality. There are some studies indicating the soil can hold more water in the spring, but these studies are not conclusive. Many of the reports on water management efficiencies are anecdotal and need to be further studied by the scientific community. The potential is real, but we need to be certain we are not solving one water resource issue while creating another.

Retention Committee

Permitting Sub-committee

Chad L. Engels, Chairman

Sub-Committee Recommendations:

- **EPA Guideline Change[:]**
  - **EPA 404(b)(1) Guidelines, set out in 40 CFR section 230 (LEDPA)**—404(b)(1) states a permit will not be issued "if there is a practicable alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem, so long as the alternative does not have other significant adverse environmental consequences." Our subcommittee has identified LEDPA as a significant obstacle to building retention projects in terms of time and money. A solution would be to replace The Least Environmental Damaging Practicable Alternative (LEDPA) requirement with a simple environmental mitigation requirement for the proposed project.
- **SAMP[:]**

- **EPA 404 Nationwide Permit/Regional Permit**—Currently, retention projects must be permitted as individual projects. Our subcommittee has learned that many categories of projects are permitted under what are called "Nationwide Permits" or "Regional permits". These permit categories speed the process significantly by having a common "Purpose and Need" and "Description of Proposed Alternatives and No Action Alternative" in the EIS requirements for flood retention projects covered by this national or regional permit. Therefore, our subcommittee will likely recommend that a Nationwide Permit (preferable) or Regional General Permit (second choice) be developed for three categories of retention projects in the Red River of the North Watershed. These project categories include Off-Channel projects like North Ottawa, dry mainstem projects like the Maple River Dam, and wetland retention projects that temporarily store water *above* the delineated wetland boundary.
- **Consistency**—The USACE should establish an interagency agreement whereby one office assumes regulatory control of retention projects within the entire Red River of the North Watershed.
- **Funding**—The Federal Government should fund a USACE regulatory position dedicated solely to processing Federal permits for retention projects in the Red River of the North Watershed.
- **Involvement**—The USACE should be a committed, active, and involved participant in the "Flood Damage Reduction Work Group—Watershed District Project Teams" process for developing retention projects in Minnesota. Additionally, the USACE should be involved at the ground level, if requested, for retention projects developed in North Dakota and South Dakota.

- **Corps Rule 40 CFR Change[:]**
  - **NEPA Council on Environmental Quality (CEQ) Comment Period**—would recommend that Corps rules be changed so that under no circumstances can the three comment periods required under an EIS be extended beyond 30 days for the Notice of Intent, 45 days for the Draft EIS, and 30 days for the Final EIS.

Retention Committee

Easement Sub-committee

Chair: Jon Roeschlein

Farm Bill Changes[:]

- **514.13—Ineligible Landowners**—We recommend that Watershed Districts, Water Resource Districts, and the Red River Retention Authority in the Red River of the North Basin be eligible to enroll lands into the WRP. This provision would expedite the implementation of flood water retention projects.
- **514.14—Land Eligibility**—It is recommended that all hydric soils including non-drained retention areas located in the Red River of the North Basin are eligible lands for the WRP.

[•] **514.14d**—Consideration should be given to add a new focus area like that done for the Devils Lake area. Potential language:

Section 1237, Wetlands Reserve Program

(c) ***Eligibility****.*

Add (2)(C) Other land of an owner where the Secretary determines wetland functions and values can be established on such land.

- **514.20 Ranking Criteria**—It is a recommendation of this committee that the Red River Retention Authority in cooperation with the three State Conservationists develop WRP ranking criteria specific to the Red River of the North Basin.

Spring 2010 North Ottawa Impoundment.

- **514.41b—Definition of Restoration**—We have come to agreement on short-term definition that we are restoring the value and function of wetland complexes that have been degraded since settlement of the area. Long-term, there is a need to provide clarification that allows for the establishment of wetlands and wetland complexes that provide the same or better functions and values as enhanced, rehabilitated or restored wetland functions and values. If managed properly, the functions and values should far exceed those of most naturally occurring wetlands and those wetlands that are restored but not managed.

Structure C North Ottawa Impoundment.

- **WRP Acreage Cap**—State Conservationists be allowed to waive the County Cropland Reenrollment limitations in the Red River of the North Basin for purpose of water retention projects. Also suggest a separate acreage limit for WRP and CRP. [(]*i.e.,* CRP 25%, WRP 25%[)].

FSA Regulation change[:]

- **Buffer widths**—Eligible buffer strip widths should be increased to fully encompass the 100 year floodplain adjacent to the channel or the floodway adjacent to the channel or up to 1,000′.
- **CRP Acreage Cap**—State Executive Director be allowed to waive the County Cropland Reenrollment limitations in the Red River of the North Basin for purpose of water retention projects. Also suggest a separate acreage limit for CRP and WRP. *i.e.,* CRP 25%, WRP 25%.
- **Vegetation Management**—There should be provisions added where the State Executive Director could waive the payment reduction on CRP and CCRP for biofuels harvesting or haying or grazing when part of an approved management plan. It does not make sense to use burning as the only viable option for vegetative management on these sites targeted for water retention projects and penalize the landowner for more reasonable and practical management options.

NRCS Policy change or farm bill change?

- **Multiple Easement Categories**—It is recommended the EWP–FPE allow for continued cropping of portions of the easement under an approved conservation management plan.
- **Enhancement**—It is recommended that EWP–FPE include enhancement and allow retention in addition to restoration of the floodplain.

Retention Committee

Farm Bill Programs Sub-committee

Chair: Rob Sando

NRCS Policy Changes[:]

- Encourage sidewater inlets/outlets as retention features in EQIP/AWEP
  - ✔ Change NRCS ranking criteria with "Encourage and Prioritize", to emphasize the installation and operation of sidewater inlets/outlets with traps as higher priority in the ranking process.
  - ✔ Encourage and emphasis Flood Damage Reduction (FDR) and Natural Resource Enhancement (NRE) in NRCS ranking process.
  - ✔ Encourage landowners through local EQIP/AWEP applications to refrain from draining water on property with traps on sidewater inlets/outlets until the water in the drain or stream recedes thus resulting in a higher score on their eligibility status. This could be done by having landowners sign an agreement resulting in a higher NRCS ranking score.

Minnesota Red River Valley side water inlets.

New Farm Bill Funding[:]

- ✔ Increase the amount of funding for Technical Service Providers in the Red River of the North Basin (practice design, application and checkout).
- ✔ Establish FEMA or public private partnership, or USDA Rural Development to be used for protection of small agricultural rural community (population less than 3,000) ring dike (50 percent to total project costs).
- ✔ Establish FEMA or public private partnership, or USDA Rural Development to be used for culvert sizing projects that provide for distributed flood water retention in targeted/prioritized areas as part of a sub-watershed plan. This would provide landowner incentives for keeping the water where it lands as part of the goal of reducing downstream flood peaks.
- ✔ Provide AWEP funding to construct levees and dikes to manage 10 year frequency for overland flooding on agricultural land.
- ✔ Increase EQIP/AWEP funding for forestry practices.
  - ✔ Utilize forestry management products and activities for excess moisture.
  - ✔ Biomass Crop Assistance practice.
- ✔ No Federal cost-share or incentive payment should exceed 75% of the cost of installation

P.L. 83–566 and EWP Change[:]

- ✔ Where it is not practical for technical reasons to construct ring dikes for a farmstead provide P.L. 83–566 and Emergency Watershed Protection Program

funds for relocation or buy out of some or all of the farmstead at 50 percent cost-share.

✔ No Federal cost-share or incentive payment should exceed 75% of the cost ofinstallation.

Retention Committee

P.L. 83–566 Sub-committee

Chair: Dan Money

Committee Recommendations:

- Increase ***watershed size*** limit from 250,000 acres to 1,000,000 acres, and use only the upstream contributing area to determine eligible size, not any downstream areas.
- Increase the ***single site storage volume*** from 12,500 acre-feet to 75,000 acre-feet.
- Increase the ***total project storage volume*** from 25,000 acre-feet to 250,000 acre-feet.
- Increase the ***eligible construction cost-share*** from 0 percent to 75 percent Federal cost-share for natural resource enhancements.
- Add language to alter the eligible technical assistance cost-share to make technical assistance costs associated with natural resource enhancement portions of the project eligible for 75 percent cost-share.
- Add language to limit the ***total project sponsor cost-share*** (non-Federal) to 25 percent. Also, amortize the future expected operations-maintenance-repair-replacement-rehabilitation costs to a present value and allow the local sponsor to use this obligation towards the max of 25 percent cost-share on initial construction.
- Increase ***project cost/timing approval by Congress requirement*** from projects that exceed $5 million and/or 4,000 acre-feet to:

  (1) allow approval by the NRCS State Conservationist for projects up to $25 million (or 25,000 acre-feet), and

  (2) allow approval by the NRCS Chief for projects up to $50 million (or 50,000 acre-feet). Approval by Congress would be required for projects over $50 million/50,000 acre-feet.

- Eliminate the requirement under ***economic and environmental principles and guidelines for water resources implementation studies*** for individual benefit to cost ratio calculations on each individual project and instead allow flood control projects to be based upon an overall basin plan.
- Designate the Red River Retention Authority as the unit of government who will develop the ***benefit to cost ratio*** to be used collectively for all projects within the Red River of the North basin. Projects that fall under the basin plan will not need to meet an individual cost benefit ratio criteria, but will need to meet the basin cost benefit criteria.
- Under ***technical services contracting,*** issue a Request for Proposals for a multiple award of indefinite delivery/indefinite quantity contract for planning, design, and implementation of flood control planning focused specifically for the Red River of the North Basin.
- Under ***dam rehabilitation,*** utilize Section 313 of Public Law 106–472 to provide dedicated funding for rehabilitation projects in the Red River Basin where the primary purpose is the development of gated flood storage. The intent is to retrofit existing P.L. 83–566 projects that have little or no storage to be able to build into them a storage component where possible.

Middle Snake Tamarac Rivers Watershed District

P.L. 83–566 Off Channel Floodwater Impoundment Site.

P.L. 83–566 Diversion Channel.

The CHAIRMAN. Thank you, Mr. Finney.

I now recognize myself for 5 minutes.

Mr. Burns, you are exactly right about the droughts of the 1950s. Granted, I was not around at the time, but the effect in the Southwest, Oklahoma and Texas, when it broke, starting in 1957, 1958, and 1959, the deluge was just amazing, according to records and

my parents' accounts. It did drive forth the process to accelerate this.

First, let me turn to Mr. Emmons for a question.

You are not just a conservation activist. You are an all-around conservation-focused farmer. Expand for a moment, Jimmy, about how all this intertwines together, good stewardship of the soil, of the water retention structures, making these investments, the environment, if you would for just a bit.

Mr. EMMONS. Yes. It is a very intricate partnership from local producers, from there downstream. We have to worry about catching the first raindrop, get it in the soil. We have to worry about coming into the small watersheds, the release out of that, down through there.

It is an intricate system of how we control the water when it comes. Where it is range management, Mr. Bramblett talked about cover crop systems above streams, all that helps with water quality as it moves down into the watersheds.

But we still have to have those watersheds there to catch the heavy rainfalls like we were just talking about and also releasing that slowly out of that 10 day interval there. And so it takes a lot of O&M, operation and management, inspections on the dams to make sure that they are very functional.

The CHAIRMAN. And it is worth reinforcing the point that the protection is provided from that let down pipe all the way to the ocean.

Mr. EMMONS. Oh, yes.

The CHAIRMAN. It is not just on the farm or the neighbor down the road or the county road. It is all the way to the Atlantic if you live in Oklahoma, or it is all the way to the Pacific if you are on the west side of the Rocky Range.

Mr. EMMONS. Yes. What happens on my farm affects clear downstream to the ocean.

The CHAIRMAN. Mr. Peterson, you have been involved in the process a good long time, clearly.

Mr. PETERSON. Yes, sir.

The CHAIRMAN. And you have observed and been a big part of the progress that we have made. There is always more to do. Expand for a moment on that.

Mr. PETERSON. Well, as Mr. Bramblett told you, he told you a little bit about the backlog and the things they are facing in NRCS.

I happen to believe Public Law 83–566 in these watershed programs is one of the best tools ever invented that not only do conservation work on the land, but flood management, flood damage reduction work. And it is just unlimited how many benefits we can get in this country from installing watershed kinds of activities throughout the United States.

And as we mentioned, in Ranking Member Fudge's state, they are even doing a lot of land treatment projects now that don't have structures there, but we are addressing all those land treatment conservation measures.

It is unlimited how much we could accomplish if we had the ability to do so. And that ability is somewhat limited not just by funding, but by the people available to do the work. But to me this is one of the best authorities we have ever had.

The CHAIRMAN. Mr. Burns, in your community where the programs have been successfully implemented, do the citizens understand and appreciate that?

Mr. BURNS. Yes, sir. Yes, sir, they do. But, citizens downstream probably are better served than the local citizens. Now it is 348 miles from my home to the Gulf of Mexico, and the downstream partners, and I call them partners because they are downstream of me, benefits greatly.

The Tarrant Regional Water District is a partner of ours in the maintenance of our structures and land treatments, and that is incredibly beneficial to them. They say that a penny invested saves them a dollar. They get a hundred-fold on the investments they put in my county.

The CHAIRMAN. Mr. Emmons and I come from a community that was the center of the abyss of the Great Depression and the drought of the 1930s. And this is a legacy issue, not just a current issue, but a legacy issue, for both of us, in that we had an activist by the name of Red Males, my family's banker from 1924 until 1989, who was a big proponent after the 1934 flood in helping drive Members of Congress in Oklahoma in this direction.

It is important, right, Jimmy, that we continue to work on that great legacy laid down by our predecessors?

Mr. EMMONS. Oh, it is very important. I mean, that was an unprecedented flood back then and lots of loss of life. And as I allude to, in my family farm, I mean, it sheared off the top soil as deep as granddad had plowed it, and that is hard, hard to replace.

But it also affects water quality downstream. And that is what you really need to think about in legacy here is, like you said, all the partners from my farm downstream that were affected by what we do there on my farm.

So, yes, it is very, very important that we continue that legacy to protect our citizens, protect our roadways, and protect our soil.

The CHAIRMAN. And to share these accomplishments with the country as a whole, the opportunities that prevail.

Mr. EMMONS. That is correct.

The CHAIRMAN. With that, my time has expired.

I turn to the Ranking Member for 5 minutes.

Ms. FUDGE. Thank you all for your testimony today.

Thank you, Mr. Chairman.

The CHAIRMAN. Thank you.

Ms. FUDGE. The Trump Administration budget does not request any funding for the Small Watershed Rehabilitation Program for Fiscal Year 2018 citing that maintenance, repair, and operation of these dams are the responsibility of local project sponsors.

Mr. Emmons, you mentioned *farm sense* in your testimony. Please speak to the importance of this federally assisted but locally planned and implemented program.

Mr. EMMONS. Well, the farm sense part of it, it is very important that we protect these assets. We are challenged in Oklahoma with reduced budgets too where we have a lot of conservation districts now that either are not staffed or have a part-time staff, and we are trying to share with other districts to get people out on the ground to physically inspect these dams and do regular maintenance on them.

So it is very challenging. But still, the farm sense side of it tells me that we must protect these investments and protect our people, our livestock, our communities, and our roads and infrastructure down through that. Without that, then we have nothing.

And Mr. Burns talked about how the protection of these watersheds has greatly increased from washing out lots of different structures in 1950 to a very few. That tells us that the system is working, but that doesn't mean that we need to ignore the system, because we have to maintain it. Whether it is a house or a dam, it has to have regular maintenance, and it has to be updated.

From the pipes that go through the structures that could deteriorate and crack, to the embankments to the spillways, all has to be maintained. And that takes people on the ground. And it is very challenging. A lot of these conservation districts have reduced budgets.

You talked about the Federal budget being reduced. That is a fact that we can't give up. We must stress the importance of that, how important it is to manage the investment. We would never in farming country put that kind of investment out and ignore it.

Ms. FUDGE. Thank you very much.

Mr. Burns and Mr. Peterson, if you could just quickly say what you believe the effect on your communities and our nation would be if we do not continue to fund these programs.

Mr. BURNS. Could I——

Mr. PETERSON. Go ahead.

Mr. BURNS. I was very apprehensive coming up here. It made me very nervous to do this. And I was thinking about it on the way up here, driving up the interstate, that this system is like an interstate. There is local investment, but I can't invest in an interstate highway all the way to D.C. with local tax dollars even though I need it.

If that makes sense to you, it gives you a little analogy about this. I can't afford the investment all the way to the Gulf of Mexico. But the benefits are there, and it is important to keep that up.

Mr. PETERSON. I would like to make a comment also, and I appreciate that question. I am probably going to demonstrate to many in the room that I am not a good economist, although I have worked with them all my life.

But the fact of the matter is, when I talked about 2,100 watershed projects throughout the nation and the $2.3 billion of average annual benefit, if you are a strict economist, I have worked with many who would say: Well, those are all regional projects, that only the people in that region need to fund them and work with them, but when you add all of those up that have been constructed throughout the United States, think of the national benefit. And that is the way I look at it.

Ms. FUDGE. Thank you, Mr. Chairman. I yield back.

The CHAIRMAN. The gentlelady yields back.

The chair recognizes the Ranking Member of the full Committee for 5 minutes, Mr. Peterson.

Mr. PETERSON of Minnesota. Well, thank you, Mr. Chairman.

Mr. Finney, after the discussion I had with Mr. Bramblett, you folks, the Retention Authority, did your people raise these issues with NRCS?

Mr. FINNEY. Yes, sir, we have.

Mr. PETERSON of Minnesota. And they told you that we had to change the law. Is that what they——

Mr. FINNEY. Exactly.

Mr. PETERSON of Minnesota. They didn't have any flexibility on the cost-benefit without——

Mr. FINNEY. Not really. The cost-benefit thing has been kind of a problem to us in the basin specifically because we have a plan that is put forward that is a comprehensive plan of bringing together several of these projects to alleviate the total flooding on the main stem of the Red River.

And for those of you that are not familiar with the Red River, we are one of the very few that flows to the north. We thaw out from the south to the north. Our river ends up eventually in the Hudson's Bay.

That kind of tells you what kind of a problem we have. Downstream, 200 miles from us, the spring thaw occurs, and us poor schleps up on the Canadian border are sitting there froze up for the next 3 weeks. It gets to be kind of a problem.

That is what we are looking for, this comprehensive approach to water management, these upstream retention structures. And the cost-benefit, of course, is when you do each individual little area, we aren't able to meet the criteria established by the Federals. It doesn't mean that we are going to discontinue our efforts to move forward. We will try to use the P.L. 83–566 as best as we can. But we will continue moving forward with both local and state money.

Mr. PETERSON of Minnesota. I think it is fair to say that the 250,000 acre limitation is really out of date. It hasn't been changed since the program was created.

Mr. FINNEY. In our mind it is, Mr. Peterson. The main reason is we live in a very flat river valley, up from 12 miles to 250 miles wide, and there are only so many prime sites that we can use to store these kinds of projects.

P.L. 83–566 limits us into the fact that, like I said, we have to pick off the plums. We want to use the best that we can. If we could get a little more capacity or if we could, make these kinds of things work, it would be better off for us.

Mr. PETERSON of Minnesota. And just for our Members, one of our big problems we have had is dealing with the Corps and trying to get permits and that bogged us down. But this fight goes back to the Corps not wanting us to be doing this. They want to run all of these projects. And that is part of the reason why we don't get an increase in the acreage size.

But if you want to make sure that the project costs three or four times what it should, then put the Corps of Engineers in charge, and you will accomplish it.

I don't know what we do to simplify this system. But as I said earlier, we are wasting a lot of money because we could be doing stuff out there. And it is not just the Corps. We have had trouble with the local DNR not approving things. It is just one thing after another.

But one of the things, I have this list here, so I don't know what you are doing in Oklahoma, Mr. Chairman, but according to this list, you have 987 P.L. 83–566 projects, and we only have 37 in

Minnesota. Either you are doing really good, or we are doing really bad.

The CHAIRMAN. Mr. Chairman, if you lived through the Great Depression and drought from the 1930s, you would do everything you could to hold the water and soil in place.

Mr. PETERSON of Minnesota. I don't know if any of you folks that have been around this for a while, but can you explain to me why Iowa has 1,066, Missouri has 1,148, Oklahoma has 987, Texas, 697, and then these other states have 16 or 35? What is going on here? Why is that occurring?

Mr. BURNS. It is due to catastrophic weather events, likely.

Mr. PETERSON of Minnesota. The what?

Mr. BURNS. The likelihood of catastrophic weather events in those locales. That is what I attribute it to.

Mr. PETERSON. I think there is more to it than that, though. It is local leadership that is part of it, because local leaders had to recognize the program could assist them, and they reached out and adopted it. Many states still haven't.

Mr. EMMONS. Yes. It is locally-led conservation, the passionate from-the-heart people that puts it in place and tries to protect their soil and their water.

Mr. PETERSON of Minnesota. Well, we are hoping to catch up with you guys. That is our goal.

Right, John.

Mr. FINNEY. That is right.

Mr. PETERSON of Minnesota. Thank you, Mr. Chairman. I yield back.

The CHAIRMAN. Thank you, Mr. Chairman. We want to share the good news with everybody. Absolutely. Let's get after it.

With that, the chair recognizes the gentleman from Georgia for 5 minutes.

Mr. ALLEN. Thank you, Mr. Chairman.

And thanks to the panel for your comments and being here today to talk about these issues.

I represent the 12th District of Georgia, and I have heard it said many times by our state leaders, of course, we have water wars with other states. But Georgia does not have a water problem. We get 51″ of annual rainfall a year. We have a water management problem in Georgia, which is the subject that we are talking about today.

But then we do have some dry times in Georgia. At least all of our corn is irrigated, or it better be. And, of course, they are sucking that water out of those caverns, and then that causes problems downstream.

Nobody wants to solve this issue more than our folks in Georgia and our neighboring states.

In the Corps, we have found that is an issue. But going back, you have the Federal Government and then you have all our state governments. And somehow there seems to be some problem working together.

Could you elaborate, anybody on the panel, as far as how in the world we could fix that and allow the Federal Government to do its role in conjunction with the state and local? As we said, this is a local problem, particularly the maintenance of these properties.

Mr. Emmons, could you elaborate on that?

Mr. EMMONS. Well, that is not an easy problem. You would think that people could come together for the common good. We have seen that challenging in the past. We have been blessed that we had some Federal dollars for rehab in Oklahoma, thanks to Congressman Lucas, in the 2014 Farm Bill. The big challenge is state matching funds of that to get the dams in rehab.

With state budgets shrinking, that becomes very, very hard. We were very blessed this year that we did get some increase in dollars for that rehab. It was a very hard-fought battle to get that money in a $900+ million deficit budget. It took a lot of people from our districts working at the state capital to get that done. And we think this is just the beginning. We think that will grow.

But it really comes back down to locally-led and getting the people that vote out to speak to the ones that are making the decisions and share our passion about how we go about protecting their lives.

It was talked about earlier, when people build below these structures without even thinking. And then in 2015, we had a flood in a town south of me, Elk City. We were very fortunate that day to be able to fly with the National Watershed Coalition in a helicopter. And the significant flooding the day after that where these dams were flowing out the spillways, we had some issues there that those dams need to be rehabbed because they are past their life expectancy.

To answer your question is we have to work with our legislators and get the people that vote, that care, to realize the importance of these structures and the land practices.

It is not all about the structures. You talked about in Georgia, it is about managing the land above that, whether it be range management, like myself, I do a lot in cover crop practices. And it is very important that we manage that rainfall when it comes to infiltrate. I would love to have 50″+ in western Oklahoma.

Mr. ALLEN. Yes. Right. Yes. The Corps' answer to that flood problem is they always lower our lakes in the wintertime. But that is very disturbing for our recreational users. I mean, what are your thoughts on that as far as management goes? Any other thoughts from the other members of the panel about what I brought up as far as working together?

Mr. PETERSON. Could I make a comment on the difference in philosophy, maybe, between the Corps and NRCS? I respect the Corps quite a bit. They are marvelous technicians. They do what they feel like they are directed to do.

But there is a book that I would recommend for your late-night reading called, *Big Dam Foolishness* written by a gentleman named Elmer Peterson from Oklahoma. It talks about the difference in philosophies and how one program went one way and one went another. It is a marvelous book on the background and philosophies between the two agencies.

Mr. ALLEN. Okay. Good.

The CHAIRMAN. Would the gentleman yield to for me for a moment?

Mr. ALLEN. Yes.

The CHAIRMAN. There is an additional issue to consider. The actual structures, when they are on a farm, really doesn't add to the

quality of life for the landowner. Only one in 30, 40, maybe 50 actually ever hold, in these typical structures, enough water to be called a fishing hole. Otherwise they are dry-weather ponds.

You have this earthen structure. You have changed the lay of the land. The landowner is helping his or her neighbors downstream. They really don't gain that much from it. From them, it is a sense of being a part of the common good to start with, and then it cascades down.

These structures were never condemned. The properties were allowed to be constructed after easements were signed, permission given by landowners dating back to the 1940s.

Mr. ALLEN. We are talking about dry ponds here?

The CHAIRMAN. That is basically most of the structures in my core area.

Mr. ALLEN. When we have a flood in these dry ponds, then we are washing out these dams?

The CHAIRMAN. No. No. The upstream flood control dams are a series of small dams. When you have a flood, each of the dams catches the water that comes from above it.

As the Deputy Chief pointed out earlier, the 10 day goal is then to meter the water out. They act as a shock absorber. Instead of this deluge going down the creek and down the river and building, they slow it down, they meter it out so it is manageable within the existing stream banks, which protects wildlife, too, by the way, as well as domesticated livestock.

Mr. ALLEN. The subject we are talking about here today is the Federal Government actually doing what it is supposed to be doing as far as that relief downstream.

The CHAIRMAN. How the system has worked is why we have this match between local entities and the Federal Government, because the local entities can't pay for it. And typically it wouldn't benefit them, the protection given from 3 miles below the dam all the way to the Gulf of Mexico. But by the Federal Government participating, we set up these networks that protect everybody below the stream.

Mr. ALLEN. Okay.

The CHAIRMAN. In a 100 year targeted goal.

Mr. ALLEN. You all want to comment on that?

Mr. BURNS. Eighty-five of my structures are usually between 1 acre and 5 acres. They do retain some water, and most of the time if does last all summer. Prior to 2015, we had another 6 or 7 years of drought, and most of those were dry. The landowner nor any of the locals that like to fish there were benefiting at all.

Mr. ALLEN. Well, I hope we can get this figured out, and I yield back.

The CHAIRMAN. Thank you. The gentleman yields back.

The chair recognizes the gentleman from Arizona for 5 minutes.

Mr. O'HALLERAN. Thank you, Mr. Chairman.

I just want to say I have been working with conservation districts now for 20+ years, and it has been such a pleasure. And it is really good to have some folks here, and I want to compliment the Chairman on having folks who have real-life experience in this stuff, because it is hard to understand out there. And especially bringing in special interest people in here. No thanks. I like people

from rural America that know what their land is all about. This Committee is one of those committees where we all share these types of common values.

But if we were going to look at rural America as we should, as our breadbasket, our natural resources, where they all come from, where our power plants are, how we are going to survive as a society, that is the bedrock, whether it is a rural America or Native American reservations, across that whole spectrum.

But life is different out there from a tax standpoint. Life is different out there as far as being able to find cooperation and be able to build these types of structures without Federal help. And it is also different in maintaining them over time. And so that is why this partnership is so important.

And if we don't do that, it is actually a waste of the prior expenditures that we have put into it. And fiscally, that doesn't make much sense at all to me. And it is a legacy issue. We did build these. Whether there are 5,000 of them out there that have to have work on them, it is our responsibility to work with partners to get that done. And I am hoping as we go through the farm bill or through the budget process, that we are going to be able to get this issue away from the zero number into somewhere much more meaningful to get the work done.

But we also have to take into account the ongoing activities in the local area. What we are building downstream from these areas, what climate is or isn't doing to the process, and making sure that—I don't even know if the assessment of the dams right now takes into account the differences in climate from 20 years ago.

But what happens if we don't do something? The impacts to rural America are tremendous, just tremendous. We have increased flood risk. We have a public health risk. I mean, health and safety, deaths, American citizens, loss of economic potential, increased FEMA floodplains, impact on family investments, the lack of maintenance of irrigation districts, irrigation into canals, the loss of water resources, water quality. You could go on and on and on.

So in these couple of minutes that are remaining, I would like to hear from you about how you feel about these types of losses and what you feel we can do about them to make sure we go in the right direction here.

Mr. EMMONS. Well, my work that I have done with land and range management is, if you look at the Mississippi River flow since the very first monitoring that was done in the Mississippi, it was very consistent back before we plowed the prairie up. There were some ups, a little downs, but it was pretty flat. As the native prairie started being tilled up and put in production, we started seeing bigger swings. And the more we tilled, the worse that got, because it gets back to the point Mr. Bramblett brought up a while ago about organic matter in the soil. We can't capture the water in the soil as that organic matter was depleted.

I think that it makes a lot of good sense that we start putting more land management practice with the cover crops and range management to get our organic built back up so that for every one percent we can catch 27,500 gallons of water per acre.

Now, if you do the math, and I have done a presentation on this, in the Mississippi Delta flow region, if we would increase our infil-

tration rates at ½″, that is 83 days of the water that goes over Niagara Falls. Get it in the soil, keep it in the soil, and that will lessen the effect downstream.

Mr. O'HALLERAN. I was just down in Galveston over the weekend at the commissioning of the USS *Gabrielle Giffords.* And I was looking at the beach. And the Congressman from Texas tells me, he says: "Well, the water changes color down further south in Texas because up here we have all the sediment coming out of the Mississippi River, still down in Galveston. It is still changing color. And it gets blue and green further south."

I yield back. Thank you.

The CHAIRMAN. The gentleman yields back.

The chair recognized the gentleman from Mississippi for 5 minutes.

Mr. KELLY. Thank you, Mr. Chairman.

And thank you, witnesses, for being here. I apologize for walking out not hearing your testimony, but we have an Armed Services hearing that is going on simultaneously.

Mr. Peterson, our witnesses today have all successfully made the case for the economic benefits of flood control dams. However, the conservation value remains in how it protects and in some cases expands our resources. In addition to the traditional watershed programs, how has RCPP furthered the progress on watershed issues?

Mr. PETERSON. I must admit, I am not the expert on RCPP. I do know about the program, and my conservation district is not using it necessarily right now. But if any program or program dollars are able to put some watershed protection on the ground, I am certainly supportive of that. But maybe one of my colleagues up here has more experience with RCPP directly.

Mr. KELLY. Thank you.

And I would open that to any of you who have a comment.

Mr. BURNS. My own local water control improvement district and soil and water conservation district are basically all volunteers. It is very tough to get through that process without a grant writer. It is not that it is unavailable to us, but we have yet to take advantage of it because it adds a small amount of complication to the process that we haven't experienced in decades past. But it is still a good program, and it works well on a region-wide basis.

Mr. KELLY. Thank you.

And, Mr. Emmons, like you, the people of Mississippi understand the value of the stewardship of the land. And conservation programs and watershed infrastructure really are vital to many of my constituents.

As someone who has engaged in some innovative practices over the year, what recommendations do you have for this Committee when addressing watershed-wide issues?

Mr. EMMONS. Well, like I stated earlier, we have to put some more practices on the ground above the structures to infiltrate that water, increase the organic matter. But it still comes down to the local people in the conservation districts there managing that resource that we put out there in those structures and ensuring that they work right. But it is still very important that we manage that land above them and below them so that we can slow that water.

Ranking Member Fudge talked about the water quality downstream that will be greatly enhanced if we can do that.

Mr. KELLY. And I would just say that the watershed programs do so much for the local communities, many of the people who don't even realize the value that it gets for them.

I thank all you gentlemen for what you have done in this program.

And, Mr. Chairman, I yield back.

The CHAIRMAN. The gentleman yields back.

The chair recognizes the gentleman from California for 5 minutes.

Mr. LAMALFA. Thank you again, Mr. Chairman, and for the panelists for traveling here today.

Mr. Peterson, on the issue, I hear it from farmers and ranchers back home, with NRCS. And people are pretty happy overall, but the real frustration is with implementation of the projects. The actual folks who get out on the ground and do the engineering and the staff work needed out in the field is what I hear mostly about. That was mentioned early on in your testimony.

Aside from budgets, what structural change do you think would be helpful to NRCS' program to stock it with the right people who can do more—well, I won't prejudice the question. What do you think needs to be done to move the projects along faster and have that be a stronger focus perhaps, please?

Mr. PETERSON. Well, the answer to that is fairly easy as far as I am concerned, and that is stop cutting professional staff in the agency. If you go back to the agency's highest employment time, it was probably in the 1970s with 18,000 people. Now they are down around 10,500 people with far more program responsibilities than they used to have. And here we are trying to implement a lot of these programs that require competent professional staff. The agency, from the time I left it 25 years ago until today, has lost a great deal of the people that we need to manage these programs properly, and I would just like to see that stopped.

Mr. LAMALFA. Okay, so no more cuts. But what is the ratio of people that are able to actually implement the projects *versus* those that are——

Mr. PETERSON. That question probably would have been better asked of Mr. Bramblett when he was here, because he had all the current information on projects in the backlog.

Mr. LAMALFA. Yes. We ran out of minutes on that, as it goes up here.

Anybody else on the panel wish to touch on that.

Mr. PETERSON. I can touch on one fact, that the permitting process is quite lengthy, even though there is a section 404 process, and there are some practices that are put on the ground that require mitigation. And I believe——

Mr. LAMALFA. Now, this is mitigation for doing things that are positive environmentally.

Mr. PETERSON. Exactly. And these projects should be receiving the credits for the mitigation rather than having to give them, if that makes sense, because it is——

Mr. LAMALFA. Do you feel it is outside of the law where there are clear exemptions for a lot of agriculture, other activities that

were pretty clear as Congress wrote them, and then they have been overtaken by interpretations that are——

Mr. PETERSON. I believe you are correct.

Mr. LAMALFA. What do you think we should be doing about that?

Mr. PETERSON. Streamline it in some way. But I am sorry, I don't have the specific answers for you. But like I say, that permitting process for these small structures needs to be——

Mr. LAMALFA. Kind of frustrating now, because it is permitting the slowing down of things that are positive environmentally given that.

Mr. BURNS. Absolutely.

Mr. LAMALFA. Win-win, isn't it?

Anybody else on the panel.

Mr. EMMONS. Yes. I mean, talking about your original question and to that question, we see reduced staffing at NRCS. And they have several programs, the EQIP Program, CSP Program, all are very cumbersome. CSP has just come through another revised step, requires more time for the local NRCS.

Mr. LAMALFA. Where did that step come from?

Mr. EMMONS. Upstream. It came from here.

Mr. LAMALFA. Yes. We are here to help, right?

Mr. EMMONS. Yes. As these programs have become more cumbersome and more time-consuming for that local conservation that is less time that he has to come out and help us with the structures for our land practices. Very good programs, very good programs, but very cumbersome. And with RCPP, that is another example, a very good program that, once you get it on the ground you can do great things, but it is very cumbersome to get it implemented.

Mr. LAMALFA. Well, we need checks and balances so you don't do rampant projects without proper review. But I guess we need help understanding here or attacking the core problem of when is too much permitting, where is the line between just enough permitting, just enough review, and this cumbersome business you are talking about here, because, yes, you want to have guidelines, but you also want the rubber to meet the road in getting projects done.

Mr. BURNS. Probably some bracketing as far as acreage covered or size of the structure and then possibly some exemption to a portion of that, if it meets some criteria.

Mr. LAMALFA. Yes.

Mr. EMMONS. And you have to have some trust that the local people that own the land have the greatest passion for the land. Don't make it so hard that we can't implement the practices.

Mr. LAMALFA. I am a little over time here, but do you find that the folks on the ground at NRCS know what to do, but they are getting again their regional office or D.C. a signal that frustrates them? Is that pretty common?

Mr. EMMONS. Yes.

Mr. BURNS. That is very common.

Mr. LAMALFA. Okay. Well, I appreciate that. And anymore follow-up you would like to send anybody or me, we would love to have that and be able to attack this.

Mr. Chairman, I thank you and yield back.

The CHAIRMAN. The gentleman's time has expired.

The chair now turns to a fellow Subcommittee Chairman on the House Agriculture Committee, the gentleman from Pennsylvania, for 5 minutes.

Mr. THOMPSON. Mr. Chairman, thank you very much.

Thank you to all the members of the panel for being here, bringing your experience and expertise on important issues of small watersheds.

I have a question I just want to throw out in general to all four of you, if you would feel inclined to respond. Basically, infrastructure and job creation typically go hand in hand. Has that been the case with what we have been able to stimulate or facilitate with Public Law 83–566?

Mr. EMMONS. Yes, I would start with that. We are in Dewey County on our fourth rehabilitation project. There are three of those dams within eyesight of my house. Yes, we saw that the amount of dollars that turns over in the local community is very significant. We have contractors come in, they had lodging, they buy fuel, they buy food. Plus, all the technical staff that puts that project together prior to construction.

And then afterwards, before the district takes back over, NRCS does some more on-the-ground assessments to make sure everything is just right before the district takes back over.

We have seen a great number of dollars influx into the local communities when we are doing them rehab projects.

Mr. THOMPSON. Very good. Any other of the gentlemen have experience with that?

Mr. BURNS. We see the same benefits. Some local contractors get bids on these projects when there are rehabilitation projects or other projects that are emergency watershed protection where there is some lake by it or some kind of damage to the dam that is contracted out. And we also use some local resources for gabion stone and things like that that support other businesses. There is a good trickle down for that that are utilized in the communities.

Mr. BURNS. I am sure the NRCS today can tell you about how many jobs are created with these construction projects that they have. I know in my day we could do that. We made some estimates of that. But I can tell you that there is job creation as a result of this construction.

Mr. THOMPSON. Very good.

Mr. Finney, RCPP was one of the largest changes in the conservation title in the last farm bill. It was designed to address conservation concerns on a landscape level. Now that it has been fully implemented, how has it worked in conjunction with Public Law 83–566 and the rehab program?

Mr. FINNEY. I can't exactly speak to the rehab program. But the planning that we are doing with the P.L. 83–566, the RCPP has allowed development of conservation practices upstream of our proposed projects as well as protecting the local drainage systems. We have been able to implement these kinds of practices to avoid soil erosion as well wind erosion and also protect the waters coming down from upstream to downstream into our retention projects.

Mr. THOMPSON. Very good.

Thank you, Mr. Chairman. I yield back.

The CHAIRMAN. The gentlemen yields back.

Before we adjourn, the chair would like to thank the second panel for your insights and real-world experiences. Just as in our first panel, it has been very insightful in every way.

And with that, I would turn to the Ranking Member to make any closing comments that she would make.

Ms. FUDGE. Thank you very much, Mr. Chairman. And thank you for this hearing today.

I thank you all for your testimony.

I thank the Members for participating at the level that we have today. It was very productive, very insightful, and I thank you all.

I yield back.

The CHAIRMAN. Thank you, Ranking Member.

And this is the first of, no doubt, of a long series of discussions as we work through the next farm bill process. Nothing can be more important than protecting our natural resources, the lives of our fellow citizens, our domesticated livestock, and wildlife too. And in these programs, we cover all of those important, critical areas.

With that, under the Rules of the Committee, the record for today's hearing will remain open for 10 calendar days to receive additional material and supplemental written responses from the witnesses to any question posed by a Member.

This hearing of the Subcommittee on Conservation and Forestry is adjourned.

[Whereupon, at 11:56 a.m., the Subcommittee was adjourned.]

[Material submitted for inclusion in the record follows:]

SUBMITTED REPORT BY HON. FRANK D. LUCAS, A REPRESENTATIVE IN CONGRESS FROM OKLAHOMA

Report to Congress—USDA–NRCS Watershed Protection and Flood Prevention Program Multi-Year Plan

December 2015

Contents

Preface

The Agriculture, Rural Development, Food and Drug Administration, and related Agencies Appropriations Bill, 2015, included the following Congressional directive:

> *"Watershed Protection and Flood Prevention Plan.—The Committee directs NRCS to establish a long-term, multi-year plan to guide needed investments in watershed surveys and planning and watershed operations as authorized under the Watershed Protection and Flood Prevention Act, P.L. 83–566. The plan should establish a process for setting and ranking watershed operations and flood prevention priorities, reflecting the agency's mission, goals, and requirements; consideration of existing investment in planning, infrastructure, and land treatment; and future needs for investment to improve watershed condition or prevent or mitigate watershed impairments. The plan should also include estimated funding requirements. As the agency develops the plan, the Committee encourages it to provide interested parties an opportunity to provide input. The*

agency is directed to develop the plan and report to Congress within 90 days after enactment of this Act."

The following plan is provided by the Natural Resources Conservation Service (NRCS) in response to this request.

Introduction

The watershed program established through the Watershed Protection and Flood Prevention Act of 1954, as amended (Public Law 83–566) (watershed program) authorizes the Natural Resources Conservation Service (NRCS) to work with local sponsors to install watershed protection and improvement projects (see *Appendix C* for P.L. 83–566 language). These projects create and protect vital infrastructure while conserving and protecting natural resources and contributing to local economies.

The watershed program was designed to address the critical challenges facing rural water resource protection and management. The watershed program initially focused on the design and construction of structural water control measures. Projects starting in the late 1970s focused on watershed plans and a greater emphasis on land treatment measures. Watershed planning also provides a basis for partnering at state and local levels to identify and co-invest in projects reflecting the highest priority needs.

Watershed scale approaches are foundational to progress toward today's challenges such as reducing nitrogen and phosphorus transport to Lake Erie, Gulf of Mexico, and the Chesapeake Bay. Other water management challenges that will be best addressed at the watershed scale include agricultural irrigation efficiency in California's Central Valley and in the Colorado River Basin; water management improvements to protect and restore environmentally and economically significant fisheries in the Pacific Northwest; acid mine drainage remediation needs in Appalachia and the Intermountain West; and flood protection for infrastructure and communities in the Central Plains and Northeastern States.

These and other benefits are well-founded in scientific research. For example, thirteen watershed scale projects summarized by Osmond, *et al.* (2012) not only demonstrated the effectiveness of watershed scale planning for improving water quality; but those studies also provided identification of critical source areas of nutrients and sediment (Meals, *et al.,* 2012b); important socioeconomic drivers for enhancing conservation adoption at a watershed scale; best measures for quantifying outcomes; and numerous other parameters for successful watershed scale planning and implementation (Meals, *et al.,* 2012a).

This multi-year plan describes near-term needs including the existing approved project backlog, remediation of existing structures, and emerging needs, along with a process for guiding future investments to improve watershed condition. The watershed program can provide a valuable tool for agriculture and rural communities across the nation to address serious water management threats from extreme drought to unprecedented flooding.

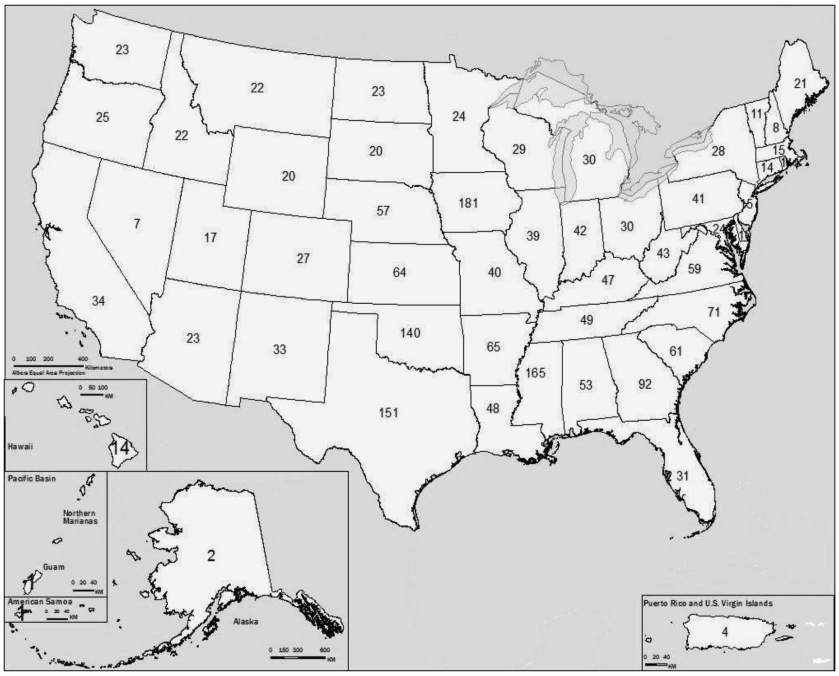
The vision is *a Watershed Protection and Flood Prevention Program delivered in partnership with local sponsors to protect and enhance agriculture and the environment through measures that provide landscape resilience, flood prevention, and water quantity and quality benefits for individuals and communities.*

Background

Over the past 6 decades the nation has invested $6.2 billion (nominal dollars) through the watershed program to install over 2,000 projects across the country (*Fig. 1*) to create and protect vital infrastructure while conserving and protecting natural resources and contributing to local economies (see *Appendix B* for a table of historical appropriations). The objectives of many of the original projects were to reduce flooding, improve drainage, and increase irrigation efficiencies. In the 1960s, high priority was placed on projects that provided jobs to combat poverty and encourage rural development; many of these projects involved establishing recreation areas. In later years projects focused on land treatment measures to solve natural resource problems, such as substandard water quality and loss of wildlife habitat.

Figure 1: Watershed Projects Funded, 1947–2010

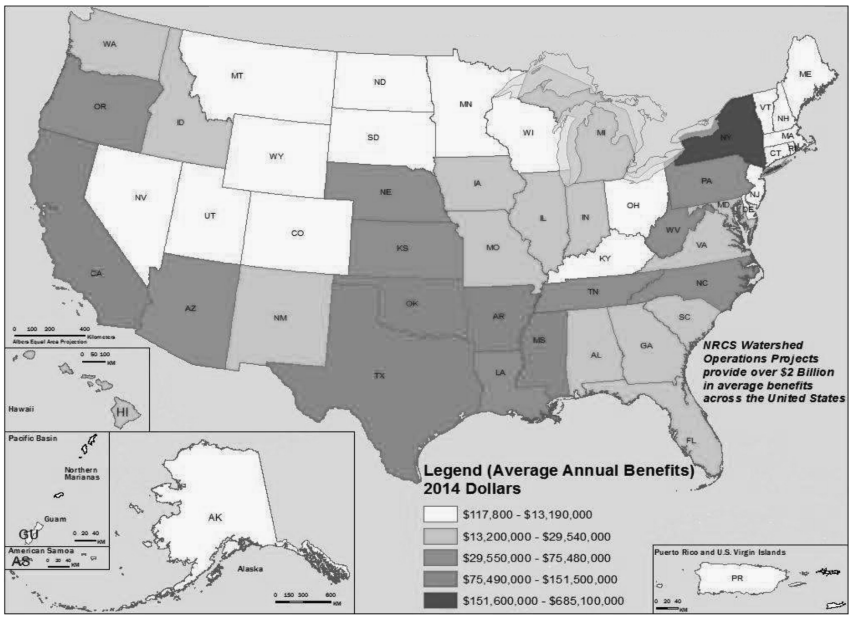
Watershed Operation Projects—Number of Projects Funded



These watershed projects continue to deliver benefits that are increasingly important as population and food security demands rise, and the frequency and intensity of extreme weather events increase (Cai, *et al.,* 2014). By avoiding and reducing flood damages, NRCS estimates that this program annually provides over $352 million in benefits to agriculture and over $462 million in benefits to non-agricultural uses, such as roads, bridges, and homes. Other benefits such as erosion control, water conservation, water quality improvement and irrigation efficiency exceed $441 million on agricultural lands and over $957 million from recreation, fish and wildlife, rural water supply and municipal and industrial water supply, annually. In total, as a result of installed watershed projects made possible through the investment from NRCS and local sponsors, the watershed program provides an estimated $2.2 billion in average annual benefits across the nation (*Fig. 2*).

Figure 2. Watershed Program Benefits—Average Annual Monetary Benefits (2014 Dollars)

Watershed Operation Projects—Average Annual Benefits

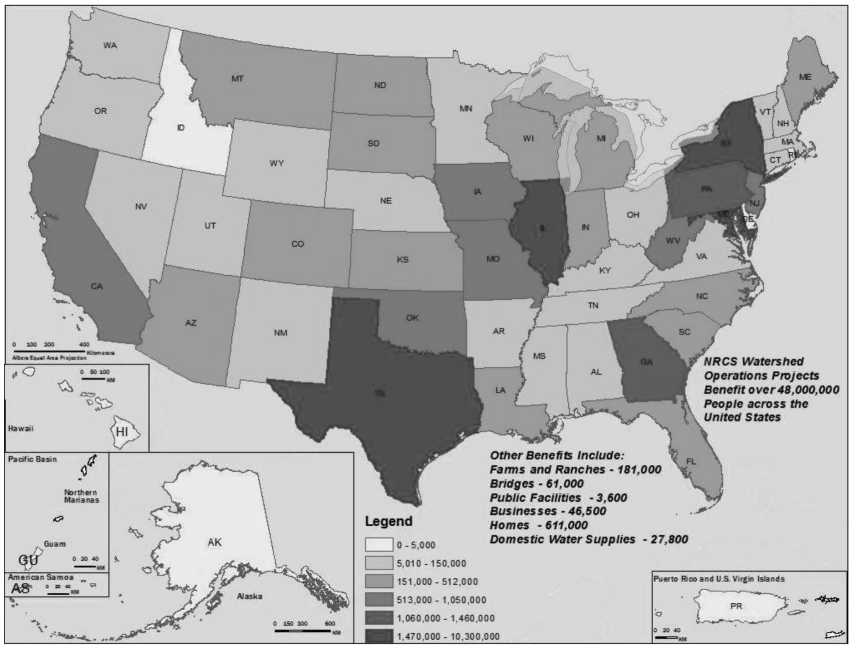


Another way to view these benefits is by the number of people and communities who benefit directly from watershed projects. The existing projects are protecting over 610,000 homes, 46,000 businesses, 180,000 farms and ranches, 61,000 bridges, and 28,000 domestic water supplies (*Fig. 3*). As a result, over 48 million people across the United States benefit from the watershed program every year.[1]

[1] Benefit estimates presented here are drawn from the benefit cost analyses that are completed for each watershed project prior to implementation, and which monetize the estimated annual benefits for the project. Projects must have a greater than 1:1 benefit-cost ratio for approval. The estimates presented here have been adjusted for inflation and are considered conservative.

Figure 3. Watershed Program Benefits—Number of People Benefitting

Watershed Operation Projects—Average People Benefitting



A Federal-State-Local Partnership

At the core of the watershed program is a unique Federal-state-local partnership with project sponsors. Local sponsors identify needs, provide funding, and commit to operating and maintaining the completed projects over the long-term. The amount of funding and related arrangements depends on the type of project being implemented. Historically, local sponsors have provided an average of 60 percent of the total project funding. The non-Federal contributions include local and state in-kind contributions and funding for construction, permits, easement acquisition, and operations and maintenance for the project life. Working in cooperation with local sponsoring organizations, NRCS prepares detailed watershed plans that outline soil and water management resource concerns and alternatives to address them, including estimated benefits and costs, cost-share funding and arrangements, and operation and maintenance arrangements. Projects are locally driven, addressing critical needs for the community and delivering multiple streams of benefits.

> Secretary Ezra Taft Benson wrote in the 1955 [*Y*]*earbook of Agriculture,* "The new watershed protection program (P.L. 83–566) clearly should not be looked upon as some miracle coming out of the Federal treasury. If it is successful, it will be because local people working through their organizations with the help of their state government assume and maintain principle initiative."

The watershed program provides the authority to carry out Cooperative River Basin Studies and Watershed Surveys and Planning Program activities. The Cooperative River Basin Studies authorities include cooperative river basin studies, floodplain management studies, flood insurance studies, and interagency coordination and program formulation. These combine the efforts of Federal, state, and local agencies to establish a basis for the development of coordinated water resource programs. Investigation and survey reports serve as guides for the development of water, land, and related resources in agricultural, rural, and urban areas within upstream watershed settings. They also serve as a basis for coordination with major river systems and other phases of water resource management and development. Watershed Surveys and Planning allows NRCS and local partners to plan actions to address identified resource concerns within a watershed.

NRCS provides Federal financial assistance to project sponsors for the installation costs of land treatment measures to achieve environmental and public benefits such as surface and groundwater quality improvement, water conservation, and flood mitigation.

As of December 2014, the Federal Principles, Requirements, and Guidelines (PR&G) superseded the Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies (P&G) to guide the formulation and evaluation of all water resources projects. The PR&G are intended to ensure proper and consistent planning by Federal agencies in the formulation and evaluation of water and related land resources implementation studies. Benefits and costs are estimated using the best current techniques and are calculated accurately, consistently, and in compliance with other economic evaluation requirements.

Prior to implementation of the project, the National Environmental Policy Act (NEPA) requires NRCS to analyze the environmental impacts of such actions and make the analysis available to the public before decisions are made and actions are taken unless the action is categorically excluded.

Environmental Impact Statements (EIS) or Environmental Assessments (EA) address ecological conditions such as water and air quality, watershed or ecosystem health, species diversity and richness. In addition, aspects for the economic and social, historical and cultural, political, and many other factors that may influence major changes in land use or management of the soil, water, air, plant, or animal resources are considered. Impacts of the future population centers and transportation infrastructure are also included.

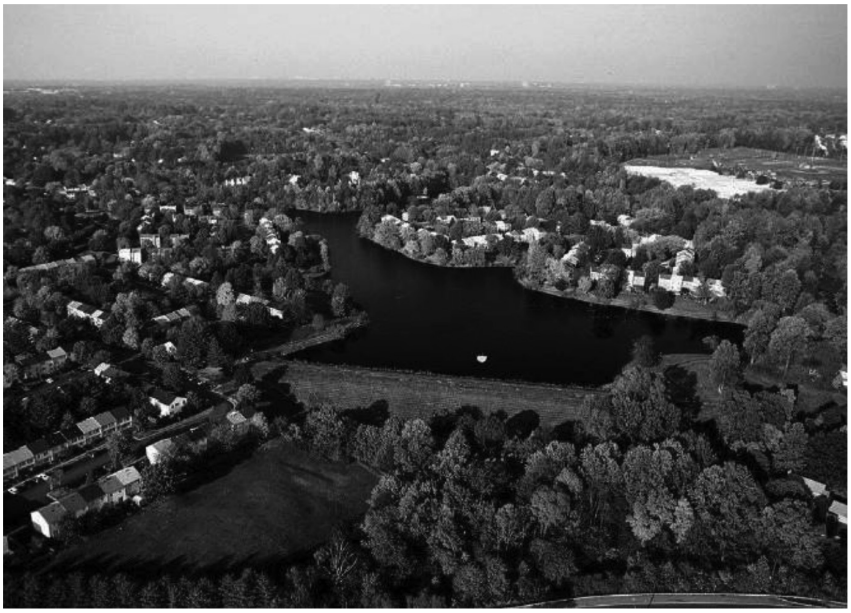
Authorized Purposes

The authorized purposes for watershed projects are wide-ranging, and mutually supportive:

- *Flood prevention*—Flood prevention measures reduce flooding and damage caused by floodwater, including reducing runoff, erosion and sediment. These measures may include structural measures, such as dams or levees; nonstructural measures, such as easements, flood proofing, or infrastructure relocation; or a combination of both types of measures (*Fig. 4*).
- *Watershed protection*—Watershed protection includes onsite treatment of watershed natural resource concerns, such as water quality or water quantity. Project measures may target controls for offsite floodwater, erosion, sediment and agriculture related pollutants (*Fig. 5*).
- *Agricultural water management*—Agricultural water management includes measures that help to manage water supply for agriculture and rural communities. Measures such as drainage management, groundwater recharge, irrigation management, water conservation, water quality improvement, and rural water supply are included (*Fig. 6*).
- *Municipal and industrial water supply*—Municipal and industrial water supply includes measures necessary to provide storage capacity in reservoirs to increase the availability of water for present and future use (*Fig. 7*).
- *Fish and wildlife habitat and public recreation development*—Fish and wildlife habitat and public recreation development are often companion purposes in watershed projects. These project purposes may be included in a watershed plan when the sponsor agrees to operate and maintain a reservoir or other area for public recreation or fish and wildlife access (*Fig. 8*).

The following figures provide examples of existing watershed projects and the types of benefits delivered.

Figure 4. Watershed Project, Virginia



This project includes structural (dam) and nonstructural measures to manage water for this community, providing flood prevention, water quality, and recreation benefits.

Figure 5. Watershed Project, Tama, Iowa

This project combines terraces, buffer strips, and grass planting measures to address local water quality natural resource concerns.

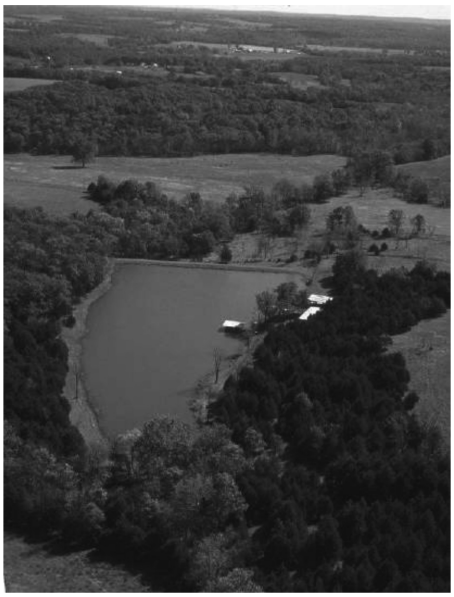
Figure 6. Grade Stabilization, Gracemont, Oklahoma

This project in Kickapoo Creek, Oklahoma reduces streambank erosion and improves water quality.

Figure 7. Three Mile Lake, Union County, Iowa

This project provides water supply, flood prevention and recreation benefits.

Figure 8. Watershed Project, Western Missouri



This project provides water supply and recreational opportunities.

Stakeholder Input

In preparing this multi-year plan, NRCS reached out to stakeholders on priority needs and recommendations for program implementation. Several national organizations provided comments, which are summarized below.

Focus investments on agricultural water supply and resilience to climate change. Commenters encouraged USDA–NRCS to specifically recognize the threats to agriculture from climate change, specifically the anticipated impacts on water supply for agriculture and the related impacts on food supply, prices, and producer financial risk. Commenters recommended that the priority for watershed program investments be on agricultural water supply and resilience to climate change impacts. Future investment decisions should be guided toward agricultural viability, resilience, and reducing vulnerability. Commenters recognized that this approach may drive a focus toward new projects as a result of emerging vulnerabilities from climate-induced stresses to water supply and management.

Include forest restoration on private lands to protect water supplies as a priority. Commenters encouraged USDA–NRCS to recognize the significant threat to water supplies that is posed by loss of forested lands. The commenters noted that an estimated 53 percent of water supply in the contiguous 48 states originates on forestland and that western forests are particularly at risk, many of which are privately owned and play a significant role in water supply and water quality. Restoration of forests on private land to improve their resilience helps to reduce wildfire risks for private and adjacent public forestlands.

Align investments with other agencies where possible to maximize impact. One commenter recommended that USDA–NRCS provide priority for projects that complement or align with work being conducted by other agencies (*e.g.,* U.S. Forest Service) to amplify benefits. For example prioritizing projects that would restore private forestland where Federal land management agencies are conducting similar activities on adjacent public lands.

Establish a continuing review and ranking of watershed projects. Recognizing that a significant backlog exists in previously authorized watershed projects and that some may no longer be of local interest, commenters recommended that USDA–NRCS assess all previously authorized yet uncompleted projects. It was recommended that the resulting list of projects should be prioritized in conjunction with partners, and the priority setting process include a "readiness criteria test" for implementation. In addition, commenters recommended that projects in queue be re-

viewed and re-ranked annually to allow the program to be responsive to changing conditions.

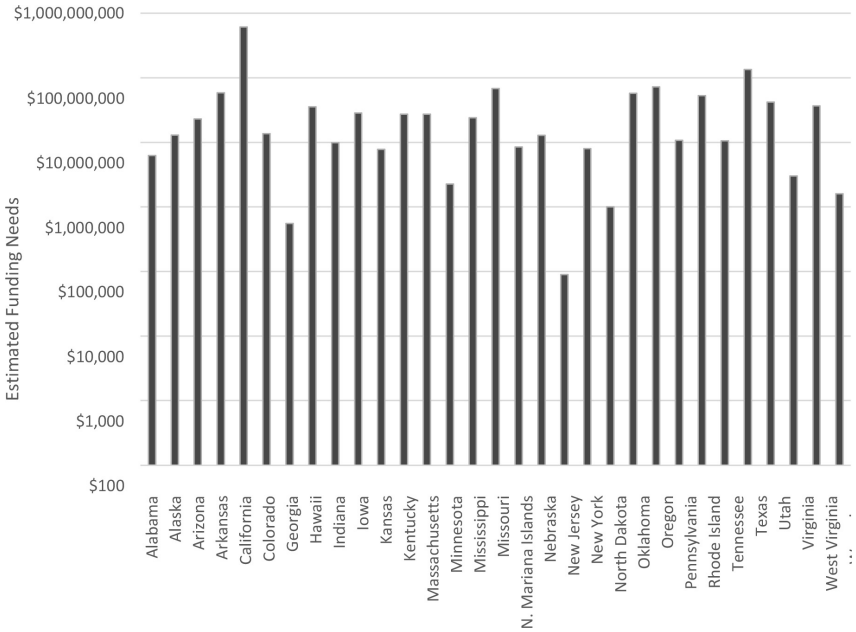
Advocate for legislative changes to streamline implementation. Commenters noted that circumstances have changed significantly since the watershed program was authorized (1954) and opportunity exists to streamline and improve operations. These recommendations for legislative changes, outside the scope of this plan, focused on: broadening and balancing program purposes and eligibility; removing structure size limitations; improving data and benefits information; harmonizing program with similar authorities in other agencies; addressing cost-share rates; eliminating unused authorities and lower priority purposes; and improving clarity and intent.

Agency Assessment of National Needs

In addition to invited comments, NRCS also evaluated specific watershed protection and flood prevention project needs and associated costs as part of this plan development. This included a review of the existing authorized but unfunded projects, existing projects needing remediation, and potential new projects. Through this process, 220 projects were identified; addressing a variety of purposes from flood prevention and watershed protection to agricultural water management and municipal and industrial water supply. The total cost of these projects was estimated at nearly $1.4 billion from FY 2016 through 2020 (*Fig. 9*), which includes the share that would be contributed by the state or local partners, generally about 25 percent of total costs. *Appendix A* provides greater detail on project locations, purposes, and estimated costs.

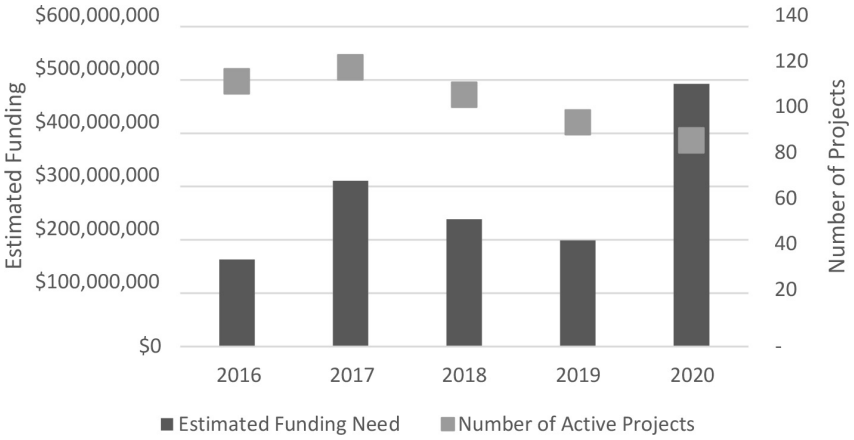
Figure 9. Estimated Funding Need for Watershed Projects, by State, 2016–2020

(Over $1.4 billion in funding needed)



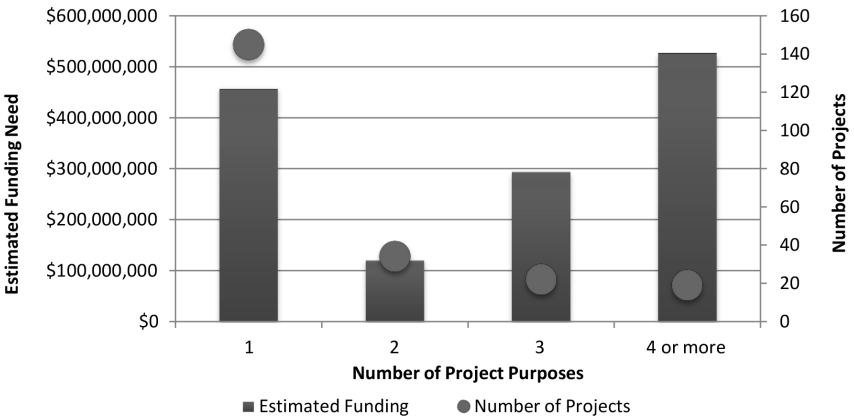
Estimated funding needs to complete projects vary by fiscal year reflecting differences in the project status, length of time to complete, and complexity of the project. *Figure 10* shows the level of estimated funding and number of active projects by fiscal year. The 220 identified projects cover more than one fiscal year; the project numbers presented in the figure below reflect projects that would be underway at that time and are not additive across fiscal years.

Figure 10. Estimated Funding Need and Active Projects, by Fiscal Year



The majority (⅔) of projects focus on one of four single purposes—Flood Prevention, Agricultural Water Management, Land Treatment, or Water Quality (*Fig. 11*). Flood Prevention accounted for over 80 percent of these single-purpose projects and was identified as a shared purpose in another 19 percent of projects, making it the most common objective of the identified needs.

Figure 11. Estimated Funding Need by Number of Project Purposes



Projects were also identified in terms of the type of activity to be conducted. Most project needs focused on completing construction of previously planned and designed components. Less than five percent of identified funding is for remediation needs—existing projects where measures are needed to correct oversights in structural designs or construction. *Table 1* shows the number of projects and estimated funding by the stage of the project.

Table 1. Number of Projects by Stage and Associated Estimated Funding Need

Project Stage	Estimated Funding	Number of Projects
Remediation	$61,147,500	49
Planning	$23,295,000	12
Planning/Design	$1,000,000	1
Design	$26,746,700	13
Design/Construction	$403,388,640	81
Construction	$128,202,000	32

Table 1. Number of Projects by Stage and Associated Estimated Funding Need—Continued

Project Stage	Estimated Funding	Number of Projects
Planning/Design/Construction	$760,238,600	32
Grand Total	**$1,404,018,440**	**220**

Process for Prioritizing Watershed Project Proposals

The Watershed and Flood Prevention Operations (WFPO) Program provides technical and financial assistance to states, local governments and Tribes (project sponsors) to plan and implement authorized watershed project plans for the purpose of:

- watershed protection.
- flood mitigation.
- water quality improvements.
- soil erosion reduction.
- rural, municipal and industrial water supply.
- irrigation.
- water management.
- sediment control.
- fish and wildlife enhancement.
- hydropower.

In order to be approved, projects must (1) be publicly sponsored, (2) be 250,000 acres or less, and (3) have at least 20 percent of benefits related to agriculture, including rural communities. In addition and in accordance with statute, projects that will exceed $5 million in Federal contributions or with single structures holding more than 2,500 acre-feet require Congressional approval.

Sponsor capacity is an essential project element; sponsors must demonstrate capacity to implement, operate, and maintain the project, including possessing the necessary authorities; funding; acquisition of easements or other rights needed; and demonstrated capability to operate and maintain the project upon completion.

Pursuant to Congressional guidance, the agency process for prioritizing watershed projects must consider (1) the agency's mission, (2) existing investment in watershed projects, and (3) future needs for improving watershed condition and mitigating the potential for watershed impairments.

Agency Mission

NRCS' Mission Statement is "Helping People Help the Land," which highlights the agency's role in developing and delivering high quality products and services that enable people to be good stewards of the nation's soil, water, and related natural resources on non-Federal lands. The vision is a landscape where working farms, forests, and ranches are in balance with a healthy environment. This mission statement aligns seamlessly with the purposes of the watershed program and the agency's emphasis on assisting agricultural producers and communities address the dual challenges of adapting to and mitigating the effects of climate change.

Existing Investment

To guide investment in existing watershed projects, NRCS will focus on those projects where remediation is required. These are projects where the engineering design or related aspects of implementation are not operating as intended, as evaluated and verified through inspection. An estimated 49 projects in eight states are in need of remediation at an estimated $55 million, or four percent of total needs for the period 2016–2020. Based on funding availability, NRCS will allocate an appropriate level to address remediation needs on an annual basis.

Future Needs

To guide investment in future needs for improving watershed condition and mitigating potential for watershed impairments, NRCS is establishing a process based on state and national priorities. The process will include an annual announcement program funding (APF) that will outline the specific state and national priorities to be emphasized in the funding year. This allows the agency to focus funding effectively, while providing flexibility over time to accommodate emerging watershed protection priorities. NRCS will evaluate and rank potential projects for funding annu-

ally based on alignment with program priorities established at the state and national levels to be locally responsive, and nationally consistent:

1. State priorities—State Conservationists identify state watershed project priorities with advice from the State Technical Committee. Priorities will consider current conditions and threats such as the effects of climate change, and the major natural resource challenges facing agriculture and rural communities, such as water supply or flooding.
2. National Priorities—National priorities focus on durability and equity. Project proposals will be ranked based on the following:
   - Partner leverage and contributions.
   - Positive return on investment and higher benefit-cost ratio.
   - Contributions to a regional water management need or concern.
   - Benefits in high-poverty or historically under-served communities.
   - Durability of water management solutions for the benefitted area (*e.g.,* economic benefits exceed estimated operation and maintenance (O&M) costs for the long-term; local O&M assured; success of the project is not dependent on environmental or economic factors outside the project area).

This annual process and the associated ranking factors will result in prioritizing projects that will address a locally important, pressing natural resource issue in a timely manner.

Sponsors would be expected to respond to the APF for any project proposed for funding, including those needs outlined in this report and detailed in *Appendix A.* This proactive process ensures that funding will be directed to those projects best positioned for immediate implementation.

Summary

Many challenges that face our nation's food security, water quality, water supplies, wildlife habitat, rural economies, and communities are most cost-effectively and efficiently addressed at a watershed scale. The USDA–NRCS watershed program is authorized to address these and related challenges. Historic droughts, floods, and other extreme weather events in recent years have demonstrated the value of previous investments in this program—nearly $2.2 billion in benefits each year accrue as a result of these investments. Today, the watershed program offers the opportunity to address pressing water management issues facing agriculture and communities.

In preparing this multi-year plan NRCS conducted an assessment of current needs. Through that process nearly $1.4 billion in estimated funding needs for 2016–2020 were identified. In addition, NRCS sought input from stakeholders on priorities for the program, going forward. Recommendations were used to help shape a priority setting process that accommodates local needs and national priorities. NRCS will use the prioritization process outlined in this plan to focus funding on the highest priority projects for improving watershed condition and building landscape resilience and preserving, protecting, and improving the nation's land and water resources and quality of the environment.

References

Cai, W., S. Borlace, M. Lengaigne, P. vanRensch, M. Collins, G. Vecchi, A. Timmermann, A. Santoso, M. McPhaden, L. Wu, M. England, G. Wang, E. Guilyardi, and F. Jin. 2014. *Increasing frequency of extreme El Niño events due to greenhouse warming.* NATURE CLIMATE CHANGE. 4: 111–116. doi:10.1038/nclimate2100.

Fischer, E., and R. Knutti. 2015. *Anthropogenic contribution to global occurrence of heavy-precipitation and high-temperature extremes.* NATURE CLIMATE CHANGE. 5: 560–564. doi:10.1038/nclimate2617.

Meals, D., D. Osmond, D. Hoag, M. Arabi, A. Luloff, G. Jennings, M. McFarland, J. Spooner, A. Sharpley, and D. Line. 2012a. *Lessons learned from the NIFA–CEAP: Developing agricultural watershed projects.* NC State University, Raleigh, NC.

Meals, D., A. Sharpley, and D. Osmond. 2012b. *Lessons learned from the NIFA–CEAP: Identifying critical source areas.* NC State University, Raleigh, NC.

Osmond, D., D. Meals, D. Hoag, and M. Arabi. (Eds.) 2012. *How to build better agricultural conservation programs to protect water quality: the National Institute of Food and Agriculture—Conservation Effects Assessment Project experience.* Soil and Water Conservation Society. Ankeny, IA.

Appendix A: Identified Watershed Project Needs, FY 2016–2020

State	Project Name	Eligible Purpose(s)	Project Status	Estimated Funding
		Fiscal Year 2016		
Alabama	Big Nance Creek Site 4	FP	Remedial	$500,000
	Mush Creek Site 2	FP	Remedial	$500,000
	Powell Creek Site 3	FP	Remedial	$1,000,000
	Powell Creek Site 4	FP	Remedial	$1,000,000
Arizona	Fredonia FRS	FP	Remedial	$23,000,000
	Arkansas Bayou Meto	AWM	Design	$125,000
	Departee Creek	FP	Construction	$750,000
	Departee Creek	FP	Design	$150,000
	Grand Prairie	AWM	Design	$125,000
California	Beardsley	FP, LT, AWM,	M&I Planning	$300,000
	Lower Llagas Creek	FP, LT, AWM, M&I, WQ, F&W	Design	$500,000
	Lower Silver Creek	FP, LT, WQ	Planning	$500,000
	McCoy Wash	FP, LT, WQ	Design	$500,000
Colorado	6 Mile St. Charles	LT, AWM, WQ	Construction	$900,000
	Highland Breaks	LT, WQ	Construction	$1,500,000
	Holbrook Lake Ditch	LT, AWM, WQ	Construction	$500,000
	Limestone-Graveyard Creeks	LT, WQ	Construction	$500,000
Georgia	Bull Creek 3	FP, LT	Remedial	$400,000
	North Broad River 33	FP, LT	Remedial	$150,000
Hawaii	Lahaina	FP, LT	Design/Construction	$9,900,000
	Upcountry Maui	AWM	Design/Construction	$2,550,000
Indiana	Muddy Fork of Silver Creek	FP, F&W, M&I	Planning	$250,000
	Prairie Creek (Daviess)	FP, WQ	Planning	$300,000
Iowa	Clarke County Water Supply	AWM	Design/Construction	$3,315,000
	West Fork of Big Creek	FP	Design/Construction	$411,800
Kansas	Doyle Creek—Site 11	FP	Construction	$879,000
	Elk Creek—Site 4	FP	Design	$39,000
	Grasshopper Coal—Site 29	FP	Design	$37,000
	North Black Vermillion—Site 201	FP	Construction	$445,000
	South Fork Wolf—Site 12–26	FP	Construction	$939,000
Kentucky	Pike County—Floodplain Easement	FP	Planning	$1,000,000
	Rockhouse Creek	FP, LT, F&W	Planning	$350,000
	South Fork Little River	FP, LT	Planning	$1,000,000
	West Fork Mayfield Creek	FP	Planning	$750,000
Massachusetts	Allen Site Dam	FP, LT, F&W	Remedial/Design	$200,000
	Cape Cod Water Resources Restoration Project	LT, F&W, WQ	Planning/Design	$3,000,000
	Deerfield River	LT, WQ	Planning	$300,000
	Great Marsh Restoration Project	LT, F&W, WQ	Planning	$225,000
Minnesota	Rice Lake	WQ	Planning/Design	$345,000
Mississippi	Abiaca Dam 3 (Y–34–03)	FP	Remedial	$250,000
	Byhalia Creek Watershed Dam 4	FP	Remedial	$200,000
	Long Beach Canal 1 Phase 1	FP	Construction	$2,500,000
	Ltl Tallahatchie—Oaklimeter	LT	Construction	$500,000
	Ltl Tallahatchie—Upper Tallahatchie	LT	Construction	$500,000
	Piney Creek GCS	LT	Construction	$750,000
	Sabougla Watershed	LT	Construction	$500,000
	Town Creek	FP	Remedial	$200,000
	Town Creek Dam 5	FP	Construction	$2,500,000
	Yazoo—Arcabutla Creek	LT	Construction	$500,000
	Yazoo—Skuna Structure No. 6	LT	Remedial	$200,000
Missouri	East Locust Creek	AWM, FP, F&W	Planning/Design	$5,000,000
	Little Otter Creek	AWM, FP, F&W	Construction	$2,000,000
	N. Mariana Islands Kagman Watershed	FP, LT, AWM	Design/Construction	$1,250,000
Nebraska	Papio Creek S–5, S–22, D–31, D–78	FP	Planning	$600,000
New Jersey	Assunpink Site 19	FP, F&W	Remedial	$90,000
New York	Ashokan	LT	Design/Construction	$30,000
	Lower Cannonsville	LT	Design/Construction	$330,000
	Moonda/Saterly Creek	FP	Planning	$200,000
	Neversink	LT	Design/Construction	$10,000
	Newtown Hoffman Site 18	FP	Design	$100,000
	Pepacton	LT	Design/Construction	$180,000
	Roundout	LT	Design/Construction	$20,000
	Schoharie	LT	Design/Construction	$100,000
	Upper Cannonsville	LT	Design/Construction	$330,000
North Dakota	Red River Detention	FP, LT, WQ	Planning/Design	$1,000,000
Oklahoma	Bear 3	FP	Remedial	$750,000
	Bear 5	FP	Remedial	$125,000
	Boggy Creek 25	FP	Remedial	$225,000
	Calvary 12	FP	Remedial	$120,000
	Fast Runner 3	FP	Remedial	$50,000
	Lower Bayou 12	FP	Design	$450,000
	Lower Red Rock 1	FP	Design	$475,000
	Middle Deep Red Run 7A	FP	Design	$510,000
	Sugar Creek (Binger Site)	FP	Design	$395,000
	Sugar Creek Drop REM	FP	Design	$325,000
	Turkey Creek 9	FP	Design	$425,000
	Upper Blue River 46	FP	Design	$425,000
	Upper Blue River 48	FP	Design	$375,000
	Upper Blue River 48	FP	Design	$375,000
Oregon	Alder Slope Irrigation	AWM, WQ	Construction	$275,000
	Arnold Irrigation District	AWM, M&I, WQ, F&W	Design/Construction	$1,516,000
	Central Oregon Irrigation District	AWM, M&I, WQ, F&W	Design/Construction	$8,791,820
	Champoeg Watershed	AWM, WQ	Planning	$275,000
	Mud Springs—NUID Lateral 58—11	WQ, AWM	Design	$160,200
	North Agency Plains	WQ, AWM	Planning	$217,500
	North Prairie Creek Irrigation	AWM, WQ, LT	Construction	$1,100,000
	North Unit Irrigation District	AWM, M&I, WQ, F&W	Design/Construction	$730,000
	Ochoco Irrigation District	AWM, M&I, WQ, F&W	Design/Construction	$595,000
	Swalley Irrigation District	AWM, M&I, WQ, F&W	Planning	$295,000
	Three Sisters Irrigation District	AWM, M&I, WQ, F&W	Construction	$2,580,000
	Tumalo Irrigation District	AWM, M&I, WQ, F&W	Design/Construction	$2,000,000
	Twilight Water Quality	WQ, AWM	Design	$80,000
	Upper Grande Ronde Watershed	LT, WQ	Planning	$365,000
	Vale Bench Lateral 227	WQ, AWM	Planning	$165,000
Pennsylvania	Bentley Creek	FP	Planning	$20,000
	Little Toby Creek	WQ	Planning	$20,000
	Mill Creek	WQ	Planning	$50,000
Rhode Island	Pocasset River Flood Mitigation Project	FP	Planning	$150,000
Tennessee	Bear Creek (Scott)	FP	Design	$200,000
Texas	Big Creek (Tri-County)	FP, M&I, F&W	Design	$500,000

Appendix A: Identified Watershed Project Needs, FY 2016–2020—Continued

State	Project Name	Eligible Purpose(s)	Project Status	Estimated Funding
	Choctaw Creek	FP	Design	$500,000
	Ecleto Creek	FP	Design	$800,000
	Elm Creek (1250)	FP	Design	$1,000,000
	Elm Creek (Cen-Tex)	FP	Design	$1,000,000
	Lakeview	FP	Remedial	$500,000
	Trinity—Big Sandy Creek	FP	Design	$500,000
	Trinity—Grays Creek	FP	Remedial	$200,000
Utah	Anabella Canal	AWM, FP	Design	$4,200,000
	Cottonwood Canyon (Anabella)	FP, AWM	Design	$3,200,000
	Flat Canyon DB	FP, AWM	Design	$8,500,000
	Marion Canal	AWM, FP	Planning	$1,500,000
	Willow Creek	FP, AWM	Design	$350,000
Virginia	North Fork Powell River	LT, WQ	Design/Construction	$1,000,000
West Virginia	Big Sandy—Dry Fork	FP, WQ, LT	Planning	$500,000
	Potomac—Lost River 16	FP, M&I	Construction	$35,000,000
Wyoming	Kaycee	FP	Design	$350,000
	Fiscal Year 2017			
Alabama	Camp Branch	LT, WQ	Design/Construction	$396,000
	Harrison Mill/Panther Creek	LT, WQ	Design/Construction	$225,000
	Northeast Yellow River	LT, WQ	Design, Construction	$1,878,500
	Pates Creek	LT, WQ	Design/Construction	$228,000
Alaska	Delta Clearwater	FP	Construction	$13,000,000
Arkansas	Bayou Meto	AWM	Construction	$6,250,000
	Big Slough Site 7	FP	Design	$250,000
	Departee Creek	FP	Design	$125,000
	Grand Prairie	AWM	Construction	$6,250,000
California	Beardsley	FP, LT, AWM, M&I	Planning	$300,000
	Lllagas Creek	FP, LT, AWM, M&I, WQ	Planning	$127,250,000
	Lower Calaveras—Mormon	FP, LT, AWM, M&I, WQ	Planning	$1,750,000
	Lower Llagas Creek	FP, LT, AWM, M&I, WQ, F&W	Design	$500,000
	Lower Silver Creek	FP, LT, WQ	Design	$750,000
	McCoy Wash	FP, LT, WQ	Design	$750,000
	Mill	FP, LT, AWM, M&I, WQ	Planning	$1,190,000
	Oasis	FP, LT, WQ	Planning	$1,000,000
	Upper Calaveras	FP, LT, AWM, M&I, WQ	Planning	$2,870,000
	Upper Deer—Upper White	FP, LT, AWM, M&I, WQ	Planning	$2,590,000
	Upper Dry	FP, LT, AWM, M&I, WQ	Planning	$980,000
	Upper Poso	FP, LT, AWM, M&I, WQ	Planning	$2,030,000
Colorado	6 Mile St. Charles	LT, AWM, WQ	Construction	$900,000
	Highland Breaks	LT, WQ	Construction	$1,500,000
	Holbrook Lake Ditch	LT, AWM, WQ	Construction	$500,000
	Limestone—Graveyard Creeks	LT, WQ	Construction	$500,000
Hawaii	Lahaina	FP, LT	Construction	$6,800,000
	Lower Hamakua Ditch	AWM, LT	Design/Construction	$500,000
	Upcountry Maui	AWM	Design	$600,000
	Wailuku—Alenaio	FP	Design	$300,000
Indiana	Muddy Fork of Silver Creek	FP, F&W, M&I	Planning	$250,000
	Prairie Creek (Daviess)	FP, WQ	Planning	$300,000
Iowa	Clarke County Water Supply	AWM	Design/Construction	$13,150,000
	Twelve Mile Creek	FP	Design/Construction	$235,000
	West Fork of Big Creek	FP	Design/Construction	$514,600
Kansas	Elk Creek—Site 12	FP	Design	$40,000
	Elk Creek—Site 4	FP	Construction	$463,900
	Grasshopper Coal—Site 29	FP	Construction	$435,000
	Squaw Creek Lower Wolf—Site 5–9	FP	Design	$35,000
	Squaw Creek Lower Wolf—Site 6–4a	FP	Design	$44,000
Kentucky	Pike County—Floodpain Easement	FP	Plan/Implement	$1,000,000
	Rockhouse Creek	FP, LT, F&W	Design	$700,000
	South Fork Little River	FP, LT	Design	$700,000
	West Fork Mayfield Creek	FP	Design	$300,000
Massachusetts	Allen Site Dam	FP, LT, F&W	Remedial	$500,000
	Cape Cod Water Resources Restoration Project	LT, F&W, WQ	Plan/Design/Construction	$4,000,000
	Deerfield River	LT, WQ	Planning	$300,000
	Great Marsh Restoration Project	LT, F&W, WQ	Planning	$225,000
Minnesota	Rice Lake	WQ	Construction	$1,915,000
Mississippi	Long Beach Canal 1 Phase 2	FP	Construction	$2,500,000
	Ltl Tallahatchie—Oaklimeter	LT	Construction	$500,000
	Ltl Tallahatchie—Upper Tallahatchie	LT	Construction	$500,000
	Piney Creek GCS	LT	Construction	$750,000
	Town Creek	LT	Construction	$500,000
	Yazoo—Arcabutla Creek	LT	Construction	$500,000
	Yazoo—Skuna Yoda Creek Structure	LT	Remedial	$250,000
Missouri	Big Creek Hurricane Ck	FP	Construction	$1,000,000
	East Locust Creek	AWM, FP, F&W	Construction	$12,000,000
	Upper Locust Creek	FP	Construction	$1,000,000
	West Fork of Big Creek	FP	Construction	$1,000,000
N. Mariana Islands	Kagman Watershed	FP, LT, AWM	Design/Construction	$650,000
Nebraska	Papio S–22	FP	Design	$200,000
	Papio S–5	FP	Design	$500,000
New York	Ashokan	LT	Design/Construction	$30,000
	Lower Cannonsville	LT	Design/Construction	$330,000
	Moonda/Saterly Creek	FP	Planning	$200,000
	Neversink	LT	Design/Construction	$10,000
	Newtown Hoffman Site 18	FP	Design	$50,000
	Pepacton	LT	Design/Construction	$180,000
	Roundout	LT	Design/Construction	$20,000
	Schoharie	LT	Design/Construction	$100,000
	Upper Cannonsville	LT	Design/Construction	$330,000
Oklahoma	Dry Creek 17	FP	Remedial	$75,000
	Little Deep Fork 20	FP	Remedial	$95,000
	Lower Bayou 12	FP	Construction	$1,300,000
	Lower Red Rock 16	FP	Remedial	$150,000
	Middle Deep Red Run 7A	FP	Construction	$1,400,000
	North Deer Creek 1	FP	Remedial	$142,500
	Quawpaw 27	FP	Remedial	$110,000
	Sugar Creek Drop	FP	Remedial	$210,000
	Sugar Creek Drop	FP	Remedial	$2,500,000
	Upper Black Bear 36	FP	Remedial	$125,000
	Upper Blue River 35	FP	Design	$450,000
	Upper Blue River 36	FP	Design	$450,000

Appendix A: Identified Watershed Project Needs, FY 2016–2020—Continued

State	Project Name	Eligible Purpose(s)	Project Status	Estimated Funding
	Upper Blue River 46	FP	Construction	$850,000
	Upper Blue River 48	FP	Construction	$950,000
Oregon	Alder Slope Irrigation	AWM, WQ	Construction	$962,000
	Arnold Irrigation District	AWM, M&I, WQ, F&W	Construction	$2,060,000
	Central Oregon Irrigation District	AWM, M&I, WQ, F&W	Construction	$3,649,220
	Champoeg Watershed	AWM, WQ	Design	$495,000
	Mud Springs—NUID Lateral 58—11	WQ, AWM	Construction	$150,000
	North Agency Plains	WQ, AWM	Design	$217,500
	North Prairie Creek Irrigation	AWM, WQ, LT	Construction	$2,200,000
	North Unit Irrigation District	AWM, M&I, WQ, F&W	Construction	$880,000
	Ochoco Irrigation District	AWM, M&I, WQ, F&W	Construction	$1,230,000
	Swalley Irrigation District	AWM, M&I, WQ, F&W	Construction	$510,000
	Three Sisters Irrigation District	AWM, M&I, WQ, F&W	Construction	$1,846,000
	Tumalo Irrigation District	AWM, M&I, WQ, F&W	Construction	$2,000,000
	Twilight Water Quality	WQ, AWM	Design	$160,000
	Upper Grande Ronde Watershed	LT, WQ	Planning	$380,000
	Vale Bench Lateral 227	WQ, AWM	Planning	$275,000
Pennsylvania	Bentley Creek	FP	Design	$1,200,000
	Little Toby Creek	WQ	Design	$200,000
	Mill Creek	WQ	Design	$350,000
	unnamed watershed	FP	Planning	$200,000
Rhode Island	Pocasset River Flood Mitigation Project	FP	Design	$1,530,000
Tennessee	Bear Creek (Scott)	WQ	Construction	$2,000,000
	Hurricane Creek	FP, M&I	Design	$750,000
	North Fork Forked Deer	FP	Remedial/Design	$800,000
Texas	Big Creek (Tri-County)	FP, M&I, F&W	Design/Construction	$5,000,000
	Choctaw Creek	FP	Construction	$6,000,000
	Elm Creek (1250)	FP	Design/Construction	$4,000,000
	Trinity—Big Sandy Creek	FP	Construction	$6,000,000
	Trinity—Chambers Creek	FP	Remedial	$3,000,000
	Trinity—Pilot Grove	FP	Remedial	$3,000,000
	Trinity—Richland Creek	FP	Remedial	$3,000,000
Utah	Cedar Ridge	FP, AWM	Design	$3,800,000
	Coyote Gulch Wash (Ivins)	FP	Planning	$2,800,000
	Gould's Wash DB	FP, AWM	Design	$4,500,000
	St. George DBs	FP	Planning	$3,200,000
	Vigin	FP	Planning	$1,500,000
Virginia	North Fork Powell River	LT, WQ	Design/Construction	$500,000
Wyoming	Kaycee	FP	Construction	$1,235,400
	Fiscal Year 2018			
Alabama	Whitewater Creek	LT, WQ	Design/Construction	$114,000
	Wilkerson Creek	LT, WQ	Design/Construction	$396,000
Arkansas	Bayou Meto	AWM	Construction	$6,250,000
	Big Slough Site 7	FP	Construction	$1,250,000
	Departee Creek	FP	Construction	$5,500,000
	Grand Prairie	AWM	Construction	$6,250,000
California	Beardsley	FP, LT, AWM, M&I	Design	$500,000
	Llagas Creek	FP, LT, AWM, M&I, WQ	Planning	$10,000,000
	Lower Calaveras—Mormon	FP, LT, AWM, M&I, WQ	Planning	$1,750,000
	Lower Llagas Creek	FP, LT, AWM, M&I, WQ, F&W	Construction	$3,000,000
	Lower Silver Creek	FP, LT, WQ	Design	$750,000
	McCoy Wash	FP, LT, WQ	Design	$750,000
	Mill	FP, LT, AWM, M&I, WQ	Planning	$1,190,000
	Oasis	FP, LT, WQ	Planning	$750,000
	Upper Calaveras	FP, LT, AWM, M&I, WQ	Planning	$2,870,000
	Upper Deer—Upper White	FP, LT, AWM, M&I, WQ	Planning	$2,590,000
	Upper Dry	FP, LT, AWM, M&I, WQ	Planning	$980,000
	Upper Poso	FP, LT, AWM, M&I, WQ	Planning	$2,030,000
Colorado	6 Mile St. Charles	LT, AWM, WQ	Construction	$900,000
	Highland Breaks	LT, WQ	Construction	$1,500,000
	Holbrook Lake Ditch	LT, AWM, WQ	Construction	$500,000
	Limestone—Graveyard Creeks	LT, WQ	Construction	$500,000
Hawaii	Kahaluu	FP, LT, REC	Planning	$100,000
	Lower Hamakua Ditch	AWM, LT	Design/Construction	$1,500,000
	Wailuku—Alenaio	FP	Construction	$1,100,000
	Waimanalo	AWM	Planning/Design	$200,000
Indiana	Muddy Fork of Silver Creek	FP, F&W, M&I	Design	$470,000
	Prairie Creek (Daviess)	FP, WQ	Design	$330,000
Iowa	Clarke County Water Supply	AWM	Construction	$5,634,600
	East Fork of the Grand River	FP	Design/Construction	$1,259,000
	West Fork of Big Creek	FP	Construction	$514,600
Kansas	Elk Creek—Site 12	FP	Construction	$467,500
	Middle Creek—Site 11	FP	Design	$100,000
	Squaw Creek Lower Wolf—Site 5–8	FP	Design	$58,000
	Squaw Creek Lower Wolf—Site 5–9	FP	Construction	$414,000
	Squaw Creek Lower Wolf—Site 6–4a	FP	Construction	$523,000
Kentucky	Pike County—Floodpain Easement	FP	Implementation	$500,000
	Rockhouse Creek	FP, LT, F&W	Construction	$4,500,000
	South Fork Little River	FP, LT	Construction	$5,000,000
	West Fork Mayfield Creek	FP	Construction	$5,000,000
Massachusetts	Cape Cod Water Resources Restoration Project	LT, F&W, WQ	Plan/Design/Construction	$8,000,000
	Deerfield River	LT, WQ	Planning	$300,000
Mississippi	Ellison Creek GCS 1	LT	Remedial	$250,000
	Ltl Tallahatchie—Oaklimeter	LT	Construction	$500,000
	Ltl Tallahatchie—Upper Tallahatchie	LT	Construction	$500,000
	Piney Creek GCS	LT	Construction	$750,000
	Town Creek	LT	Construction	$200,000
	Yazoo—Arcabutla Creek	LT	Construction	$250,000
	Yazoo—Skuna River	LT	Construction	$500,000
Missouri	Big Creek Hurricane Ck	FP	Construction	$1,000,000
	East Locust Creek	AWM, FP, F&W	Construction	$12,000,000
	East Yellow Creek	FP	Construction	$1,000,000
	Upper Locust Creek	FP	Construction	$1,000,000
	West Fork of Big Creek	FP	Construction	$1,000,000
N. Mariana Islands	Kagman Watershed	FP, LT, AWM	Construction	$4,500,000
Nebraska	Papio D–31	FP	Design	$200,000
	Papio S–22	FP	Design	$200,000
	Papio S–5	FP	Construction	$4,000,000
New York	Ashokan	LT	Design/Construction	$30,000
	Lower Cannonsville	LT	Design/Construction	$330,000

Appendix A: Identified Watershed Project Needs, FY 2016–2020—Continued

State	Project Name	Eligible Purpose(s)	Project Status	Estimated Funding
	Moonda/Saterly Creek	FP	Design	$100,000
	Neversink	LT	Design/Construction	$10,000
	Newtown Hoffman Site 18	FP	Construction	$300,000
	Pepacton	LT	Design/Construction	$180,000
	Roundout	LT	Design/Construction	$20,000
	Schoharie	LT	Design/Construction	$100,000
	Upper Cannonsville	LT	Design/Construction	$330,000
Oklahoma	Bear 44	FP	Remedial	$210,000
	Brushy Peaceable 5	FP	Design	$425,000
	Cotton Coon Mission 12A	FP	Design	$425,000
	Cotton Coon Mission 12B	FP	Design	$425,000
	Jack Creek 6	FP	Design	$400,000
	Lower Black Bear 21	FP	Remedial	$175,000
	Lower Red Rock 1	FP	Construction	$2,500,000
	Middle Deep Red Run 7A	FP	Construction	$1,250,000
	Turkey Creek 9	FP	Construction	$2,100,000
	Uncle John 5	FP	Remedial	$225,000
	Upper Black Bear 28	FP	Remedial	$150,000
	Upper Black Bear 28	FP	Remedial	$180,000
	Upper Blue River 48	FP	Construction	$1,100,000
	Upper Red Rock Site 7	FP	Design	$375,000
Oregon	Alder Slope Irrigation	AWM, WQ	Construction	$176,000
	Arnold Irrigation District	AWM, M&I, WQ, F&W	Construction	$1,491,000
	Central Oregon Irrigation District	AWM, M&I, WQ, F&W	Construction	$3,810,000
	Champoeg Watershed	AWM, WQ	Construction	$550,000
	North Agency Plains	WQ, AWM	Construction	$298,100
	North Prairie Creek Irrigation	AWM, WQ, LT	Construction	$550,000
	North Unit Irrigation District	AWM, M&I, WQ, F&W	Construction	$1,880,000
	Ochoco Irrigation District	AWM, M&I, WQ, F&W	Construction	$1,210,000
	Swalley Irrigation District	AWM, M&I, WQ, F&W	Construction	$230,000
	Three Sisters Irrigation District	AWM, M&I, WQ, F&W	Construction	$2,010,000
	Tumalo Irrigation District	AWM, M&I, WQ, F&W	Construction	$1,900,000
	Twilight Water Quality	WQ, AWM	Design	$162,500
	Upper Grande Ronde Watershed	LT, WQ	Planning	$415,000
	Vale Bench Lateral 227	WQ, AWM	Planning	$220,000
Pennsylvania	Bentley Creek	FP	Design	$300,000
	Little Toby Creek	WQ	Design	$100,000
	Mill Creek	WQ	Design/Construction	$950,000
	unnamed watershed	FP	Planning	$200,000
Rhode Island	Pocasset River Flood Mitigation Project	FP	Construction	$51,000,000
Tennessee	Hurricane Creek	FP, M&I	Construction	$2,500,000
	North Fork Forked Deer	FP	Design	$250,000
Texas	Big Creek (Tri-County)	FP, M&I, F&W	Construction	$5,000,000
	Caney Creek	FP	Construction	$5,400,000
	Elm Creek (1250)	FP	Construction	$11,000,000
	Elm Creek (Cen-Tex)	FP	Construction	$12,000,000
Utah	Green River Canal	AWM	Planning	$6,000,000
	Helper City	FP	Planning	$2,500,000
Virginia	North Fork Powell River	LT, WQ	Design/Construction	$500,000
West Virginia	Big Sandy—Tug Fork—Elkhorn Creek	FP, WQ, LT	Planning	$500,000
	Fiscal Year 2019			
Arkansas	Bayou Meto	AWM	Construction	$6,250,000
	Grand Prairie	AWM	Construction	$6,250,000
California	Beardsley	FP, LT, AWM, M&I	Construction	$3,500,000
	Llagas Creek	FP, LT, AWM, M&I, WQ	Design	$10,000,000
	Lower Calaveras—Mormon	FP, LT, AWM, M&I, WQ	Design	$1,750,000
	Lower Llagas Creek	FP, LT, AWM, M&I, WQ, F&W	Construction	$3,000,000
	Lower Silver Creek	FP, LT, WQ	Construction	$7,000,000
	McCoy Wash	FP, LT, WQ	Construction	$11,500,000
	Mill	FP, LT, AWM, M&I, WQ	Design	$1,190,000
	Oasis	FP, LT, WQ	Design	$7,000,000
	Upper Calaveras	FP, LT, AWM, M&I, WQ	Design	$2,870,000
	Upper Deer—Upper White	FP, LT, AWM, M&I, WQ	Design	$2,590,000
	Upper Dry	FP, LT, AWM, M&I, WQ	Design	$980,000
	Upper Poso	FP, LT, AWM, M&I, WQ	Design	$2,030,000
Colorado	6 Mile St. Charles	LT, AWM, WQ	Construction	$900,000
	Highland Breaks	LT, WQ	Construction	$1,500,000
	Holbrook Lake Ditch	LT, AWM, WQ	Construction	$500,000
	Limestone—Graveyard Creeks	LT, WQ	Construction	$500,000
Hawaii	Kahaluu	FP, LT, REC	Design	$100,000
	Upcountry Maui	AWM	Construction	$5,350,000
	Wailuku—Alenaio	FP	Design	$700,000
Indiana	Muddy Fork of Silver Creek	FP, F&W, M&I	Construction	$4,700,000
	Prairie Creek (Daviess)	FP, WQ	Construction	$3,300,000
Iowa	East Fork of the Grand River	FP	Design/Construction	$1,259,000
	Turkey Creek	FP	Construction	$118,000
Kansas	Middle Creek—Site 11	FP	Construction	$1,186,500
	Squaw Creek Lower Wolf—Site 5–8	FP	Construction	$690,500
	Upper Black Vermillion—Site 14	FP	Design	$33,000
	Upper Black Vermillion—Site 227	FP	Design	$38,000
Kentucky	Pike County—Floodplain Easement	FP	Implementation	$500,000
	Rockhouse Creek	FP, LT, F&W	Construction	$3,000,000
	South Fork Little River	FP, LT	Construction	$2,000,000
	West Fork Mayfield Creek	FP	Construction	$1,000,000
Massachusetts	Cape Cod Water Resources Restoration Project	LT, F&W, WQ	Plan/Design/Construction	$7,000,000
Mississippi	Ltl Tallahatchie—Oaklimeter	LT	Construction	$500,000
	Ltl Tallahatchie—Oaklimeter	LT	Construction	$500,000
	Ltl Tallahatchie—Upper Tallahatchie	LT	Construction	$500,000
	Piney Creek GCS	LT	Construction	$750,000
	Sabougia Watershed	LT	Construction	$500,000
	Yazoo—Arcabutla Creek	LT	Construction	$500,000
	Yazoo—Skuna River	LT	Construction	$500,000
Missouri	Big Creek Hurricane Ck	FP	Construction	$1,000,000
	East Locust Creek	AWM, FP, F&W	Construction	$12,000,000
	Upper Locust Creek	FP	Construction	$1,000,000
	West Fork of Big Creek	FP	Construction	$1,000,000
N. Mariana Islands	Kagman Watershed	FP, LT, AWM	Construction	$1,800,000
Nebraska	Papio D–31	FP	Design	$200,000
	Papio D–78	FP	Design	$400,000
	Papio S–22	FP	Construction	$3,500,000

Appendix A: Identified Watershed Project Needs, FY 2016–2020—Continued

State	Project Name	Eligible Purpose(s)	Project Status	Estimated Funding
New York	Ashokan	LT	Design/Construction	$30,000
	Lower Cannonsville	LT	Design/Construction	$330,000
	Moonda/Saterly Creek	FP	Construction	$1,000,000
	Neversink	LT	Design/Construction	$10,000
	Pepacton	LT	Design/Construction	$180,000
	Roundout	LT	Design/Construction	$20,000
	Schoharie	LT	Design/Construction	$100,000
	Upper Cannonsville	LT	Design/Construction	$330,000
Oklahoma	Bear Creek 2 REM	FP	Remedial	$175,000
	Boggy Creek 21 REM	FP	Remedial	$175,000
	Boggy Creek 3 REM	FP	Remedial	$200,000
	Cotton Coon Mission 12A	FP	Construction	$2,500,000
	Cotton Coon Mission 12B	FP	Construction	$2,500,000
	Cotton Coon Mission 14	FP	Design	$450,000
	Kickappo Nations 8	FP	Design	$375,000
	South Clinton Lat 2 REM	FP	Remedial	$110,000
	South Clinton Lat 7 REM	FP	Remedial	$110,000
	Sugar Creek (Binger Site)	FP	Construction	$1,250,000
	Turkey 8 REM	FP	Remedial	$250,000
	Upper Blue River 35	FP	Construction	$2,100,000
	Upper Blue River 36	FP	Construction	$1,750,000
	Upper Blue River 47	FP	Design	$450,000
	Upper Muddy Boggy 19	FP	Design	$410,000
	Upper Red Rock Site 7	FP	Construction	$2,250,000
Oregon	Alder Slope Irrigation	AWM, WQ	Construction	$176,000
	Arnold Irrigation District	AWM, M&I, WQ, F&W	Construction	$1,725,000
	Central Oregon Irrigation District	AWM, M&I, WQ, F&W	Construction	$3,810,000
	Champoeg Watershed	AWM, WQ	Construction	$660,000
	North Agency Plains	WQ, AWM	Construction	$217,500
	North Prairie Creek Irrigation	AWM, WQ, LT	Construction	$330,000
	North Unit Irrigation District	AWM, M&I, WQ, F&W	Construction	$1,870,000
	Ochoco Irrigation District	AWM, M&I, WQ, F&W	Construction	$1,310,000
	Swalley Irrigation District	AWM, M&I, WQ, F&W	Construction	$105,000
	Three Sisters Irrigation District	AWM, M&I, WQ, F&W	Construction	$1,580,000
	Tumalo Irrigation District	AWM, M&I, WQ, F&W	Construction	$2,070,000
	Twilight Water Quality	WQ, AWM	Design	$162,500
	Upper Grande Ronde Watershed	LT, WQ	Planning	$365,000
	Vale Bench Lateral 227	WQ, AWM	Planning	$20,000
Pennsylvania	Bentley Creek	FP	Construction	$4,500,000
	Little Toby Creek	WQ	Construction	$350,000
	Mill Creek	WQ	Construction	$600,000
	unnamed watershed	FP	Planning	$200,000
Tennessee	Hurricane Creek	FP, M&I	Construction	$300,000
	North Fork Forked Deer	FP	Design	$1,800,000
Texas	Choctaw Creek	FP	Construction	$18,300,000
	Ecleto Creek	FP	Construction	$10,000,000
	Trinity—Chambers Creek	FP	Remedial	$3,000,000
	Trinity—Pilot Grove	FP	Remedial	$3,000,000
Virginia	North Fork Powell River	LT, WQ	Design/Construction	$500,000
	Fiscal Year 2020			
Arkansas	Bayou Meto	AWM	Construction	$6,250,000
	Grand Prairie	AWM	Construction	$6,250,000
California	Llagas Creek	FP, LT, AWM, M&I, WQ	Construction	$127,250,000
	Lower Calaveras—Mormon	FP, LT, AWM, M&I, WQ	Construction	$21,500,000
	Lower Llagas Creek	FP, LT, AWM, M&I, WQ, F&W	Construction	$3,000,000
	Lower Silver Creek	FP, LT, WQ	Construction	$7,000,000
	McCoy Wash	FP, LT, WQ	Construction	$11,500,000
	Mill	FP, LT, AWM, M&I, WQ	Construction	$14,060,000
	New Site	FP, LT, AWM, M&I, WQ	Construction	$3,400,000
	Oasis	FP, LT, WQ	Construction	$91,250,000
	Upper Calaveras	FP, LT, AWM, M&I, WQ	Construction	$36,380,000
	Upper Deer—Upper White	FP, LT, AWM, M&I, WQ	Construction	$32,660,000
	Upper Dry	FP, LT, AWM, M&I, WQ	Construction	$11,270,000
	Upper Poso	FP, LT, AWM, M&I, WQ	Construction	$25,220,000
Hawaii	Kahaluu	FP, LT, REC	Construction	$800,000
	Lower Hamakua Ditch	AWM, WQ	Design/Construction	$1,500,000
	Wailuku—Alenaio	FP	Construction	$2,600,000
	Waimanalo	AWM	Construction	$800,000
Iowa	East Fork of the Grand River	FP	Construction	$1,257,000
	Mill Creek	LT	Design/Construction	$353,000
	Mosquito of Harrison	FP	Design/Construction	$118,000
Kansas	North Middle Forks Wolf—Site 15–4	FP	Design	$27,900
	North Middle Forks Wolf—Site 15–5	FP	Design	$29,500
	North Middle Forks Wolf—Site 19–8	FP	Design	$24,300
	Upper Black Vermillion—Site 14	FP	Construction	$393,000
	Upper Black Vermillion—Site 227	FP	Construction	$446,500
Massachusetts	Cape Cod Water Resources Restoration Project	LT, F&W, WQ	Construction	$3,000,000
Mississippi	Ltl Tallahatchie—Oaklimeter	LT	Construction	$500,000
	Ltl Tallahatchie—Oaklimeter	LT	Construction	$500,000
	Ltl Tallahatchie—Upper Tallahatchie	LT	Construction	$500,000
	Piney Creek GCS	LT	Construction	$750,000
	Town Creek	LT	Construction	$250,000
	Yazoo—Skuna River	LT	Construction	$500,000
Missouri	Big Creek Hurricane Ck	FP	Construction	$1,000,000
	East Locust Creek	AWM, FP, F&W	Construction	$12,000,000
	East Yellow Creek	FP	Construction	$1,000,000
	West Fork of Big Creek	FP	Construction	$1,000,000
N. Mariana Islands	Kagman Watershed	FP, LT, AWM	Construction	$250,000
Nebraska	Papio D–31	FP	Construction	$1,500,000
	Papio D–78	FP	Construction	$1,500,000
New York	Ashokan	LT	Design/Construction	$30,000
	Lower Cannonsville	LT	Design/Construction	$330,000
	Moonda/Saterly Creek	FP	Construction	$1,000,000
	Neversink	LT	Design/Construction	$10,000
	Pepacton	LT	Design/Construction	$180,000
	Roundout	LT	Design/Construction	$20,000
	Schoharie	LT	Design/Construction	$100,000
	Upper Cannonsville	LT	Design/Construction	$330,000
Oklahoma	Bear Creek Site 1	FP	Design	$500,000
	Brushy Peaceable 5	FP	Construction	$2,250,000

Appendix A: Identified Watershed Project Needs, FY 2016–2020—Continued

State	Project Name	Eligible Purpose(s)	Project Status	Estimated Funding
	Cotton Coon Mission 14	FP	Construction	$2,100,000
	Cotton Coon Mission Site 13	FP	Design	$525,000
	Jack Creek 6	FP	Construction	$2,500,000
	Kickappo Nations 8	FP	Construction	$1,900,000
	Little Washita River Site 37	FP	Design	$475,000
	Oak Creek 9	FP	Remedial	$175,000
	Stillwater 35	FP	Remedial	$250,000
	Turkey 11	FP	Remedial	$210,000
	Upper Black Bear 51	FP	Remedial	$310,000
	Upper Blue River 47	FP	Construction	$2,100,000
	Upper Muddy Boggy 19	FP	Construction	$2,250,000
	Upper Muddy Boggy 26	FP	Remedial	$125,000
	Upper Muddy Boggy 30	FP	Design	$500,000
	Upper Red Rock 42	FP	Remedial	$250,000
	Upper Red Rock Site 7	FP	Construction	$1,750,000
	Wildhorse Creek Site 88	FP	Design	$475,000
Oregon	Alder Slope Irrigation	AWM, WQ	Construction	$176,000
	Arnold Irrigation District	AWM, M&I, WQ, F&W	Design	$800,000
	Central Oregon Irrigation District	AWM, M&I, WQ, F&W	Design	$1,700,000
	Champoeg Watershed	AWM, WQ	Construction	$660,000
	North Prairie Creek Irriga[ti]on	AWM, WQ, LT	Construction	$110,000
	North Unit Irrigation District	AWM, M&I, WQ, F&W	Design	$850,000
	Ochoco Irrigation District	AWM, M&I, WQ, F&W	Design	$650,000
	Swalley Irrigation District	AWM, M&I, WQ, F&W	Planning	$50,000
	Three Sisters Irrigation District	AWM, M&I, WQ, F&W	Construction	$750,000
	Tumalo Irrigation District	AWM, M&I, WQ, F&W	Design	$1,000,000
	Twilight Water Quality	WQ, AWM	Design	$30,000
	Upper Grande Ronde Watershed	LT, WQ	Planning	$40,000
Pennsylvania	Bentley Creek	FP	Construction	$300,000
	Little Toby Creek	WQ	Construction	$50,000
	Mill Creek	WQ	Construction	$50,000
	unnamed watershed	FP	Planning	$1,000,000
Tennessee	North Fork Forked Deer	FP	Construction	$2,000,000
Texas	Big Creek (Tri-County)	FP, M&I, F&W	Construction	$10,000,000
	Big Creek (Tri-County)	FP, M&I, F&W	Construction	$10,000,000
	Middle Colorado—Southwest Laterals	FP	Construction	$2,700,000
	Middle Colorado—Upper Pecan Bayou	FP, M&I, F&W	Construction	$5,400,000
	Trinity—Richland Creek	FP	Remedial	$3,000,000
Virginia	North Fork Powell River	LT, WQ	Design/Construction	$500,000
West Virginia	Big Sandy—Pond Creek	FP, WQ, LT	Planning	$500,000
Grand Total				**$1,404,018,440**

Eligible Purpose Key:

FP—Flood Prevention.
LT—Land Treatment/Watershed Protection.
F&W—Public Recreation.
AWM—Agricultural Water Management.
M&I—Municipal and Industrial Water Supply.
WQ—Water Quality Management.

Appendix B: Watershed Operations Appropriations, 1947–2015

Fiscal Year	Amount Funded	Fiscal Year	Amount Funded
1947	$2,100,000	1982	$176,611,000
1948	3,000,000	1983	181,295,000
1949	6,000,000	1984	175,000,000
1950	9,500,000	1985	175,325,850
1951	10,315,000	1986	176,691,000
1952	6,559,600	1987	161,182,000
1953	7,750,000	1988	161,679,000
1954	12,000,000	1989	161,797,400
1955	14,732,000	1990	161,855,000
1956	22,000,000	1991	163,163,000
1957	29,500,000	1992	173,885,000
1958	38,720,000	1993	187,162,000
1959	43,500,000	1994	199,236,000
1960	40,750,000	1995	70,000,000
1961	56,370,000	1996	100,000,000
1962	78,787,000	1997	101,036,000
1963	86,702,200	1998	101,036,000
1964	89,072,000	1999	91,643,000
1965	97,602,000	2000	99,443,000
1966	91,973,000	2001	99,224,000
1967	95,826,100	2002	106,590,000
1968	96,156,000	2003	109,285,000
1969	82,132,000	2004	86,487,000
1970	90,770,000	2005	74,971,000
1971	100,334,000	2006	75,000,000

Appendix B: Watershed Operations Appropriations, 1947–2015—Continued

Fiscal Year	Amount Funded	Fiscal Year	Amount Funded
1972	132,099,000	2007	0
1973	115,675,500	2008	29,790,000
1974	121,674,000	2009	24,289,000
1975	109,641,600	*2009	145,000,000
1976	167,076,000	2010	30,000,000
1977	129,649,000	2011	0
1978	143,280,000	2012	0
1979	148,107,000	2013	0
1980	152,244,000	2014	0
1981	177,024,000	2015	0
Total Funding			**$6,207,297,250**

*(ARRA).

Appendix C: Watershed Protection and Flood Prevention Act—P.L. 83–566

Watershed Protection and Flood Prevention

Sec. 1001. Declaration of policy.

Erosion, floodwater, and sediment damages in the watersheds of the rivers and streams of the United States, causing loss of life and damage to property, constitute a menace to the national welfare; and it is the sense of Congress that the Federal Government should cooperate with states and their political subdivisions, soil or water conservation districts, flood prevention or control districts, and other local public agencies for the purpose of preventing such damages, of furthering the conservation, development, utilization, and disposal of water, and the conservation and utilization of land and thereby of preserving, protecting, and improving the nation's land and water resources and the quality of the environment.

Sec. 1002. Definitions.

For the purposes of this chapter, the following terms shall mean:

The "Secretary"—the Secretary of Agriculture of the United States.
"Works of improvement"—any undertaking for—

(1) flood prevention (including structural and land treatment measures),
(2) the conservation, development, utilization, and disposal of water, or
(3) the conservation and proper utilization of land, in watershed or subwatershed area not exceeding two hundred and fifty thousand acres and not including any single structure which provides more than twelve thousand five hundred acre-feet of floodwater detention capacity, and more than twenty-five thousand acre-feet of total capacity. No appropriation shall be made for any plan involving an estimated Federal contribution to construc-

tion costs in excess of $5,000,000, or which includes any structure which provides more than twenty-five hundred acre-feet of total capacity unless such plan has been approved by resolutions adopted by the appropriate Committees of the Senate and House of Representatives: Provided, That in the case of any plan involving no single structure providing more than 4,000 acre-feet of total capacity the appropriate Committees shall be the Committee on Agriculture, Nutrition, and Forestry of the Senate and the Committee on Agriculture of the House of Representatives and in the case of any plan involving any single structure of more than 4,000 acre-feet of total capacity the appropriate Committees shall be the Committee on Environment and Public Works of the Senate and the Committee on Public Works and Transportation of the House of Representatives, respectively. Each project must contain benefits directly related to agriculture, including rural communities that account for at least 20 percent of the total benefits of the project. A number of such sub-watersheds when they are component parts of a larger watershed may be planned together when the local sponsoring organizations so desire.

"Local organization"—any state, political subdivision thereof, soil or water conservation district, flood prevention or control district, or combinations thereof, or any other agency having authority under state law to carry out, maintain and operate the works of improvement; or any irrigation or reservoir company, water users' association, or similar organization having such authority and not being operated for profit that may be approved by the Secretary; or any Indian Tribe or Tribal organization, as defined in section 450b of title 25, having authority under Federal, state, or Indian Tribal law to carry out, maintain, and operate the works of improvement.

Sec. 1003. Assistance to local organizations.

In order to assist local organizations in preparing and carrying out plans for works of improvement, the Secretary is authorized, upon application of local organizations if such application has been submitted to, and not disapproved within 45 days by, the state agency having supervisory responsibility over programs provided for in this chapter, or by the Governor if there is no state agency having such responsibility—

(1) to conduct such investigations and surveys as may be necessary to prepare plans for works of improvement;

(2) to prepare plans and estimates required for adequate engineering evaluation;

(3) to make allocations of costs to the various purposes to show the basis of such allocations and to determine whether benefits exceed costs;

(4) to cooperate and enter into agreements with and to furnish financial and other assistance to local organizations: Provided, That, for the land-treatment measures, the Federal assistance shall not exceed the rate of assistance for similar practices under existing national programs;

(5) to obtain the cooperation and assistance of other Federal agencies in carrying out the purposes of this section;

(6) to enter into agreements with landowners, operators, and occupiers, individually or collectively, based on conservation plans of such landowners, operators, and occupiers which are developed in cooperation with and approved by the soil and water conservation district in which the land described in the agreement is situated, to be carried out on such land during a period of not to exceed 10 years, providing for changes in cropping systems and land uses and for the installation of soil and water conservation practices and measures needed to conserve and develop the soil, water, woodland, wildlife, energy, and recreation resources of and enhance the water quality of lands within the area included in plans for works of improvement, as provided for in such plans, including watershed or sub-watershed work plans in connection with the eleven watershed improvement programs authorized by section 13 of the Act of December 22, 1944 (58 Stat. 887), as amended and supplemented. Applications for assistance in developing such conservation plans shall be made in writing to the soil and water conservation district involved, and the proposed agreement shall be reviewed by such district. In return for such agreements by landowners, operators, and occupiers the Secretary shall agree to share the costs of carrying out those practices and measures set forth in the agreement for which he determines that cost-sharing is appropriate and in the public interest. The portion of such costs, including labor, to be shared shall be that part which the Secretary determines is appropriate and in the public interest for the carrying out

of the practices and measures set forth in the agreement, except that the Federal assistance shall not exceed the rate of assistance for similar practices and measures under existing national programs. The Secretary may terminate any agreement with a landowner, operator, or occupier by mutual agreement if the Secretary determines that such termination would be in the public interest, and may agree to such modifications of agreements, previously entered into hereunder, as he deems desirable to carry out the purposes of this paragraph or to facilitate the practical administration of the agreements provided for herein. Notwithstanding any other provision of law, the Secretary, to the extent he deems it desirable to carry out the purposes of this paragraph, may provide in any agreement hereunder for (1) preservation for a period not to exceed the period covered by the agreement and an equal period thereafter of the cropland, crop acreage, and allotment history applicable to land covered by the agreement for the purpose of any Federal program under which such history is used as a basis for an allotment or other limitation on the production of any crop; or (2) surrender of any such history and allotments.

Sec. 1003a. Cost-share assistance.

(a) EASEMENTS.—The Secretary may provide cost-share assistance to project sponsors to enable such sponsors to acquire perpetual wetland or floodplain conservation easements to perpetuate, restore and enhance the natural capability of wetlands and floodplains to retain excessive floodwaters, improve water quality and quantity, and provide habitat for fish and wildlife.

(b) AMOUNT.—The Secretary shall require that project sponsors of watershed projects provide up to 50 percent of the cost of acquiring easements under subsection (a) of this section.

Sec. 1004. Conditions for Federal assistance.

The Secretary shall require as a condition to providing Federal assistance for the installation of works of improvement that local organizations shall—

(1) acquire, or with respect to interests in land to be acquired by condemnation provide assurances satisfactory to the Secretary that they will acquire, without cost to the Federal Government from funds appropriated for the purposes of this chapter, such land, easements, or rights-of-way as will be needed in connection with works of improvement installed with Federal assistance: Provided, That when a local organization agrees to operate and maintain any reservoir or other area included in a plan for public fish and wildlife or recreational development, the Secretary shall be authorized to bear not to exceed ½ of the costs of (a) the land, easements, or rights-of-way acquired or to be acquired by the local organization for such reservoir or other area, and (b) minimum basic facilities needed for public health and safety, access to, and use of such reservoir or other area for such purposes: Provided further, That the Secretary shall be authorized to participate in recreational development in any watershed project only to the extent that the need therefore is demonstrated in accordance with standards established by him, taking into account the anticipated man-days of use of the projected recreational development and giving consideration to the availability within the region of existing water-based outdoor recreational developments: Provided further, That the Secretary shall be authorized to participate in not more than one recreational development in a watershed project containing less than seventy-five thousand acres, or two such developments in a project containing between seventy-five thousand and one hundred and fifty thousand acres, or three such developments in projects exceeding one hundred and fifty thousand acres: Provided further, That when the Secretary and a local organization have agreed that the immediate acquisition by the local organization of land, easements, or rights-of-way is advisable for the preservation of sites for works of improvement included in a plan from encroachment by residential, commercial, industrial, or other development, the Secretary shall be authorized to advance to the local organization from funds appropriated for construction of works of improvement the amounts required for the acquisition of such land, easements or rights-of-way; and, except where such costs are to be borne by the Secretary, such advance shall be repaid by the local organization, with interest, prior to construction of the works of improvement, for credit to such construction funds: Provided further, That the Secretary shall be authorized to bear an amount not to exceed ½ of the costs of the land, easements, or rights-of-way acquired or to be acquired by the local organization for mitigation of fish and wildlife habitat losses, and that such acquisition is not limited to the confines of the watershed project boundaries;

(2) assume—

(A) such proportionate share, as is determined by the Secretary to be equitable in consideration of national needs and assistance authorized for similar purposes under other Federal programs, of the costs of installing any works of improvement, involving Federal assistance (excluding engineering costs), which is applicable to the agricultural phases of the conservation, development, utilization, and disposal of water or for fish and wildlife development, recreational development, ground water recharge, water quality management, or the conservation and proper utilization of land: Provided, That works of improvement for water quality management shall consist primarily of water storage capacity in reservoirs for regulation of streamflow, except that any such storage and water releases shall not be provided as a substitute for adequate treatment or other methods of controlling waste at the source, and shall be consistent with standards and regulations adopted by the Water Resources Council on Federal cost-sharing for water quality management, and

(B) all of the cost of installing any portion of such works applicable to other purposes except that any part of the construction cost (including engineering costs) applicable to flood prevention and features relating thereto shall be borne by the Federal Government and paid for by the Secretary out of funds appropriated for the purposes of this chapter: Provided, That, in addition to and without limitation on the authority of the Secretary to make loans or advancements under section 1006a of this title, the Secretary may pay for any storage of water for present or anticipated future demands or needs for municipal or industrial water included in any reservoir structure constructed or modified under the provisions of this chapter as hereinafter provided: Provided further, That the cost of water storage to meet future demands may not exceed 30 per centum of the total estimated cost of such reservoir structure and the local organization shall give reasonable assurances, and there is evidence, that such demands for the use of such storage will be made within a period of time which will permit repayment within the life of the reservoir structure of the cost of such storage: Provided further, That the Secretary shall determine prior to initiation of construction or modification of any reservoir structure including such water supply storage that there are adequate assurances by the local organization or by an agency of the state having authority to give such assurances, that the Secretary will be reimbursed the cost of water supply storage for anticipated future demands, and that the local organization will pay not less than 50 per centum of the cost of storage for present water supply demands: And provided further, That the cost to be borne by the local organization for anticipated future demands may be repaid within the life of the reservoir structure but in no event to exceed fifty years after the reservoir structure is first used for the storage of water for anticipated future water supply demands, except that—

(1) no reimbursement of the cost of such water supply storage for anticipated future demands need be made until such supply is first used, and

(2) no interest shall be charged on the cost of such water-supply storage for anticipated future demands until such supply is first used, but in no case shall the interest-free period exceed 10 years. The interest rate used for purposes of computing the interest on the unpaid balance shall be determined in accordance with the provisions of section 1006a of this title.

(3) make arrangements satisfactory to the Secretary for defraying costs of operating and maintaining such works of improvement, in accordance with regulations presented by the Secretary of Agriculture;

(4) acquire, or provide assurance that landowners or water users have acquired, such water rights, pursuant to state law, as may be needed in the installation and operation of the work of improvement;

(5) obtain agreements to carry out recommended soil conservation measures and proper farm plans from owners of not less than 50 per centum of the land situated in the drainage area above each retention reservoir to be installed with Federal assistance; and

(6) submit a plan of repayment satisfactory to the Secretary for any loan or advancement made under the provisions of section 1006a of this title.

Sec. 1005. Works of improvement.

(1) ENGINEERING AND OTHER SERVICES; REIMBURSEMENT; ADVANCES.—At such time as the Secretary and the interested local organization have agreed on a plan for works of improvement, and the Secretary has determined that the benefits exceed the costs, and the local organization has met the requirements for participation in carrying out the works of improvement as set forth in section 1004 of this title, the local organization may secure engineering and other services, including the design, preparation of contracts and specifications, awarding of contracts, and supervision of construction, in connection with such works of improvement, by retaining or employing a professional engineer or engineers satisfactory to the Secretary or may request the Secretary to provide such services: Provided, That if the local organization elects to employ a professional engineer or engineers, the Secretary shall reimburse the local organization for the costs of such engineering and other services secured by the local organization as are properly chargeable to such works of improvement in an amount not to exceed the amount agreed upon in the plan for works of improvement or any modification thereof: Provided further, That the Secretary may advance such amounts as may be necessary to pay for such services, but such advances with respect to any works of improvement shall not exceed five per centum of the estimated installation cost of such works.

(2) FEDERAL CONSTRUCTION; REQUEST BY LOCAL ORGANIZATION.—Except as to the installation of works of improvement on Federal lands, the Secretary shall not construct or enter into any contract for the construction of any structure: Provided, That, if requested to do so by the local organization, the Secretary may enter into contracts for the construction of structures.

(3) TRANSMISSION OF CERTAIN PLANS TO CONGRESS.—Whenever the estimated Federal contribution to the construction costs of works of improvement in the plan for any watershed or sub-watershed area shall exceed $5,000,000 or the works of improvement include any structure having a total capacity in excess of twenty-five hundred acre-feet, the Secretary shall transmit a copy of the plan and the justification therefore to the Congress through the President.

(4) TRANSMISSION OF CERTAIN PLANS AND RECOMMENDATIONS TO CONGRESS.—Any plans for works of improvement involving an estimated Federal contribution to construction costs in excess of $5,000,000 or including any structure having a total capacity in excess of twenty-five hundred acre-feet

(a) which includes works of improvement for reclamation or irrigation, or which affects public or other lands or wildlife under the jurisdiction of the Secretary of the Interior,

(b) which includes Federal assistance for floodwater detention structures,

(c) which includes features which may affect the public health, or

(d) which includes measures for control or abatement of water pollution, shall be submitted to the Secretary of the Interior, the Secretary of the Army, the Secretary of Health and Human Services, or the Administrator of the Environmental Protection Agency, respectively, for his views and recommendations at least thirty days prior to transmission of the plan to the Congress through the President. The views and recommendations of the Secretary of the Interior, the Secretary of the Army, the Secretary of Health and Human Services, and the Administrator of the Environmental Protection Agency, if received by the Secretary prior to the expiration of the above thirty-day period, shall accompany the plan transmitted by the Secretary to the Congress through the President.

(5) RULES AND REGULATIONS.—Prior to any Federal participation in the works of improvement under this chapter, the President shall issue such rules and regulations as he deems necessary or desirable to carry out the purposes of this chapter, and to assure the coordination of the work authorized under this chapter and related work of other agencies, including the Department of the Interior and the Department of the Army.

Sec. 1006 Cooperative Programs.

The Secretary is authorized in cooperation with other Federal and with states and local agencies to make investigations and surveys of the watershed of rivers and other waterways as a basis for the development of coordinated programs. In areas where the programs of the Secretary of Agriculture may affect public or other lands under the jurisdiction of the Secretary of the Interior, the Secretary of the Interior is authorized to cooperate with the Secretary of Agriculture in the planning and development of works or programs for such lands.

Sec. 1006a Loans or advancements for financing local share of costs; repayment; interest; maximum amount.

The Secretary is authorized to make loans or advancements

(a) to local organizations to finance the local share of costs of carrying out works of improvement provided for in this chapter, and

(b) to state and local agencies to finance the local share of costs of carrying out works of improvement (as defined in section 1002 of this title) in connection with the eleven watershed improvement programs authorized by section 13 of the Act of December 22, 1944 (58 Stat. 887), as amended and supplemented: Provided, That the works of improvement in connection with said eleven watershed improvement programs shall be integral parts of watershed or sub-watershed work plans agreed upon by the Secretary of Agriculture and the concerned state and local agencies. A loan or advance under this section shall be made under a contract or agreement that provides, under such terms and conditions as the Secretary considers appropriate, for the repayment of the loan or advance in not more than 50 years from the date when the principal benefits of the works of improvement first become available, with interest at a rate not to exceed the current market yield for outstanding municipal obligations with remaining periods to maturity comparable to the average maturity for the loan, adjusted to the nearest ⅛ of 1 percent. With respect to any single plan for works of improvement, the amount of any such loan or advancement shall not exceed $10,000,000.

Sec. 1006b Territorial application.

The provisions of this chapter shall be applicable to Hawaii, Alaska, Puerto Rico, and the Virgin Islands.

Sec. 1007. Authorization of appropriations.

There are hereby authorized to be appropriated such sums as may be necessary to carry out the purposes of this chapter, such sums to remain available until expended. No appropriation hereafter available for assisting local organizations in preparing and carrying out plans for works of improvement under the provisions of section 1003 of this title or clause (a) of section 1006a of this title shall be available for any works of improvement pursuant to this chapter or otherwise in connection with the eleven watershed improvement programs authorized by section 13 of the Act of December 22, 1944 (58 Stat. 887), as amended and supplemented, or for making loans or advancements to state and local agencies as authorized by clause (b) of section 1006a of this title.

Sec. 1008 Notification of Secretary of the Interior of approval of assistance; surveys and investigations; report and recommendations; consideration; cost of surveys; investigations and reports.

When the Secretary approves the furnishing of assistance to a local organization in preparing a plan for works of improvement as provided for in section 1003 of this title:

(1) The Secretary shall so notify the Secretary of the Interior in order that the latter, as he desires, may make surveys and investigations and prepare a report with recommendations concerning the conservation and development of wildlife resources and participate, under arrangements satisfactory to the Secretary of Agriculture, in the preparation of a plan for works of improvement that is acceptable to the local organization and the Secretary of Agriculture.

(2) Full consideration shall be given to the recommendations contained in any such report of the Secretary of the Interior as he may submit to the Secretary of Agriculture prior to the time the local organization and the Secretary of Agriculture have agreed on a plan for works of improvement. The plan shall include such of the technically and economically feasible works of improvement for wildlife purposes recommended in the report by the Secretary of the Interior as are acceptable to, and agreed to by, the local organization and the Secretary of Agriculture, and such report of the Secretary of the Interior shall, if requested by the Secretary of the Interior, accompany the plan for works of improvement when it is submitted to the Secretary of Agriculture for approval or transmitted to the Congress through the President.

(3) The cost of making surveys and investigations and of preparing reports concerning the conservation and development of wildlife resources shall be borne by the Secretary of the Interior out of funds appropriated to his Department.

Sec. 1009 Joint investigations and surveys by Secretary of the Army and Secretary of Agriculture; reports to Congress.

The Secretary of the Army and the Secretary of Agriculture, when authorized to do so by resolutions adopted by the Committee on Environment and Public Works of the Senate or the Committee on Public Works and Transportation of the House of Representatives, are authorized and directed to make joint investigations and surveys in accordance with their existing authorities of watershed areas in the United States, Puerto Rico, and the Virgin Islands, and to prepare joint reports on such investigations and surveys setting forth their recommendations for the installation of the works of improvement needed for flood prevention or the conservation, development, utilization, and disposal of water, and for flood control and allied purposes. Such joint reports shall be submitted to the Congress through the President for adoption and authorization by the Congress of the recommended works of improvement: Provided, That the project authorization procedure established by this chapter shall not be affected.

Sec. 1010 Data.

The Secretary shall collect and maintain data on a national and state by state basis concerning—

(1) expenditures for the individual flood control and conservation measures for which assistance is provided under this chapter; and

(2) the expected flood control or environmental (including soil erosion) benefits that will result from the implementation of such measures.

Sec. 1011. Watershed restoration and enhancement agreements.

(a) IN GENERAL.—For Fiscal Year 1997 and each fiscal year thereafter, appropriations made for the Bureau of Land Management may be used by the Secretary of the Interior for the purpose of entering into cooperative agreements with the heads of other Federal agencies, Tribal, state, and local governments, private and nonprofit entities, and landowners for the protection, restoration, and enhancement of fish and wildlife habitat and other resources on public or private land and the reduction of risk from natural disaster where public safety is threatened that benefit these resources on public lands within the watershed.

(b) DIRECT AND INDIRECT WATERSHED AGREEMENTS.—The Secretary of the Interior may enter into a watershed restoration and enhancement agreement—

(1) directly with a willing private landowner; or

(2) indirectly through an agreement with a state, local, or Tribal government or other public entity, educational institution, or private nonprofit organization.

(c) TERMS AND CONDITIONS.—In order for the Secretary to enter into a watershed restoration and enhancement agreement—

(1) the agreement shall—

(A) include such terms and conditions mutually agreed to by the Secretary and the landowner;

(B) improve the viability of and otherwise benefit the fish, wildlife, and other biotic resources on public land in the watershed;

(C) authorize the provision of technical assistance by the Secretary in the planning of management activities that will further the purposes of the agreement;

(D) provide for the sharing of costs of implementing the agreement among the Federal Government, the Landowner, and other entities, as mutually agreed on by the affected interests; and

(E) ensure that any expenditure by the Secretary pursuant to the agreement is determined by the Secretary to be in the public interest; and

(2) the Secretary may require such other terms and conditions as are necessary to protect the public investment on private lands, provided such terms and conditions are mutually agreed to by the Secretary and other landowners, state and local governments or both.

Sec. 1012. Rehabilitation of structural measures near, at, or past their evaluated life expectancy.

(a) DEFINITIONS.—For purposes of this section:

(1) REHABILITATION.—The term "rehabilitation", with respect to a structural measure constructed as part of a covered water resource project, means the completion of all work necessary to extend the service life of the structural measure and meet applicable safety and performance standards. This may include:

(A) protecting the integrity of the structural measure or prolonging the useful life of the structural measure beyond the original evaluated life expectancy;

(B) correcting damage to the structural measure from a catastrophic event;

(C) correcting the deterioration of structural components that are deteriorating at an abnormal rate;

(D) upgrading the structural measure to meet changed land use conditions in the watershed served by the structural measure or changed safety criteria applicable to the structural measure; or

(E) decommissioning the structure, if requested by the local organization.

(2) COVERED WATER RESOURCE PROJECT.—The term "covered water resource project" means a work of improvement carried out under any of the following:

(A) This chapter

(B) Section 13 of the Act of December 22, 1944 (Public Law 78–534; 58 Stat. 905).

(C) The pilot watershed program authorized under the heading "Flood Prevention" of the Department of Agriculture Appropriation Act, 1954 (Public Law 156; 67 Stat. 214).

(D) Subtitle H of title XV of the Agriculture and Food Act of 1981 (16 U.S.C. 3451 et seq.; commonly known as the Resource Conservation and Development Program).

(3) STRUCTURAL MEASURE.—The term "structural measure" means a physical improvement that impounds water, commonly known as a dam, which was constructed as part of a covered water resource project, including the impoundment area and flood pool.

(b) COST-SHARE ASSISTANCE FOR REHABILITATION.—

(1) ASSISTANCE AUTHORIZED.—The Secretary may provide financial assistance to a local organization to cover a portion of the total costs incurred for the rehabilitation of structural measures originally constructed as part of a covered water resource project. The total costs of rehabilitation include the costs associated with all components of the rehabilitation project, including acquisition of land, easements, and rights-of-ways, rehabilitation project administration, the provision of technical assistance, contracting, and construction costs, except that the local organization shall be responsible for securing all land, easements, or rights-of-ways necessary for the project.

(2) AMOUNT OF ASSISTANCE; LIMITATIONS.—The amount of Federal funds that may be made available under this subsection to a local organization for construction of a particular rehabilitation project shall be equal to 65 percent of the total rehabilitation costs, but not to exceed 100 percent of actual construction costs incurred in the rehabilitation. However, the local organization shall be responsible for the costs of water, mineral, and other resource rights and all Federal, state, and local permits.

(3) RELATION TO LAND USE AND DEVELOPMENT REGULATIONS.—As a condition on entering into an agreement to provide financial assistance under this subsection, the Secretary, working in concert with the affected unit or units of general purpose local government, may require that proper zoning or other developmental regulations are in place in the watershed in which the structural measures to be rehabilitated under the agreement are located so that—

(A) the completed rehabilitation project is not quickly rendered inadequate by additional development; and

(B) society can realize the full benefits of the rehabilitation investment.

(c) TECHNICAL ASSISTANCE FOR WATERSHED PROJECT REHABILITATION.—The Secretary, acting through the Natural Resources Conservation Service, may provide technical assistance in planning, designing, and implementing rehabilitation projects should a local organization request such assistance. Such assistance may consist of specialists in such fields as engineering, geology, soils, agronomy, biology, hydraulics, hydrology, economics, water quality, and contract administration.

(d) PROHIBITED USE.—

(1) PERFORMANCE OF OPERATION AND MAINTENANCE.—Rehabilitation assistance provided under this section may not be used to perform operation and maintenance activities specified in the agreement for the covered water resource project entered into between the Secretary and the local organization responsible for the works of improvement. Such operation and maintenance activities

shall remain the responsibility of the local organization, as provided in the project work plan.

(2) RENEGOTIATION.—Notwithstanding paragraph (1), as part of the provision of financial assistance under subsection (b) of this section, the Secretary may renegotiate the original agreement for the covered water resource project entered into between the Secretary and the local organization regarding responsibility for the operation and maintenance of the project when the rehabilitation is finished.

(e) APPLICATION FOR REHABILITATION ASSISTANCE.—A local organization may apply to the Secretary for technical and financial assistance under this section if the application has also been submitted to and approved by the state agency having supervisory responsibility over the covered water resource project at issue or, if there is no state agency having such responsibility, by the Governor of the state. The Secretary shall request the state dam safety officer (or equivalent state official) to be involved in the application process if state permits or approvals are required. The rehabilitation of structural measures shall meet standards established by the Secretary and address other dam safety issues. At the request of the local organization, personnel of the Natural Resources Conservation Service of the Department of Agriculture may assist in preparing applications for assistance.

(f) RANKING OF REQUESTS FOR REHABILITATION ASSISTANCE.—The Secretary shall establish such system of approving rehabilitation requests, recognizing that such requests will be received throughout the fiscal year and subject to the availability of funds to carry out this section, as is necessary for proper administration by the Department of Agriculture and equitable for all local organizations. The approval process shall be in writing, and made known to all local organizations and appropriate state agencies.

(g) PROHIBITION ON CERTAIN REHABILITATION ASSISTANCE.—The Secretary may not approve a rehabilitation request if the need for rehabilitation of the structure is the result of a lack of adequate maintenance by the party responsible for the maintenance.

(h) AUTHORIZATION OF APPROPRIATIONS.—There is authorized to be appropriated to the Secretary to provide financial and technical assistance under this section—

(1) $5,000,000 for Fiscal Year 2001;
(2) $10,000,000 for Fiscal Year 2002;
(3) $15,000,000 for Fiscal Year 2003;
(4) $25,000,000 for Fiscal Year 2004; and
(5) $35,000,000 for Fiscal Year 2005.

(i) ASSESSMENT OF REHABILITATION NEEDS.—The Secretary, in concert with the responsible state agencies, shall conduct an assessment of the rehabilitation needs of covered water resource projects in all states in which such projects are located.

(j) RECORDKEEPING AND REPORTS.—

(1) SECRETARY.—The Secretary shall maintain a data base to track the benefits derived from rehabilitation projects supported under this section and the expenditures made under this section. On the basis of such data and the reports submitted under paragraph (2), the Secretary shall prepare and submit to Congress an annual report providing the status of activities conducted under this section.

(2) GRANT RECIPIENTS.—Not later than 90 days after the completion of a specific rehabilitation project for which assistance is provided under this section, the local organization that received the assistance shall make a report to the Secretary giving the status of any rehabilitation effort undertaken using financial assistance provided under this section.

○