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FOURMILE RUN—ALEXANDRIA, VA.

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HEARING

BEFORE THE

SUBCOMMITTEE ON FLOOD CONTROL

OF THE

COMMITTEE ON PUBLIC WORKS

HOUSE OF REPRESENTATIVES

NINETY-FIRST CONGRESS

SECOND SESSION

JULY 14, 1970

Printed for the use of the Committee on Public Works



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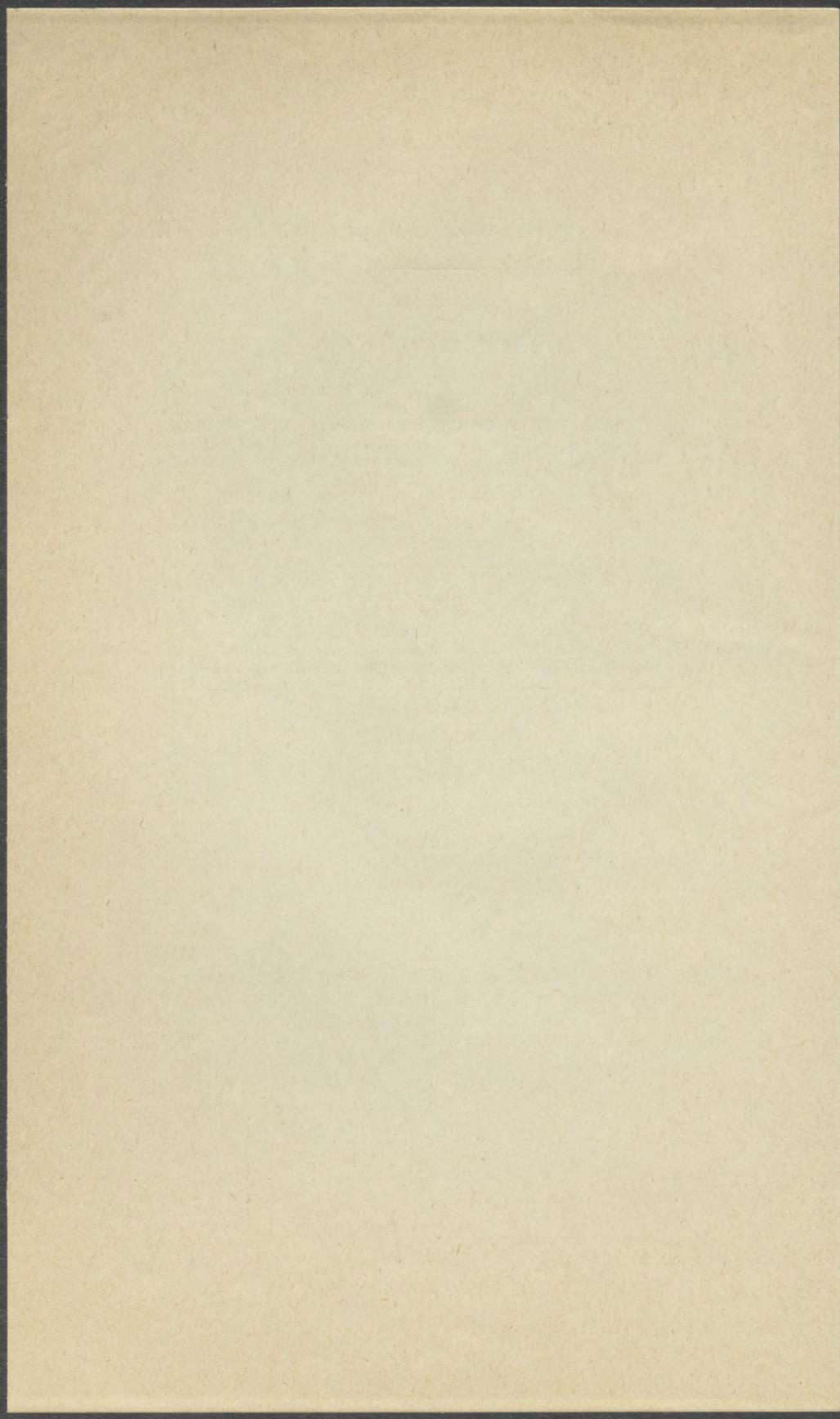
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**FOURMILE RUN, ALEXANDRIA, VA.
SOURIS RIVER, N. DAK.**

TUESDAY, JULY 14, 1970

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON FLOOD CONTROL
OF THE COMMITTEE ON PUBLIC WORKS,
Washington, D.C.

The subcommittee met at 10 a.m., in room 2167, Rayburn Building, Hon. Robert E. Jones, subcommittee chairman, presiding.

Mr. JONES. The subcommittee will come to order.

The purpose of the subcommittee meeting this morning is to hear testimony and to consider the authorization under section 201 of the Flood Control Act of 1965 of two very important and urgently needed projects—Fourmile Run in the city of Alexandria, Arlington County, Va., and the Souris River, N. Dak.

Before we take up the two measures, I would like to point out to the subcommittee that these are the first two projects to be considered under section 201 of the Flood Control Act of 1965. The provisions of the Flood Control Act of 1965 provide for the authorization of such projects by the House and Senate Committees on Public Works for amounts of less than \$10 million. These have generally been included under flood control under the Rivers and Harbors Act. Although this procedure has been established by acts of Congress for programs being carried out by the General Services Administration under the Public Buildings Act of 1959 and the Department of Agriculture under the Watershed Flood Protection Act of 1944, there was some testimony on the part of the executive branch of the previous administration as to the use of section 201 of the Flood Control Act. This administration recognizes the validity of that act and its usefulness, and now consent is sought under the original Flood Control Act of 1965. So I think that we can eliminate the stagnation of projects which would normally be on the drawing boards for some 10 years and 3 months before they can be activated where we are considering Fourmile Run and Souris River.

The survey for Fourmile Run was completed a little less than 2 years ago and we can take action before the cost of evaluation of the project can be confirmed in the appropriations, and, therefore, it can be an instrument of usefulness and we can calculate the benefits-to-cost ratio and not defer consideration of the project for an endless delay as we have in the past. I think that under this procedure we will be able to achieve a great number of projects that we have not been able to achieve in the past.

We are pleased this morning in the presentation of the first project, the Fourmile Run, city of Alexandria, Arlington County, Va., to have

with us our very fine counterpart of our subcommittee in the Senate Public Works Committee a gentleman who has already distinguished himself as being a great public resources developer, our good friend from Virginia, Senator William Spong.

Senator, we are delighted to have you here.

**STATEMENT OF HON. WILLIAM B. SPONG, JR., U.S. SENATOR FROM
THE STATE OF VIRGINIA**

Senator SPONG. Mr. Chairman and members of the committee, it is a pleasure to appear before your subcommittee to testify in support of a resolution to authorize construction of the Fourmile Run flood control project in the Arlandria community of northern Virginia. I am personally grateful to you, Mr. Chairman, for your consideration of my recent request that this much needed project be taken up as quickly as possible.

I ask that the subcommittee recommend, and the full committee adopt, a resolution authorizing the project pursuant to section 201 of the Flood Control Act of 1965. As the subcommittee knows, section 201 provides for the authorization of flood control projects having a Federal cost of less than \$10 million by means of resolutions adopted by the Senate and House Public Works Committees.

The Senate Public Works Committee approved the project in a resolution adopted June 25. That is the date the committee received a copy of a letter in which the Secretary of the Army transmitted a favorable report on the project to Speaker McCormack. The Secretary observed in his letter that the project meets all the requirements of section 201 of the Flood Control Act of 1965.

Mr. Chairman, I have already testified before the Public Works Subcommittee of the Senate Appropriations Committee in support of a \$175,000 appropriation in fiscal 1971 for preconstruction planning. The public works appropriations bill has been approved by the House, and is pending before the Senate Appropriations Committee. If the House Public Works Committee will act expeditiously on the authorization, I believe it will be possible to obtain favorable action on an appropriation for preconstruction planning.

The residents and businessmen of Arlandria have experienced three severe floods in less than a year. The community has twice been declared a disaster area by the Small Business Administration. The most recent flooding occurred last week, when water flowed waist deep into the homes and businesses of the area. Uninsured damage was estimated by the SBA at \$450,000. Floods on July 22 and August 2 last year caused damage estimated at \$4,315,000 and \$700,000, respectively.

Fortunately, there has been no loss of life from drowning during the floods. However, there is a great sense of anguish and frustration among the people of the area. Even moderate rainfalls pose a threat to the area—particularly if there is a high tide in the Potomac River.

I have the utmost sympathy for the citizens of Arlandria, many of whom have become highly resentful over the amount of time taken by administrative agencies in reviewing and commenting on the project. Frankly, Mr. Chairman, I had no idea, when the Senate hearings were held last September 17 on the project, that so much time would be consumed.

On behalf of the people of the community, I ask your subcommittee and the full committee to act favorably on this critically needed facility.

Mr. Chairman, I would be remiss if I did not acknowledge your personal interest in this particular project as expressed to me over a period of time extending back to last fall. At that time, Senate hearings were being held on the project and a conference committee was reconciling the Senate and House versions of the Disaster Relief Act of 1969. I know that you have lived in the area and have some personal familiarity with the need for this project. I am pleased that this is the first project to be considered under the provisions of section 201, which you helped develop.

I also would ask consent that letters from Mr. Francis Whyman and Councilman James Carroll of the city of Alexandria be placed in the record of these hearings.

Mr. JONES. Without objection, they will be received.
(The two letters follow:)

WHYMAN REALTY,
Alexandria, Va.

CHAIRMAN,
House Public Works Committee,
House of Representatives, Washington, D.C.

DEAR MR. CHAIRMAN: I urgently request that this Committee act today to approve the resolution for construction of the Four Mile Run Flood Control Project.

As a small businessman operating in the Arlandria section of Alexandria there is nothing that I can say that could impress upon you the urgent need for immediate action. By acts of God since July 22, 1969 the need for man to help his fellowman has been displayed among the citizens of Arlandria. This they have done and now are urgently requesting your help. I wish to thank Senator Spong and his staff for their continued interest and help in this matter.

Help, help,

FRANCIS M. WHYMAN.
CITY OF ALEXANDRIA, VA.

CHAIRMAN,
House Public Works Committee,
House of Representatives, Washington, D.C.

DEAR MR. CHAIRMAN: In view of the action taken by the Senate on June 25, 1970 approving a resolution for construction of the Four Mile Run Flood Control Project in the Arlandria area in the city of Alexandria and the county of Arlington, I urgently request that your Committee take immediate action to approve a resolution now before you on this matter.

Since July 22, 1969 the losses to the people of this area caused by three floodings have been in excess of six million dollars. The city of Alexandria has had expenses in excess of eighty thousand dollars for emergency services and cleaning made necessary by these floods. The cost to Arlington County have been in excess of eight thousand dollars and the cost to the Federal Government are unknown to me. An item which no cost can be placed on is the extreme hardship on low income working families who have suffered under this hardship.

I therefore request on behalf of the citizens of Alexandria that the House Public Works Committee approve this project without further delay.

Very respectfully,

JAMES W. CARROLL.

Senator SPONG. I thank you and the members of the committee for allowing me to appear before you this morning.

Mr. JONES. Senator, we had our first survey report completed in October 1966. The hesitancy in getting going about the job has not been one of dereliction on our part.

Senator SPONG. I am very much aware of that.

Mr. JONES. This is one of the faster projects to get through as compared with other projects which require survey resolutions for the first appropriations which require some 10 years and 3 months.

Senator SPONG. Yes.

Mr. JONES. I think it is commendable that you, and Mr. Broyhill, have worked so earnestly and vigorously, and I think the fact of the devastations that have resulted from the floods has spurred us on.

Thank you.

Senator SPONG. Thank you very much.

Mr. JONES. Any questions by the committee?

(No questions indicated.)

Mr. JONES. Our next witness is our colleague, Congressman Joel T. Broyhill of Virginia who has previously come before the committee and pointed out to us, time and time again, the great need of the project and the fact that the work done by the Corps of Engineers could substantially improve the situation where we don't have the recurrence of the flood damage in perennial floods or even quarterly floods.

Mr. Broyhill, we are pleased to have you before us.

Mr. Clausen.

Mr. CLAUSEN. Mr. Chairman, I just want to place on the record a bit of an amplification of what the chairman said. Mr. Broyhill has discussed this matter with me on numerous occasions.

But I think that to further expand also on what you said as far as the committee's ability to do something about this in response to your request—I think the chairman stated this at the outset—we have had section 201 in the legislation since 1965, but, as you know, Mr. Chairman, in spite of your efforts and in spite of the coordinated efforts between the two of us and other members of the committee, we could not get the previous administration to recognize section 201, and I am speaking now specifically of the Bureau of the Budget. The great breakthrough has come. Again, I think it could be said that the members of this committee, the chairman, in particular, and myself, being the ranking member on this committee, we have been trying to get the administration to recognize the value of utilizing section 201 for this project as well as the one for the State of North Dakota by Mr. Kleppe. This 10-year timetable is not only frustrating but it is very difficult for people to understand why it takes so long to get things happening when we all of a sudden look out here and see a flooding of Arlandria.

So I think the record should clearly state we now have, I believe, the kind of cooperation downtown that will permit us to go forward, and as a result, once we have had an opportunity to do something with this, the committee has moved and we appreciate your coming here to support the survey before the committee.

STATEMENT OF HON. JOEL T. BROYHILL, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF VIRGINIA

Mr. BROYHILL. Thank you.

Mr. Chairman, it is my understanding that the committee has a very tight schedule this morning and hopefully the full committee may have a chance to act on this matter when the subcommittee finishes its work this morning. So, in deference to this tight schedule

and the fact that other witnesses will give more detailed explanation of what we are trying to accomplish this morning, I should like to submit my remarks for the record. They have already been distributed to the committee members, and I will hit a couple of the high spots and give a little repetition for emphasis.

Mr. JONES. Without objection, the statement will be received.
(The statement follows:)

STATEMENT OF REPRESENTATIVE JOEL T. BROYHILL OF VIRGINIA

Mr. Chairman: May I express my sincere appreciation to the Chairman and the members of the Committee for permitting me to appear today to urge a resolution by the Committee to authorize construction of a flood control project at Fourmile Run in Arlington County and the city of Alexandria in Northern Virginia.

As the Committee knows, the victims of flooding along the Fourmile Run stream bed have been driven from their homes and businesses by high water again and again since 1963. Many of them have all but given up hope of ever rebuilding or re-opening, having accumulated debts through small Business disaster loans on such frequent occasions that it is financially impossible to take on additional obligations.

Since the 1963 flood, when high water extended from the mouth of Long Branch Run downstream to U.S. Highway 1, building a flood head at the railroad culverts and blocking the Mr. Vernon Avenue bridge with sediment and flotsam, we have been trying to obtain Federal help for a flood control project on the stream. That help, which I urgently hope is now to become a reality, was finally made available to us by this committee when it adopted a resolution in October 1966, overruling the Baltimore district engineer's recommendation against Federal participation because of infrequency of anticipated floods.

In deference to the Corps of Engineers, I believe that with the best of intentions they overlooked the effect urban development had already had on the stream when they first reached an unfavorable decision as to the project's feasibility. The 1963 flood wrought over a million dollars in damage, but prior to that date the worst flooding had occurred in 1933 and 1942, with lesser floods during the intervening years causing relatively minor damage to property and disruption to businesses.

After the 1963 flood, Alexandria and Arlington enlarged the stream bed in an effort to improve the situation. But some action to improve runoff conditions actually increased the potential of flood damage to one section of Alexandria while decreasing it in other areas.

In spite of the best efforts of both Arlington and Alexandria, parts of Fourmile Run flooded in 1965, 1966, twice in 1969, one the worst flood yet recorded in the area, and residents and businessmen have been evacuated because of high water on three occasions already this year.

As I said before, the factor which I believe the Engineers overlooked in their earlier estimate is the tremendous increase in runoff along streambeds created by tremendous development of housing, parking lots, streets and gutters, apartment and office buildings and other facilities upstream. It may be that review and restudy of the Fourmile Run area will lead to a completely new look at flood frequency in our sprawling cities and suburbs. Hopefully it will lead to more careful planning by suburban communities of development along still undeveloped stream beds.

Northern Virginia learned a bitter lesson with Fourmile Run, Mr. Chairman. We learned the value of careful planning of development along streambeds to prevent our many other streams from becoming such disaster areas in the years to come. But our problem with Fourmile Run cannot be resolved, regardless of our best intentions, by regulating floodplain land use through zoning, subdivision regulations, building codes, easements or other measures. The buildings and subdivisions, the high-rise apartments and parking lots, are already there. The cost of their removal and destruction would be prohibitive. So our only solution is a project of channel improvements, levees, floodwalls, interior drainage facilities and bridge replacements and modifications such as recommended by the Chief of Engineers.

Mr. Chairman, every day of delay is a day of prospective disaster along Fourmile Run. I urge with all the conviction I can muster that this committee take the necessary step to advance the date on which a flood control project can be started at Fourmile Run. I do so because the conditions existing there, including proliferating home and industry construction, and a peculiar set of circumstances involving railroad culverts and other obstacles placed by the Federal Government in the way of proper drainage, call for action by the Corps of Engineers to help us solve the problem. Also I do so because I fear delay might result in an even greater disaster than those we have yet seen at Fourmile Run, a disaster that could claim countless lives and damage some of this Nation's most valuable property.

Mr. BROYHILL. Mr. Chairman, as has been said by the gentleman from California, yourself, and Senator Spong, patience is somewhat running out in Arlandria. We have had a series of disastrous, costly floods, and the people just don't understand why we have not been able to act more expeditiously in doing something about it. We have had three floods, three very costly floods within the last year, and it is hard to picture or describe the cost and the loss and the suffering as a result of these floods unless you go out there and see it, see the mud, the silt, the filth, and the actual destruction caused to homes and businesses. Many of these businesses have been flooded numerous times, and really as far as—

Mr. JONES. Mr. Broyhill, I have lived out there in Park-Fairfax and saw it firsthand.

Mr. CLAUSEN. And is that the reason you are getting the cooperation from downtown?

Mr. JONES. I am quite sure that there is some recollection down there.

Mr. BROYHILL. Well we have had so many floods we can almost get used to it, but you know when you are actually suffering from the loss it is pretty hard to tolerate it for so long. And the disaster relief loans of the Small Business Administration are no longer of help because the people have run out of credit and can't pay the money back. We have flood insurance now, but that only helps so far. It is awfully hard to explain it to the people who are suffering the loss. I know that the committee has done all it could do. The committee in 1966 adopted a resolution instructing the Corps of Engineers to proceed with a survey to determine the economic feasibility. At that time the Corps of Engineers was recommending against it. Before that time I think we had had three or four floods over a period of 20 years and they could not anticipate the floods being as frequent as have occurred since that time. So really as a result of the aggressiveness and foresight of this committee we have saved 3 or 4 years in getting this job done. I think we have now had enough time to prove that there is an economic feasibility here. We know that the disaster must be corrected.

Mr. JONES. You can appreciate the fact that the Corps of Engineers in its original report took into account the population index. That population index has been changed measurably upward of what it was at the time of the first survey. That is a factor that is going into play for a favorable report.

Mr. BROYHILL. Well it is not my intention to criticize the Corps of Engineers this morning but merely to thank the committee and compliment the committee for going beyond the recommendations of the Corps of Engineers in anticipating what might happen in the future and actually what did happen.

As I understand it the Appropriations Committee has already acted in this area. As far as the House is concerned, the House has acted on the Appropriations Committee bill and the bill is now pending in the Senate, and if this resolution is approved this morning by the subcommittee and the full committee we have time to attach amendment to the Appropriations Committee bill in the Senate. I am confident our House conferees will accept it and at least get started with some contract letting and construction work.

Mr. JONES. It is my understanding that the Senate will take up the appropriation items for the additional work.

Mr. BROYHILL. You know it is going to take several years yet to complete the project. But if the people can actually see the construction work going on it might make the suffering of future floods a little less unbearable. To know that someone has recognized the problem and is doing all that they can to solve it, I think, is the main thing. I think they realize we can't stop the rain itself, but we can do what we can to stop the damage by flood. So we can do all that is possible from here on.

Mr. JONES. Mr. Johnson.

Mr. JOHNSON. Mr. Chairman, I would like to make one comment.

Certainly I am in complete sympathy with your project before us, Congressman. Even after your preconstruction planning, it is a hard job to get the money to actually get to work. We have a number of projects throughout the United States just like this where we have floods every year. Every year that we have heavy rains we have floods and flooding of the communities. But I want to inform you that the request of the Bureau of the Budget of the administration this year on new starts is rather minimal and this is where we really have the problem. I realize you have to have your preconstruction planning money and get the job underway, but there has not been any real breakthrough yet at the White House and the Bureau of the Budget level on new construction starts even in the field of flood control where it is absolutely necessary, I would say. So I do hope that you will all join us in moving along and making certain that the Bureau of the Budget and the administration will grant new starts to take place after the preconstruction planning and the project is engineered and ready to go. Now this is where the holdback is on flood control throughout the United States at the present time. It is not so much in getting the job started or under study as getting the money and getting the construction underway.

Mr. BROYHILL. Mr. Chairman, I have also a statement on behalf of the government of the city of Alexandria which we hope will be printed in the record.

(The statement referred to follows:)

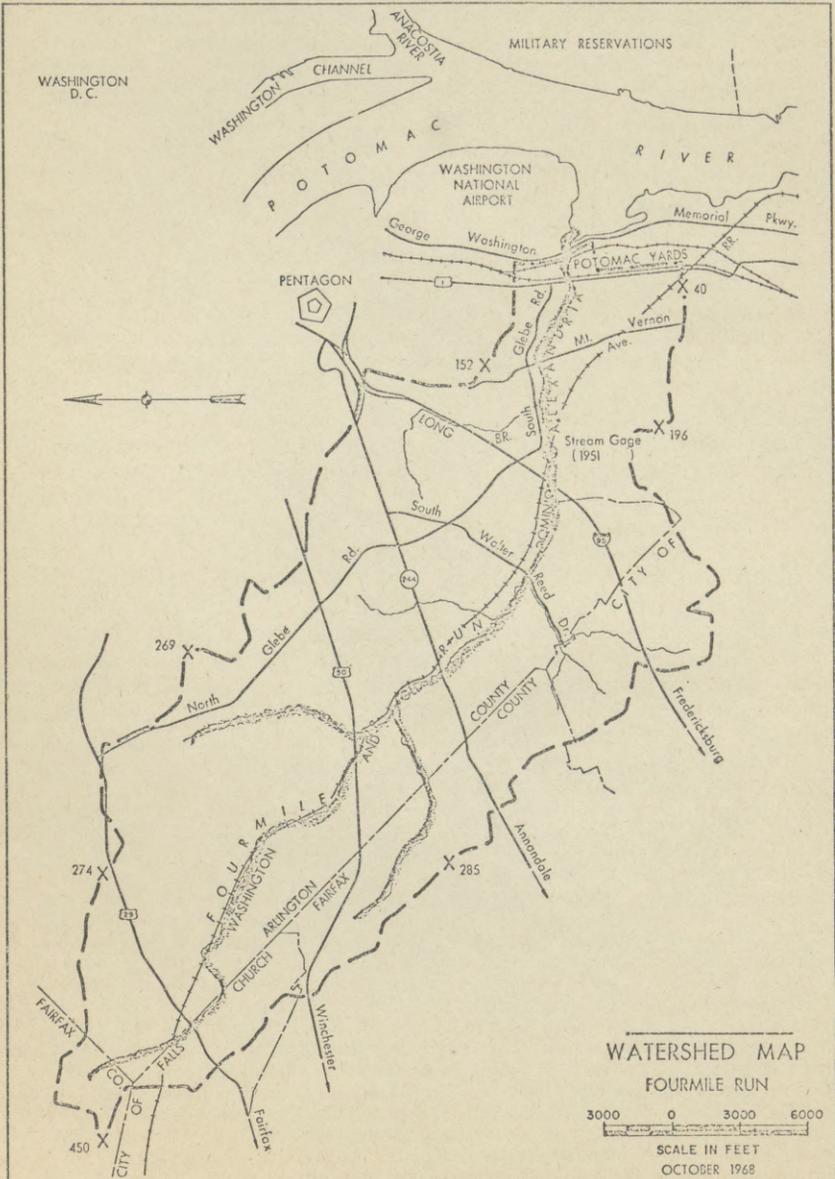
STATEMENT ON BEHALF OF THE CITY COUNCIL AND THE CITIZENS OF ALEXANDRIA,
VIRGINIA

Honorable Chairman and members of the committee. This statement is presented on behalf of the City Council and the citizens of Alexandria, Virginia to urge your support for and approval of the pending report of the Corps of Engineers concerning the flood problem in the Fourmile Run Basin adjacent to the Arlandria section of Alexandria. The City, in cooperation with Arlington County, has made every effort to find a solution to this problem which would offer reasonable protection to its residents and merchants in the area. However, because of the large number of parties necessarily involved in any plan of protection (the City, County, State Highway Department, National Capital Parks, R.F. & P.

Railroad and others), it became practically impossible to reach an economically feasible solution within a reasonable time framework. It appears that only with the help of the Federal Government can such a solution be reached; hence our strong interest in the plan proposed by the Corps of Engineers.

CHARACTERISTICS OF THE BASIN

Fourmile Run lies mostly within Arlington County, with its lower reaches (approximately 2 miles) forming the boundary between Alexandria and Arlington. The headwaters are actually in Fairfax County and lie about 10 miles northwest of the mouth of the run at the National Airport.



The Fourmile Run Basin is comparatively long and narrow with a total area of approximately 19.3 square miles divided among four jurisdictions, as follows:

- 13.4 square miles in Arlington County;
- 3.1 square miles in the City of Alexandria;
- 2.1 square miles in Fairfax County;
- 0.7 square miles in the City of Falls Church.

The basin has comparatively steep slopes and these, combined with the narrow width, make it a "flashy" stream in which runoff from rainfall reaches the stream very rapidly and causes extremely rapid rises in the water level, particularly in the relatively flat lower section adjacent to Arlandria. This effect is compounded by the total inadequacy of existing highway and railroad structures between U.S. #1 Highway and the Potomac River to carry more than a fraction of the maximum runoff.

The Fourmile Run basin is in one of the most rapidly developing areas in the country. In 1938, approximately 38 percent of the basin was "urbanized"; in 1942—63 percent, in 1956—68 percent and over 90 percent can be classified as "urbanized" at present. These increases in urbanization or development have increased the amount of runoff from streets, roofs and other paved or unpaved areas in almost direct ratio to the percentage of "urbanization" as can be seen from the increasing severity of flooding in the lower flat areas of the basin. Further development—or redevelopment of older developed areas—can only result in further increases in flood flows and frequency with additional damages to the lower areas, even though those areas are held in their present state of development.

HISTORY OF FLOODING

Flooding in the lower portion of the basin undoubtedly was experienced many years, possibly centuries, ago. However, prior to the early 1900's the lower basin had unimpeded outflow to the Potomac and was, for all intents and purposes, unused by man. The only impediment to flow was the Washington-Alexandria Pike (now U.S. #1) and a parallel railroad line. In the first decade of this century, however, a more serious impediment to free flow into Potomac was imposed on the stream by the construction of Potomac Yard across the lower end of the estuary. The existing bridge under U.S. #1 was extended by the construction of two 20-foot diameter semi-circular arches, 500 feet long thru the yard area and, with the exception of these two waterways, Potomac Yard became a large dam thrown up across the natural stream. When the flood flow becomes greater than that which can pass thru the twin arches, a lake forms behind this dam—its elevation determined by the amount and duration of the flood flows. Still, at that time, flooding of the remaining swamp like area was not serious, due to the wooded character of the watershed and the absence of dwellings and/or commercial establishments in the lower areas.

Just prior to World War II, however, development of the entire area accelerated. This was due in part to provision of public utilities (sewers, etc.); partly to pressure of population increase brought about by the increasing importance of our national capital and partly by the low cost of land in the lower end of the watershed. As development increased upstream, the probability of larger and larger floods increased: as development occurred in the lower end of the basin, the probability of damage from these floods also increased.

The modern history of damaging floods begins in the early 1940's at or just subsequent to more intensive use of the Arlandria area. The first evidence of property damage occurred about 1942—mostly confined to streets and some minor basement flooding. As time went on however, with increased development, the floods became larger and the damages greater. In May 1953, a major flood developed, causing the Arlandria area to be partially inundated with water up to 2 feet deep in some of the business establishments and basement apartments. The next major flood occurred in August of 1961 with similar results. On August 20, 1963, a major flood occurred with flows in excess of 3 times the 1953 and 1961 floods. Inundation in the Arlandria area was up to 4 feet and a total area of over 200 acres was inundated.

Damage to property was estimated to be in excess of \$1,000,000. In 1966 and again in 1967 severe flooding again occurred, less than the 1963 flood but about double that of the 1953 flood. Damage estimates in these two floods are not available in detail but undoubtedly approximated at least \$500,000 per flood. On July 22, 1969, the maximum flood of record occurred—a flow estimated at 14,500 cubic feet per second. Inundation of a greater area than the 1963 flood occurred with the water elevation approximately 2 feet higher. About 242 dwelling units were affected, causing the evacuation of approximately 500 persons. Damage to

residences and businesses are estimated at \$3,000,000. A subsequent flood on August 2, 1969, while not as serious as the July 22 flood, again inundated the area and caused additional damage. Again on July 9, 1970, a flood similar to that of 1963 occurred, inundating approximately the same area as the 1963 flood. Damage estimates for this flood have not yet been made but will certainly be in the hundreds of thousands of dollars.

It should be noted that the frequency and severity of these floods is steadily increasing in line with the increase in urbanization of the area, even though an almost complete prohibition on construction in the Arlandria area has been in effect since 1964.

ACTIONS TAKEN BY CITY

Since the first of the major floods occurred in 1942, and especially since the 1953 flood, the City of Alexandria and Arlington County have taken a number of steps designed to mitigate the effects of major floods.

These actions are summarized below:

1. Reconstruction of bridges at Mt. Vernon Avenue and at Glebe Road to provide additional waterway (1956).
2. Widening and deepening of the channel from Commonwealth Avenue to Long Branch (1955-1962).
3. Operation of a planned maintenance program to maintain channel sections.
4. Establishment of a building moratorium in Fourmile Run area by City of Alexandria in 1961 (affects only area within the City). In June of 1970, a more inclusive ordinance was passed to replace the original moratorium resolution.
5. Preparation of a plan of flood protection construction by consulting engineers. This plan was prepared by consultants employed unilaterally by the City and corresponds closely with that of the Corps of Engineers except for protection from Potomac River back flooding.
6. Contacts with the R.F. & P. Railroad relative to improving the waterway thru Potomac Yard. The railroad has maintained, since the first contact in 1945, that the problem is a public problem and has refused to participate except to the extent of providing right-of-way thru their land. They have refused to expend funds for the purpose of enlarging the waterway.
7. Contacts with the State Highway Department relative to enlarging the U.S. #1 Bridge and with the National Capital Parks relative to enlarging the bridge on the George Washington Memorial Parkway. Both jurisdictions have indicated a willingness to cooperate, but only if the waterway thru Potomac Yard is improved concurrently with their improvements.

In connection with the City's action in employing consultants to prepare a flood protection and improvement plan, this action was taken in 1964 after a reconnaissance study by the Corps of Engineers in 1963 indicated that a Federally financed flood control project was not feasible. Further studies made by the Corps of Engineers authorized after the 1966 flood, now indicate that a Federal project is desirable and economically feasible.

CONCLUSION

We have tried, as briefly as possible, to point out the historical aspects of this problem, its complexity due to the large number of political, semi-private and private interests involved, actions so far taken by the City and the County, and the inability of the City and the County to make any real impression on the problem as long as the existing obstructions at Potomac Yard continue to exist. Since the Corps of Engineers project would be able to overcome the major obstacle (the railroad obstructions) and since the City and the County have both agreed officially to participate, as required by law, in such a project, it is earnestly recommended to the Committee that early approval be given the pending project together with the necessary funding to permit the Corps of Engineers to proceed as rapidly as possible in bringing this project to a completion. Every day of delay increases the probability of further damage and, more importantly, possible loss of life, especially if such a disaster should occur during early morning hours where residents might be caught in their beds by rapidly rising waters.

ALBERT M. HAIR, Jr.,
City Manager.

Mr. JONES. The Chair would like to receive that statement to be printed in the record at this point.
(Statement referred to follows:)

STATEMENT OF CITY COUNCILMAN MELVIN L. BERGHEIM OF ALEXANDRIA, VA.

GENTLEMEN: The City of Alexandria prays for speedy relief from the danger and devastation of ruinous floods. It has taken the several levels of government far too long to resolve the flood problems of Arlandria.

We must have quick action. We thank the members of this Committee for their prompt consideration.

Mr. BROYHILL. Thank you, Mr. Chairman.

Mr. JONES. Thank you.

Our next project is the Souris River, N. Dak., and we have with us the distinguished Representative from that area, Mr. Thomas S. Kleppe. He has appeared before the committee before and has always been informed and knowledgeable about the projects he presents.

It is a delight to have you, sir.

STATEMENT OF HON. THOMAS S. KLEPPE, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF NORTH DAKOTA

Mr. KLEPPE. Thank you very much, Mr. Chairman.

At the outset this morning I would like to ask unanimous consent that my statement, in full, be printed in the record. If I may, in deference to your press of time, make brief comments about it.

Mr. JONES. Without objection, it will be received.

(The statement follows:)

STATEMENT OF REPUBLICAN THOMAS S. KLEPPE, OF NORTH DAKOTA

Mr. Chairman: I appreciate this opportunity to appear before your Subcommittee today on behalf of a matter of extreme urgency to my State of North Dakota, and particularly of concern to the City of Minot.

I respectfully urge favorable adoption of a resolution pending before you at this time under Section 201 of the Flood Control Act of 1965, which would authorize the Corps of Engineers to proceed with the first phase of the Minot Flood control project. Inasmuch as the Senate Public Works Committee has recently taken similar action, the hearing today by your Subcommittee is most timely.

The City of Minot is located almost completely within the valley of the Souris River and in the spring of 1969 experienced the most disastrous flood in its history. The worst damage was caused by the water remaining at well over flood stage for more than a month. As a result, damage to homes and businesses was far greater than if the flood waters had receded in a few hours or a few days. Damages from the flood ran in excess of \$15 million.

The flood control project under study by the Corps of Engineers which would eliminate the flood threat to Minot, recommends the construction of a dam on the Souris River upstream from Minot and a channel improvement plan which includes clearing and snagging, and channel enlargement and straightening in the reach of the Souris River downstream from the dam through the City of Minot. The over-all project has a very favorable benefit-cost ratio of 2.5 to 1. The project is separated into two units, the first unit being the channel clearing, widening and straightening project and the second unit the Burlington Dam and Reservoir. The logical schedule for the Corps of Engineers would be to do the channel work first. This would also provide a measure of interim flood protection for the City of Minot until the larger portion of the project could be completed.

A total of \$75,000 for preconstruction engineering was placed in reserve in Fiscal 1970 because the flood control project had not been authorized by the House and Senate Public Works Committees. Fiscal 1971 funding in the amount of \$225,000 and the \$75,000 from Fiscal 1970 were included in the Public Works Appropriations bill recently passed by the House.

Before the Corps of Engineers can proceed, the project itself must be authorized. The people of the City of Minot will deeply appreciate your consideration of a resolution under Section 201 of the Flood Control Act of 1965 which authorizes projects under \$10 million to be funded by House and Senate Committee resolution. Adoption of the resolution authorizing \$5,260,000 for channel work will not only provide urgently needed flood protection, but it will also provide the en-

couragement and assurances the people of Minot need to move forward with a comprehensive flood protection plan.

Mr. KLEPPE. Mr. Chairman, I appreciate this opportunity to appear before your subcommittee today on behalf of a matter of extreme urgency to my State of North Dakota, and particularly of concern to the city of Minot.

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And, Mr. Chairman, I would like to insert some additional comments here that are not in my statement.

In 1969, one-third of the city of Minot was inundated with a flood. In 1970, this tragedy was saved because of rapid and fast and effective action by the Corps of Engineers and the local citizens. Interestingly enough, the voters within the city in December of 1969 approved \$1,300,000 emergency and permanent flood protection bond issue to go along with this project.

Mr. Chairman, I want to say on behalf of our senior Senator, Milton Young, who I know has been in contact with you, and myself we very much appreciate yourself and other members of the committee, specifically Mr. Clausen, for bringing this project to this particular point and for holding this subcommittee hearing.

Thank you.

Mr. JONES. Any questions?

Mr. Clausen.

Mr. CLAUSEN. Mr. Kleppe, I want to clarify something and place it on the record.

As I recall, this project, which is now before us, is the same project that we discussed with you and a number of constituents who came down to this hearing room shortly after the flood problems—I cannot recall the year—

Mr. KLEPPE. 1969.

Mr. CLAUSEN. In 1969?

Mr. KLEPPE. Correct.

Mr. CLAUSEN. Now, we are talking about the same project?

Mr. KLEPPE. That is right, Mr. Clausen.

Mr. JONES. Mr. Harsha.

Mr. HARSHA. Congressman, where is Minot located?

Mr. KLEPPE. Minot is in north-central North Dakota. It is the second largest city in my district. It is about 130 miles from the Canadian border.

Mr. HARSHA. And how large is it?

Mr. KLEPPE. About 33,000.

Mr. HARSHA. Is there any local opposition to this project?

Mr. KLEPPE. No, most certainly not. It was a devastating flood in 1969, and from the standpoint of this operation there is no opposition to this part of the project.

What you may be referring to, Congressman Harsha, is the long-term plan of an upstream dam. This is not part of the channel and the flood protection work in Minot at this time.

Mr. HARSHA. Thank you.

Mr. JONES. Mr. Clausen.

Mr. CLAUSEN. Mr. Kleppe, will you have any testimony that you want to be included in the record from some of the local constituency because that was an informal session we had before?

Mr. KLEPPE. No. We did include statements in the record at the time, and I do not have any additional testimony for the record now because I thought it would be a duplication. We do not have any additional people down here as we could have had because we did this originally. We hope this will suffice for the original purpose intended.

Mr. JONES. Mr. Johnson.

Mr. JOHNSON. Mr. Chairman, I would like to say this is another one of the projects like the others, and I hope our colleague, Mr. Kleppe, will assist us in making certain we follow through on the actual construction because that is a real rough bill in getting new starts properly engineered and readied for construction.

I notice here where you have very good information as to Minot and certainly the project is important for Minot, N. Dak. When you testified the other day before the Reclamation Subcommittee on another project in the area of Minot I am sure you could have prescribed a falling of water for your people. This one here would take care of the unwanted water, and you have flood water during storm periods here where you have real high runoffs that puts you under water.

Mr. JONES. Senator Milton Young of North Dakota, who could not be here this morning because of a conference committee meeting, has requested that his statement be included in the hearing record.

Without objection, Senator Young's statement will appear at this point.

(Senator Young's statement follows:)

STATEMENT OF HON. MILTON R. YOUNG, U.S. SENATOR FROM THE STATE OF NORTH DAKOTA

Mr. Chairman and members of the Committee, I am very pleased that you are holding hearings on a Section 201 Flood Control Project on the Souris River in North Dakota.

The Souris River originates in Saskatchewan, Canada, and enters North Dakota near Portal. It flows in a southeasterly direction through Minot, North Dakota, before again turning to the north and returning to Canada. This river follows a very meandering course through North Dakota.

Construction of this proposed flood control project is long overdue. More than one-half of the City of Minot, one of North Dakota's principal cities, is located

within the valley of the Souris River. Last year Minot experienced its most disastrous flood since 1904. The worst feature of the flood was that the water remained well over flood stage for a period of over a month. This resulted in far worse damage to houses and businesses than is usually experienced in floods where the water recedes in a few hours or in a few days. I don't know of any flood where the water remained as high up on the main floor of homes in such a large residential area for so long a time. This was one of the reasons why there was such severe damage.

Through Operation FORESIGHT, initiated by the Corps of Engineers for the first time in 1969, the Corps of Engineers and the people of Minot were able to make considerable preparations in advance of the flood. However, due to rather sketchy information from Canada they were unable to prepare as completely as they would have liked. The damages from the flood of April, 1969, were \$12.5 million. However, it is estimated these damages would have been as high as \$21.2 million if it had not been for Operation FORESIGHT.

Mr. Chairman, after the disastrous flood last year this area is again experiencing another serious flood situation. Fortunately, through the Corps of Engineers' Operation FORESIGHT the Corps this year was able to get into Minot in sufficient time before flooding to construct the necessary protective works to prevent much of the catastrophic losses that would otherwise have occurred.

After a winter with a relatively small amount of snow in the Souris River Basin, we were all hoping that the City of Minot would be spared flooding this year. However, starting on April 12 this particular area of North Dakota received an unusually heavy snowfall of 35 inches. The melting of this snow again caused the Souris River to go over flood stage but, fortunately, with the emergency protective works that had been built by the Corps of Engineers they were able to avert a major disaster.

About the time this flood crest passed the area received over 2½ inches of rain which resulted in the river again going over flood stage. At the time this flood threat was beginning to diminish, Canadian officials began releasing large amounts of water from their dams in Saskatchewan, Canada. While the flood threat has not yet passed, fortunately these protective works continue to hold.

Mr. Chairman, the Corps of Engineers and the Board of Engineers for Rivers and Harbors have recommended to your Committee the construction of a flood protection project on the Souris River. There are two phases to this project—the first one, and the one being considered today, is the enlarging and straightening of the channel of the Souris River through the City of Minot. It is estimated that this work would cost \$5,260,000 of which \$3,920,000 would be borne by the Federal government and \$1,340,000 would be borne by local interests.

The second phase of this flood control project is a dam on the Souris River above Minot. The estimated cost of this structure is \$29,040,000. The project has a highly favorable benefit-cost ratio of 2.5 to 1.

As indicated, this over-all project is separable into two units, the first unit being the channel clearing, widening and straightening project and the second unit being the so-called Burlington Dam and Reservoir. The construction of the first phase would provide a measure of interim flood protection to the City of Minot until the larger portion of the project—the dam and reservoir—could be completed. The Corps of Engineers informed me that their logical schedule for constructing this project would be to do the channel snagging and clearing, and enlargement and straightening first.

The so-called channelization portion of the Souris River Project can provide a considerable degree of flood control relief immediately. After this year's flood this work takes on new urgency. As a part of their successful attempts to avert a major flood disaster in Minot this year, the Corps of Engineers made rough cuts in the Souris River, cutting out many of the river's loops within the City of Minot, thereby shortening the river's channel through the City of Minot. As I have indicated, these were rough cuts. In doing this work many municipal services of necessity were disrupted. This includes water and sewer services which have been restored on an interim basis, and also many streets were torn up. If this portion of the project can be authorized now these facilities, rather than being temporarily repaired, could be put back in service in the manner which this flood control project recommends. It would save the city considerable money if they were not compelled to go to an interim type solution of this problem.

The authorization of the channelization portion of this project as a Section 201 project could advance the construction of this badly needed flood control project by a year. As you know, the Senate Public Works Committee has recently approved a Section 201 authorization. Similar approval by your Committee would

enable the Corps of Engineers to undertake this work immediately without waiting until the Omnibus Flood Control Bill is acted upon.

MR. CHAIRMAN, as I have stated, it is estimated that the 1969 flood on the Souris River caused damages of over \$12.5 million of which \$10.9 million in damages was suffered by the community of Minot. This year estimates are that the damages to date would have run in excess of \$8 million if the efforts of the Corps and the City had not been successful.

In addition, the Corps of Engineers has spent more than \$1 million already in trying to protect the City. The City itself has also spent a sizable amount of money.

It can be readily seen that the damages suffered last year and those which could well have occurred this year almost equal the total cost of constructing this very badly needed flood control project. In closing, I would like to again urge this Committee to take favorable action on this project.

Mr. JONES. Any other questions?

(No questions indicated.)

Mr. JONES. Now back to Fourmile Run, and we have presenting the proposition for the Corps of Engineers Brig. Gen. Richard H. Groves and his associate.

Gentlemen, it is always good to have you here.

STATEMENT OF BRIG. GEN. RICHARD H. GROVES, DEPUTY DIRECTOR, CIVIL WORKS DIRECTORATE, OFFICE, CHIEF OF ENGINEERS, WASHINGTON, D.C., AND L. G. FEIL, CHIEF, PLANNING DIVISION

General GROVES. Mr. Chairman and members of the committee, I am Brig. Gen. Richard H. Groves, Deputy Director of Civil Works, and I am accompanied by Mr. George Feil, Chief of the Planning Division. It is a pleasure to appear before your committee. We are ready to testify on the projects listed on the agenda for consideration under the authority provided by section 201 of the 1965 Flood Control Act.

Mr. Feil will be the principal witness and will testify first on Fourmile Run and then on the Souris River, N. Dak., projects.

Mr. JONES. Mr. Feil, it is always good to see you, sir. You have been with us many times. You have always done a fine job and it is a pleasure for us to have you, sir.

Mr. FEIL. Thank you, Mr. Chairman. It is a pleasure to be before the committee again. This is my statement on Fourmile Run.

Mr. Chairman and members of the committee, this report concerns improvement of Fourmile Run, a tributary of the Potomac River in the city of Alexandria and Arlington County, Va., in the interest of flood control. The report is in partial response to a resolution by the House Public Works Committee.

Local interests desire flood protection by means of levees, floodwalls, improved channels, and the elimination of bridge constrictions.

The Chief of Engineers recommends a project providing for construction of 10,800 feet of earth levees and concrete floodwalls, approximately 9,600 feet of improved channel, two pumping stations and associated interior drainage appurtenances, and replacement of four railway and two highway bridges in the lower reach of Fourmile Run.

The main impacts on the environment by the recommended project will be the protection of life and property from flooding and the po-

tential development by local interests of portions of the project lands for needed outdoor recreation. A draft statement in accordance with Public Law 91-190 has been submitted to the State and concerned Federal agencies for review and comment and to the President's Council on Environmental Quality.

The Commonwealth of Virginia and interested Federal agencies favor the project and the Bureau of the Budget has no objection to the submission of the report to the Congress provided that during the advanced engineering and design stage further consideration be given to nonstructural measures as alternatives or supplements to levees and floodwalls, and to flood plain zoning and flood insurance to cover residual damages not protected by the plan which maximizes net benefits.

Mr. JONES. Just what do you mean by that, sir?

Mr. FEIL. The project, sir, as recommended by the Chief of Engineers and the Secretary of the Army goes somewhat beyond the point at which the net benefits would be the maximum over the costs. We have recommended it this way because of the urban nature of the improvement and the desire to avoid the hazardous development of a project which would be insufficient to handle the floods.

General GROVES. What we are doing is we are considering this growth that was brought out earlier in the hearing this morning. We are anticipating the increased urbanization of the area.

Mr. JONES. Well, as I understand it we are considering the recommendations in the resolution according to the Secretary and not the Chief of the Corps. Is that correct?

General GROVES. That is correct, sir.

Mr. FEIL. The Bureau of the Budget notes that deficiencies exist in the methodology for calculating benefits based on increases in personal income, particularly in relating total income growth to disposable income spent on assets damageable by floods. The Bureau, therefore, recommends that at the advanced engineering and design stage a reevaluation of these benefits be made of the methodology applicable at that time. The Bureau states that since non-Federal interests are normally required to meet the costs of highway bridge replacements on local protection projects it recommends that they meet the basic costs for replacement of the George Washington Memorial Parkway Bridge over Fourmile Run which is owned and maintained by the National Park Service.

The Secretary of the Army concurs in the views of the Bureau of the Budget. The estimated cost of the improvement is \$16,635,000 of which \$9,926,000 would be Federal and \$6,709,000 would be non-Federal. The benefit-cost ratio based on 4½-percent interest rate is 1.1. Local interests have indicated that they are willing to provide the necessary items of local cooperation. The Secretary of the Army states that since this project meets all the requirements of section 201 of the Flood Control Act of 1965 and involves little or no controversy, he recommends that the project be approved for appropriations.

Mr. Chairman, this completes my statement.

Mr. JONES. Mr. Clausen.

Mr. CLAUSEN. Mr. Chairman, inasmuch as this alludes to testimony of the Secretary of the Army, I think it would be appropriate to add at this point for the record the statement that appears before us with

regard to the Fourmile Run funding in Virginia, House 3580, 91st, comments where I quote the Secretary:

The Secretary of the Army concurs and the Bureau of the Budget concurs in the statement that the George Washington Memorial Parkway Bridge over Fourmile Run for non-Federal funding . . .

And this is the key point I want to make:

The estimated cost of the improvement would then be \$16,635,000 of which \$9,926,000 would be Federal and \$6,709,000 would be non-Federal. The Secretary of the Army states that since this project would be . . .

Some of this is repetitious of what the gentleman has said but I wanted to get this on the record.

Mr. Jones, Mr. Feil, do we have assurances that there are going to be proper zoning ordinances within the affected area?

Mr. FEIL. Yes, sir. That is one of the requirements of local cooperation, and the city of Alexandria in fact has temporary zoning restrictions in effect at the present time.

Mr. JONES. What assurance could you give to the committee that those resolution ordinances that make zoning will be continuous after say 6 months or 6 years?

Mr. FEIL. Well, Mr. Chairman, it devolves on our District Engineers and Corps of Engineers' responsibility to determine that the city has the legal capability to enforce the zoning laws.

Mr. JONES. Well, in the instance of the Corps of Engineers coming back and making the request at the behest of local interests to make changes and modifications of existing projects because there was a change in the zoning requirements and, therefore, the Federal Government has to go back and make repairs. Now I hope that in the Flood Control and Rivers and Harbors Act this year that we make substantial changes in the contractual relationship between the Federal Government and the local participating agencies to give us positive assurances where legal action can be initiated where maintenance and operation is required either at the expense of the Federal Government or the local government. So I hope that in the future we can make proper legal arrangements to see that this is faithfully carried out.

You would not have any objection to that, would you, sir?

General GROVES. No sir, Mr. Chairman.

Mr. JONES. And if those requirements are made of the local community in this Fourmile Run, you would naturally assume that any subsequent legislation requiring the full faith and credibility contract will be forthcoming.

Do you think you could make that exaction out of the local contributors to the project?

Mr. FEIL. I think we can require that under our assurances for local cooperation. They are spelled out in that way at the present time.

Mr. JONES. You have that authority at the present time that you do not participate in. That is the nub of the question, that we do not have to legislate to make you all do what you do not ordinarily require to do or should do.

Mr. FEIL. Mr. Chairman, I would like to go off the record about a half minute if I may.

Mr. JONES. Yes; you may.

(Discussion off the record.)

Mr. JONES. Back on the record.

Mr. FEIL. Mr. Chairman, we will do our utmost to follow the desires of the committee in obtaining and enforcing suitable agreements with the local people.

Mr. JONES. Are there any questions?

Mr. JOHNSON.

Mr. JOHNSON. Mr. Chairman, I would like to ask one question.

Mr. Feil, do you suppose all of the highway problems that are in the project here are completely resolved so far as taking care of the needs of the highway as relates to the flood control project?

Mr. FEIL. Yes, sir; they have been resolved so far as we could resolve them in the preliminary planning of a survey document. We have agreements with the local people that they will provide the necessary highway bridge and street alterations that this project requires.

Mr. JOHNSON. Well now, in the upstream reaches where this stream crosses the Shirley Highway the work that is being done there on the highway is amply planned to eliminate any bottleneck here in the streamflow and the old railroad that crosses there? Is that all resolved and catalyzed and one thing or another?

Mr. FEIL. The planning on that part of it is being coordinated with our district engineer, and our project starts just downstream from Shirley Highway to pick up the flow. Actually I would anticipate that some modification might need to be made where that railroad was abandoned at our upstream end of the project to make sure that the project intercepts the water that comes under the Shirley Highway. Under the wording of the recommendations the Chief of Engineers does have enough flexibility to do that.

Mr. JOHNSON. Thank you.

Mr. JONES. Mr. Harsha.

Mr. HARSHA. Mr. Chairman, and gentlemen, on the report I have here under comments of the Bureau of the Budget it says:

The Bureau of the Budget agrees with the Chief of Engineers on the need to review the structural measures needed to protect against backwater flooding during the advanced engineering and design stage.

Now, as I understand it the structural measures you contemplate are the levee, the earthen levee, and the floodwall itself and the pumping station.

General GROVES. And the channels.

Mr. FEIL. Yes; you are correct in that plus the channel work. What the Bureau of the Budget has in mind there is something we would normally do during final design is to be sure that the project is properly balanced between the protection of flows that will come down the stream and also backwater effects from high flows and high tides of the Potomac River.

Mr. HARSHA. Well then this does not create a problem with you. This is your normal procedure.

Mr. FEIL. Yes, sir; it is our normal procedure.

Mr. HARSHA. Thank you.

Mr. JONES. Are there further questions?

If not, then we will proceed to the North Dakota project.

Mr. FEIL. Mr. Chairman and members of the committee, I recognize that this hearing is basically on the section 201 aspects of the channel work at Minot. However, my statement does include some information on the total project which includes the reservoir too.

Mr. JONES. Yes.

Mr. FEIL. This report concerns construction of a dam and reservoir and channel improvements on the Souris River, N. Dak., for flood control. It is responsive to resolutions adopted by the Public Works Committees of the Congress.

The Souris River is located in a semiarid region and consequently floods occur infrequently. The serious flood of 1969, was the second largest flood of record; this flood caused losses totaling about \$12.5 million, of which about \$10.9 million, including flood-fight costs, occurred at Minot. Without emergency measures, damages would have reached \$19.3 million at Minot. Had the proposed reservoir and channel improvement been constructed prior to the 1969 flood, all urban damages and most rural damages would have been prevented.

The reservoir would be of 637,000 acre-feet capacity for flood control. The proposed channel improvement would extend about 37 miles below the proposed dam to the community of Logan. The dam and reservoir is estimated to cost \$29,240,000, all Federal, and the channel improvement is estimated to cost \$5,260,000 of which \$3,920,000 would be Federal. The net cost to the United States for the recommended improvements is estimated at \$33,160,000 for construction and \$81,000 annually for maintenance, operation, and replacements. Based on the currently prescribed interest rate of 4 $\frac{7}{8}$ percent, the benefit-to-cost ratio is 2.3 to 1, and the benefit-cost ratio of the channel itself is 8.7 to 1. Local interests have indicated a willingness to furnish local cooperation.

The environmental impact of the reservoir project would be to periodically inundate lands in the Upper Souris River Wildlife Refuge and lands presently used for agriculture; however, these lands would be inundated only during relatively large floods. In addition, a portion of Renville County Park will be lost because of reservoir construction. Fish and Wildlife losses would be mitigated by including specific features, including lands and a subimpoundment, in the project. Channel work would cause some destruction of stream bank trees and vegetation. As much of the growth as possible would be replaced as part of the project. We are presently preparing a statement in accordance with Public Law 91-190 for submission to the State and concerned Federal agencies and the President's Council on Environmental Quality.

The State and Federal agencies have commented favorably on the report. The Bureau of the Budget has no objection to the submission of the report to the Congress. However, the Bureau sees no justification for mitigation of existing recreational facilities and believes that the "nature access" facilities are subject to the provisions of Public Law 89-72. The Secretary of the Army and the Chief of Engineers concur. The Secretary of the Army has determined that the channel improvement portion of the project meets the requirements of section 201 of the Flood Control Act of 1965 and he recommends that the channel improvement be approved for appropriation.

Mr. Chairman, this completes my statement.

Mr. JONES. Mr. Feil, the comment of the Secretary of the Army is not at variance with the comments of the Bureau of the Budget?

Mr. FEIL. No, sir.

Mr. JONES. So they are consonant in their conclusions.

Mr. FEIL. Mr. Chairman, that is correct.

Mr. JONES. Any questions?

Mr. HARSHA.

Mr. HARSHA. Mr. Chairman, I have one.

Do I understand it you are only recommending today that this committee authorize the channel improvement portion of this?

Mr. FEIL. Mr. Harsha, yes; we are testifying in support of the channel portion of it as we understand that the committee wants to consider authorization under section 201. We would be glad to testify again later on the reservoir project at your convenience.

Mr. CLAUSEN. Would the gentleman yield?

Mr. HARSHA. Yes.

Mr. CLAUSEN. Would it be your intent to be prepared to testify when the Omnibus bill is up before the committee for hearing and consideration?

Mr. FEIL. Yes, sir.

Mr. CLAUSEN. So that they can in fact not only be considered but possibly authorized in tandem this year.

Mr. FEIL. Yes, sir; we would be glad to do that.

Mr. JONES. I would like to point out to the gentleman from Ohio that this is an emergency situation that can be prepared before we get into the development of the reservoir which would be a requirement for the development that would subsequently benefit the far reaches of the stream that would eliminate the urban area of its present distress. Are there further questions? Mr. Roberts.

Mr. ROBERTS. Mr. Chairman, I would like to ask one question.

Why are there no local sponsor funds of the reservoir section which we are not really concerned with today, but why is it all Federal funds?

Mr. FEIL. It is our normal practice for reservoir construction that has widespread flood control benefits to be all Federal unless we provide specific water supply or other specific services to the community. In addition to that, of course the provision of any recreational facilities will come under 89-72 which is a cost-sharing proposition.

Mr. ROBERTS. I will be glad to get some of mine under that same program.

Mr. JONES. Mr. Roberts, I think you have it.

Off the record.

(Discussion off the record.)

Mr. JONES. Are there further questions?

Mr. Edmondson.

Mr. EDMONDSON. Mr. Chairman, could I go back to a general question?

The discussion of the Fourmile Run project contained language about a special mission of the Corps of Engineers to determine new benefits that the Bureau of the Budget considers not properly measurable at this time under existing procedures. I would like to hear some elaboration upon the procedure that the corps is following to try to work up those new benefit standards, if that is a subject that has not already been covered in testimony to the committee.

Mr. FEIL. The reference that the Bureau of the Budget made was to our projection of future increase in damageable property in the area which was based to a great extent on forecasts of increases in population and individual income. They considered that we had allocated too much of the increase in personal income to damageable

property. In order to evaluate this more closely we will have to do a more thorough job in our land use planning and development in the area with the city and sponsors of the project. We will still use those projections but we will have to evaluate more closely the type of construction and the type of property that might be in the area in subsequent years without the project.

Mr. EDMONDSON. Well, have the methods followed in calculating these future flood control benefits been conventional or standard methods used by the corps on other projects?

Mr. FEIL. Yes; fairly standard. We are having this same type of comment on other projects, and we are working now to more thoroughly develop a better rationale than leaning so heavily on those two projections.

Mr. EDMONDSON. I am concerned about the implications in this point because it already has become very difficult to justify future navigation projects because of new limitations placed upon the corps' evaluation of benefits from navigation projects.

If you are also being forced into a straitjacket on evaluation of benefits from flood control projects, I am just personally concerned about the possible effect upon multipurpose projects in general. I think if there is a tendency to push you over into a corner in your method of calculating flood control benefits along with the limitation already in effect on navigation benefits, I am just concerned about whether it is going to be possible to justify any projects in the future if this trend is not arrested. And that is a comment on which you need not comment unless you want to, sir.

Mr. FEIL. I would like to, Mr. Chairman.

We, and the Water Resources Council, now are making a very thorough review of the methods of computing benefits of projects. Our staff is playing a major role in that, and if we are successful in evaluating the other elements that we have not always included in the past we will go a long ways toward overcoming the problems that concern Mr. Edmondson.

These evaluations are on the bases not only of the national efficiency, which is basically the way the cost-benefit ratio on Fourmile Run was derived, but they will consider the impacts regionally and also the public well-being and environmental effect accounts. Some of these things admittedly are going to be hard to measure and quantity on a dollar basis, and we will have to display for the committees of the Congress and the public means of evaluating some of these elements other than the dollar basis that we have used almost solely to date.

Mr. EDMONDSON. Well, Mr. Feil, we are looking at a project here on the Fourmile Run project that had damage July 22 and August 2 of last year of \$4,315,000 and \$700,000, according to Senator Spong's testimony. We just saw tremendous new damage occur out there in that same flood area, and yet you come in with a project showing a benefit-cost ratio on a \$16 million project of only 1.1 to 1.0.

Am I correct on that?

Mr. FEIL. That is the benefit ratio the report shows.

Mr. EDMONDSON. Does that mean that you are going to be able to prevent this recurring flood damage only in small measure?

Mr. FEIL. No, sir. I think what that means is that the period of record of these floods and the history of these floods is more severe in the last 10 years than it has been in the past, and our benefit figures

and our damage figures are placed on an average annual basis instead of just looking at the last several years. We look back at the period of record and the number of high waters that have been experienced in establishing those average annual damages.

Mr. EDMONDSON. I am afraid that your benefit-cost ratio has been figured already on a narrowed scale and that is not so.

Mr. FEIL. I think this project will be sound.

Mr. JOHNSON. Will the gentleman yield?

Mr. EDMONDSON. Yes.

Mr. JOHNSON. Mr. Feil, I would like to ask one question.

Mr. JONES. Will you yield, Mr. Johnson?

Mr. JOHNSON. I have a brief inquiry here.

You mentioned the study that is going on in the corps' participation in the Water Resources Council. When can we expect some sort of summation or recommendation from the Water Resources Council?

Mr. FEIL. We are expecting that this report will be finished some time this summer, Mr. Johnson.

Mr. JOHNSON. Some time this summer.

Mr. FEIL. Late this summer. Then, of course, it will be a report to the Council itself, the Council of Representatives and then Council members for final adoption.

Mr. JOHNSON. All right; thank you.

Mr. HARSHA. Will the gentleman yield?

Mr. JOHNSON. Yes.

Mr. HARSHA. Sir, along the lines that the gentleman from Oklahoma was asking you, if you calculated your benefit-cost ratio on the floods that have occurred in the last 10 years would it be a more favorable benefit-cost ratio?

Mr. FEIL. I think it certainly would, sir.

Mr. HARSHA. Could you give us some idea as to how much of a favorable ratio it might be?

Mr. FEIL. I would hate to guess on something like that, but it would be a substantial increase if we limited the evaluation to the past 10-year period.

Mr. HARSHA. Well, has the difference in the damages over the last 10 years resulted from the urban development in that area?

General GROVES. This is one of the phenomena, sir; that you run into as you operate in an area that is urbanizing very rapidly. Your hydrology changes, and the hydrology on which this report is based was done several years ago. If we were doing it again today it would be different. If we took a smaller sample it would be quite different.

Mr. HARSHA. When did you do these estimates?

Mr. FEIL. Starting in 1966 through 1969. We included the damages of the 1969 flood but we haven't had the opportunity to reexamine the situation based on what has just happened this last week.

Mr. HARSHA. Thank you.

Mr. JONES. Mr. Clausen.

Mr. CLAUSEN. Returning briefly to the recommendation that you are going to be making to the Water Resources Council, in the documents or testimony that you have presented to the Council on behalf of the corps in the area of recommendations for change have you included some of these hydrology factors, the hydrology changes that have taken place as a result of urbanization?

Mr. FEIL. The recommendations going to the Council are basically on economic evaluation, and the question you have raised deals with the statistical engineering analyses of occurrence and reoccurrence of water and weather events. Those are not our real problem. Our real problem has been to get concurrence in how we would measure all benefits and the true effects of projects which go beyond what we have narrowly considered the national income account. As you know, we haven't included regional benefits and things of that character. We just the last few years have included recreation benefits that we know have happened, but until 10 years ago we didn't use those as a matter of justification. We never have—well I shouldn't say never have—very infrequently have we recommended a project to the Congress that wasn't justified economically on the national income alone.

Mr. JONES. Well you presented the St. Francis project with recreational benefits. You even calculated how many ducks you were going to get into the reservoir. I think you computed them about a dollar apiece, did you not, something like that?

Mr. FEIL. About that.

Mr. JONES. Mr. Clausen.

Mr. CLAUSEN. It seems to me, and this is not the place for us to debate this question of criteria and guidelines that will be used for evaluating projects, but it does seem to me that what you have pointed out here in the Arlandria project is a classic example of why we are going to have to update this total project evaluation criteria as the gentleman from Oklahoma and the gentleman from California have stated, because you are going to have additional figures in flooding, additional cost factors and I think your input into the resources account in my judgment should include these things if we are going in fact to have the kind of criteria to meet these changing conditions.

Mr. JONES. Going back to the question Mr. Edmondson raised. Your benefits-cost ratio of 1:1 was calculated because the Bureau of the Budget did not take into account the methodology you had used in taking into account secondary benefits that you had formerly computed in the 1966 resolution. That is the point you are making, is it?

Mr. FEIL. Well, not exactly. The point I was making was that they took exception to the way we had used the projections of population growth and the projections of increase in personal income, basically how we allocated that personal income and the population growth.

Mr. JONES. They took exceptions to what we call total benefits.

Mr. FEIL. That is right.

Mr. JONES. So, therefore, they discounted some of the projections that you had made in making the estimates of benefit as it related to cost.

Mr. FEIL. That is right, sir.

Mr. JONES. Mr. Harsha.

Mr. HARSHA. Mr. Chairman, as I understand it on the Fourmile Run project you have done the preliminary work.

Mr. FEIL. We have done sufficient preliminary engineering work for a survey report. We do not have construction plans ready.

Mr. HARSHA. All right. How much longer will it take you to do the preliminary engineering work?

Mr. FEIL. I would venture that within a year's time we could have something under construction if construction funds were available.

Mr. HARSHA. Well, something under construction.

Mr. FEIL. Within a year's time after we get appropriations.

Mr. HARSHA. Preliminary engineering and your advanced engineering assuming you would get adequate funding within a year so that you can commence construction.

Mr. FEIL. I am assuming that this project is so critical that we will not design all of the bridges and all of the levees and all of the channels before we award the first contract.

Mr. HARSHA. I see.

Mr. FEIL. There are some things that we can get going more rapidly than others, and I think my personal feeling is, and I am sure that will be the district engineer's feeling, that there are parts of this project so critical that we should start them as soon as we can get construction money.

Mr. JONES. Any further questions?

(No further questions indicated.)

Mr. JONES. If not, the subcommittee will go into executive session for consideration of the proposals. We will have the presentation of the survey resolutions.

(Thereupon, at 11:05 a.m., the subcommittee adjourned.)

