

U.S. ARMY ENGINEERING DISTRICT  
LOS ANGELES  
CORPS OF ENGINEERS

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PUBLIC MEETING  
ON DEVELOPMENT OF FLOOD PROTECTION  
FOR NEW RIVER & PHOENIX CITY STREAMS  
IN ARIZONA

CITY COUNCIL CHAMBER  
251 WEST WASHINGTON STREET  
PHOENIX, ARIZONA 85003

Thursday, 31 May 1973

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CITY COUNCIL CHAMBER  
251 West Washington Street  
PHOENIX, ARIZONA 85003

Thursday, 31 May 1973

ALLIED STENOTYPE REPORTERS  
By: Frances M. Nunez  
228 Luhrs Central Building  
Phoenix, Arizona 85004

MEMBERS OF THE CORPS OF ENGINEERS PRESENT

1  
2 Col. Harry McK. Roper, Jr., USA, District Engineer,  
Los Angeles District.

3  
4 Mr. Arthur V. Potter, Chief of Project Planning  
Los Angeles District.

5 Mr. Garth Fuquay, Chief of Engineering  
Los Angeles District.

6  
7 Mr. Vance L. Carson, Project Engineer,  
Los Angeles District.

8 Mr. Clifford W. Ford, Project Engineer,  
Los Angeles District.

9  
10 Mr. Arnold Ivener, Project Engineer,  
Los Angeles District.

11 Mr. Perry Davis, Public Affairs Officer,  
Los Angeles District.

12  
13 Maj. Will Worthington,  
Phoenix, Arizona

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LIST OF ATTENDEES

- 1
- 2 H. L. Anderson  
Maricopa Flood Control Dist.
- 3 Route 1, Box 515  
Peoria, Arizona
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- 5 James Attebery  
City Engineer  
Phoenix City Engineering  
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Phoenix, Arizona
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- 8 Roger Ball  
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Box 711  
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- 10 Ralph Baskett, Jr.  
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- 18 Gertrude Lee Bohn  
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- 19
- 20 Frank A. Bosh  
Executive Director  
Valley Forward Association  
300 W. Osborn  
Phoenix, Arizona
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- 22
- 23 Bud Bristow  
Land and Water Proj. Supervisor  
Arizona Game and Fish  
2222 W. Greenway Road  
Phoenix, Arizona
- 24
- 25

LIST OF ATTENDEES

- 1
- 2 Thomas C. Clark  
Deputy Director,  
3 Planning & Administration  
Arizona Water Commission  
4 222 N. Central, Suite 800  
Phoenix, Arizona
- 5 David C. Clymer  
6 Deputy City Engineer  
Engineering Dept,  
7 City of Phoenix  
251 W. Washington  
8 Phoenix, Arizona
- 9 William C. Dent  
Owner-Operator  
10 Bud Brown's Barn  
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11 Phoenix, Arizona
- 12 Bruce R. Duke  
Land & Water Proj. Specialist  
13 Arizona Game and Fish Department  
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14 Phoenix, Arizona
- 15 James W. Elmore  
Dean, College of Architecture  
16 Arizona State University  
3000 E. San Miguel  
17 Phoenix, Arizona
- 18 Berven M. Forde  
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19 251 W. Washington  
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- 20 Richard H. Fritz  
21 Manager, Community Development  
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22 805 N. 2nd Street  
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- 23 Fred Glendening  
24 Deputy City Manager  
City of Phoenix  
25 301 W. Washington  
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Warner Leipprandt  
Deputy Planning Director  
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251 W. Washington  
Phoenix, Arizona

## LIST OF ATTENDEES

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- 5 F. J. MacDonald  
Chairman A
- 6 Advisory Commission on Arizona Environment  
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- 8 Cecil P. Mason  
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- 9 City of Phoenix Parks Department  
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- 13 Peoria, Arizona
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- 17 Flood Control District of  
Maricopa County
- 18 3325 W. Durango  
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- 20 Michael James Pastika, Sr.  
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- 23 Don E. Patterson  
Deputy Planning Director
- 24 City of Phoenix Planning Department  
251 West Washington  
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LIST OF ATTENDEES

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- 1 Mrs. R. S. Pinkerton  
1541 E. Loma Lane
- 2 Phoenix, Arizona
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- 7 Lester J. Ringenberg  
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- 11 Bob Scanlan  
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- 12 Del Seppanen  
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- 13 Bert Solano  
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Col. John C. Lowry, Chief Engineer and General Manager  
Flood Control District of Maricopa County.

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P R O C E E D I N G S

COLONEL LOWRY: May I have your attention, please?

First of all, I would like to introduce myself to the audience in case you don't know me. My name is John Lowry, Chief Engineer of the Flood Control District of Maricopa County.

The purpose of this meeting is to have what we have termed an idea exchange session on the Phase 3 Project which is the Greater Phoenix Area including New River. That is covered by the interim report prepared by the Corps of Engineers, the District Office of Los Angeles, dated January 15, 1964 and approved for construction by the United States Congress in October of 1965.

As you entered this auditorium you were given a folder briefly describing this large project. You were also given a card headed Record of Attendance. It is requested that you fill this card out and hand it in. We ask that you indicate upon this card whether you wish to speak at this meeting and you will be given an opportunity to do so and also if you plan to submit a written statement.

I might say at this time that this meeting is being recorded not to give to the Chair or anybody else but in order to be of benefit -- the record will be of benefit to the Office of the District Engineer so in preparing your finalization of their plans for this project they can take advantage of

1 the beneficial statements which some of you or all of you may  
2 give at this meeting. It is hoped, therefore, that from this  
3 meeting ideas and suggestions will be developed that might be  
4 beneficial and helpful to those responsible for the design  
5 during the development period.

6           During the time you are filling in those cards, I  
7 would like to introduce, if I may -- the Mayor would be here  
8 and the Supervisor and the County Manager promised they would  
9 be here but I don't see them so I can't introduce them at  
10 this time. Maybe they will come in later. However, Colonel  
11 Roper of the District Engineers of the Los Angeles District  
12 of the Corps of Engineers and some of his staff are here and  
13 will participate in this meeting.

14           At this time I am very pleased to introduce the one  
15 who is responsible for the design and construction of this  
16 project. I am sure you who represent departments of the  
17 state, county and the cities in Maricopa County will have  
18 comments of some kind which will be of assistance to the Dis-  
19 trict Engineer and his staff. And at this time I would like  
20 to present to you the District Engineer of the Los Angeles  
21 District, Colonel Roper.

22           COLONEL ROPER: Thanks very much, John.

23           I am Colonel Ken Roper. I would like to start off  
24 by saying that we of the Los Angeles District, U.S. Army  
25 Corps of Engineers are working for you. We are your Federal

1 engineers as far as providing flood control assistance, solu-  
2 tions, alternative solutions to a problem that exists. I  
3 would like to start out just by introducing some of the mem-  
4 bers of my staff that I have here with me that work for you  
5 also.

6 Mr. Cliff Ford, Project Engineer; Mr. Vance Carson,  
7 Project Engineer; Mr. Arnold Ivener--I guess he's handing out  
8 cards in the lobby. These are the guys that do the work.  
9 Those three guys I just mentioned. We also have Mr. Garth  
10 Fuquay who is my Chief of Engineering. He is the top civilian  
11 in my district. Mr. Art Potter who is the Chief of Project  
12 Planning. He is the head man for the actual planning  
13 associated with this type of work. Mr. Perry Davis is my  
14 Public Affairs Officer. And I guess the last one I think I  
15 will introduce, I'm out of people, is Major Will Worthington  
16 whom I am sure most of you know is a transplanted Texan that's  
17 rapidly becoming an Arizonan. Will is the guy that is  
18 physically stationed here and he knows the answers and if at  
19 times you need to present input to us or ask questions or want  
20 to get into discussions, call Will up because I think you  
21 will find him extremely knowledgeable and he has a direct line  
22 to us also. Then we can get the answers for you and tell you  
23 the whys and wherefores.

24 As Colonel Lowry said, the purpose of this meeting  
25 really is an exchange of ideas and it's an opportunity for us

1 to tell you and all the people that you represent what's going  
2 on at the present time. What are we doing? Where are we  
3 going? When are we going to be doing it?

4 We had a meeting some weeks ago in my office between,  
5 or among Mr. Wes Steiner, Arizona Water Commission; Colonel  
6 Lowry, Maricopa County Flood Control District; and Mr.  
7 Attebery of the City of Phoenix; myself and some of my people,  
8 and we thought that this would be a good idea--that it would  
9 tend to clear up perhaps some misunderstandings and set the  
10 record straight as to what direction we are going.

11 Colonel Lowry mentioned the attendance cards. I  
12 would appreciate it if you would fill these out because  
13 primarily they give us a valuable record as to who attended.  
14 As far as whether you check the block that says you want to  
15 talk or not I wouldn't worry too much about it because after  
16 I get through with this little speech I would hope that we  
17 have an informal discussion back and forth, a question and  
18 answer period and I think that the room is such and small  
19 enough that we can talk back and forth and have no problem  
20 along that line. I have no intention personally of making  
21 my participation in this thing formal in any stretch of the  
22 imagination.

23 We are keeping a transcript of the meeting primarily  
24 so that we can make sure we have gotten all the good ideas that  
25 hopefully we will get and all the thoughts as to the pros and

1 cons and some of the alternate plans that I am going to talk  
2 about. If you want copies of this transcript you can buy them  
3 from the same outfit that we buy them from and their address  
4 is listed up there. This young lady can tell you how much  
5 they cost. But anyway, that's the purpose of the transcript.

6 Our purpose this morning is to discuss the Corps of  
7 Engineers Flood Control planning in the Greater Phoenix area.  
8 I would like to start with a prepared discussion that gives  
9 all of us some basic background and we can go from there with  
10 our own comments and interchange and discussion. I am not  
11 going to go into the history of floods in the Phoenix area.  
12 I conducted a public meeting over here a little over a year  
13 ago and made a bad joke. I said it hadn't rained in 120 days  
14 and people didn't seem to be too interested in the problem.  
15 It seems to me that it was something like a month later that  
16 there was a serious problem and now I think you all will agree  
17 that there is considerable -- I believe everyone will agree  
18 that there is considerably more interest in flood problems  
19 today.

20 In 1959 the Corps of Engineers was directed by the  
21 Congress to study the flood problem in the greater Phoenix area.  
22 Subsequently we got money to start those studies.

23 These studies resulted in a comprehensive five-phase  
24 flood control plan for the Phoenix metropolitan area developed  
25 in cooperation with your local agency, Maricopa Flood Control

1 District. This plan was designed to serve as a framework  
2 for all future flood control work in this area. Basically  
3 it consisted of a number of phases and I'll go over them.

4 First, Phase A consists of improvements along Indian  
5 Bend Wash to accommodate flood waters flowing through Scottsdale  
6 and Tempe.

7 Phase B is the New River and Phoenix City Streams  
8 Project, the one we are particularly concerned with today. I  
9 will cover Phase B in detail after I go through these five  
10 major phases. We will talk about the various alternate possi-  
11 bilities that we have.

12 Phase C includes channels, which appear to be the  
13 most logical solution in the Glendale-Maryvale area, and a  
14 diversion levee, channel, and detention basin or a series of  
15 detention basins which appear to be the most logical solution  
16 in the South Phoenix area.

17 Phase D includes development of flood control features  
18 in the proposed Orme Reservoir and the determination of the  
19 need for channel improvements along the Salt River downstream  
20 to the Gila.

21 Phase E is a study which has not yet been initiated  
22 which would include Indian Bend Wash upstream from the Arizona  
23 Canal.

24 Before going into details on the Phase B plan, I  
25 would like to discuss briefly our planning process in general.

1           Phase B is what we term an "authorized plan". It's  
2 gone through the studies phase, gone to Congress and become  
3 authorized. We are now in the pre-construction study process.  
4 Congress authorizes Corps of Engineer projects based upon a  
5 study document which we refer to as a Survey Report. This is  
6 a pretty good title because it is based upon a survey of the  
7 situation. It's really a feasibility study. It recommends  
8 a general course of action to be taken to solve a flood  
9 problem. Once the project is authorized, we go into so-called  
10 "post-authorization" studies. That's where we are now and  
11 have been for sometime.

12           As we re-evaluate the post-authorization studies  
13 and the findings of the survey report, and if necessary may  
14 reformulate and change the project to reflect changed condi-  
15 tions, changed public attitudes, changed or new occurrences  
16 of Mother Nature, improved engineering methods. In other  
17 words, modernizing things to reflect the present day.

18           Post authorization studies require, as a minimum,  
19 the preparation of a general design memorandum in two phases.  
20 Phase 1 Design Memorandum, you will hear me speak of this  
21 later -- Phase 1, the general design memorandum, is the  
22 re-evaluation and reformulation phase of the authorized project  
23 bringing it up to date to meet the modern conditions. Now  
24 that's where we are right now in this Phase B Phoenix project.  
25 There's a functional design document concerned with the

1 technical design of the structure or structures necessary to  
2 achieve the objectives as determined in Phase I. Now I would  
3 like to discuss Phase II. Now Phase I is the reformulation  
4 and Phase II is a detailed design of those pieces that are  
5 seen as necessary in the reformulation. I would like to  
6 discuss these two phases now and what we are doing as far as  
7 the so-called New River and Phoenix City Streams project.

8           Now a major consideration in plan formulation is  
9 the environmental impact the project could have on the area.  
10 Concerns for environmental values culminating in the National  
11 Environmental Policy Act of 1969 require that we make detailed  
12 environmental studies. Our present procedures prescribe that  
13 we invite and work with all interested environmental and home-  
14 owner groups and individuals to assure that all desires and  
15 concerns and thoughts are fully considered and represented in  
16 our study. Out of this study and coordination comes what we  
17 term an Environmental Impact Statement which is a formal  
18 document usually quite thick and detailed. The purpose of  
19 this is to enable the decision makers up the line to see for  
20 themselves what the environmental impacts of the particular  
21 course of action will be as best can be anticipated.

22           Another consideration in project formulation is the  
23 possibility for development of a recreation plan. Then we  
24 consider alternatives ranging from minimum facilities to  
25 optimum development of recreational areas. The recreation,

1 incidentally, must be limited to that scale for which local  
2 interests are willing to share the cost on a 50/50 basis for  
3 those recreational facilities.

4 For dam sites, an optimum recreational plan could  
5 consist perhaps of such things as swimming, boating, picnic-  
6 ing, camping and so on. Along channels recreation allotments  
7 could consist of such things as hiking trails, horseback  
8 trails, rest stops and that sort of thing. We work closely  
9 with local recreation planners as well as flood control  
10 planners to try to work up the best possible recreation plans  
11 for the community involved.

12 Now our analysis of flood control problems and our  
13 recommendations for or against Federal construction of any  
14 flood control works must be based on economic factors, in  
15 accordance with the law of the land. That is, for a favorable  
16 recommendation, the project has to demonstrate that over the  
17 life of the project it will provide more benefits than its  
18 cost. These are not just Federal costs I'm talking about but  
19 total costs, both local future maintenance costs, real estate  
20 costs and the like as well as Federal costs. The benefits  
21 according to the law are those accruing to the project and  
22 according to the law it's to whomsoever they accrue.

23 Now Phase B. In reviewing our Phase B authorized  
24 plan we must necessarily take into account the plans of other  
25 agencies which might impact on the flood problem in Phoenix.

1 The Central Arizona Project is such a plan.

2           The Bureau of Reclamation Project in the Phoenix  
3 metropolitan area--I'll go over this briefly--will consist  
4 of the Granite Reef Aqueduct extending 36 miles southeasterly  
5 from the New River, 15 miles Northwest of Phoenix, to the  
6 proposed Orme Dam on the Salt. Flood control features of  
7 this project include training dikes, channels and overchutes  
8 to provide 50-year flood protection to the aqueduct, except  
9 in Paradise Valley from Cave Creek Road to the McDowell  
10 Mountains. That reach will have a series of four detention  
11 basins with dikes designed to control their "maximum probable  
12 flood" followed by a 100-year flood within 24 hours with  
13 allowance for the 100-year sediment volume. The detention  
14 basins would discharge into the aqueduct. A high degree of  
15 flood protection would be provided to both the aqueduct and  
16 downstream development in Paradise Valley. However, protection  
17 will be very localized downstream from the training dikes and  
18 channels along other reaches.

19           Our studies are very closely coordinated with the  
20 Bureau project especially the Indian Bend Wash project down-  
21 stream of the Paradise Valley Detention Dike, but as far as  
22 the area covered by our Phase B is concerned, it will have very  
23 little effect.

24           In our project formulation studies for Phase B, we  
25 are considering six basic alternatives. I would like to go

1 over these now and discuss the six alternatives. I should  
2 mention that any alternatives obviously will consist of a  
3 number of pieces and in general under the rules that we have  
4 to operate by, the individual pieces also have to bear the  
5 test of economic justification that I mentioned before. Let's  
6 go through these alternatives.

7           Alternative 1 might be considered as a do nothing  
8 alternative and it's one that we look at. It would be do  
9 nothing except of course for Dreamy Draw Dam which is virtually  
10 completed. Now this alternative would avoid all adverse  
11 environmental impacts associated with construction. However,  
12 the flood problems that the project was designed to protect  
13 against, would still exist and become increasingly severe as  
14 the area continues to develop.

15           Because of these potential flood problems as well  
16 as a strong desire by the people here in Phoenix to do some-  
17 thing about the flood problem, this "do nothing" alternative  
18 doesn't appear to be acceptable as I see it.

19           Alternative 2 consists of the authorized flood  
20 control project of 4 dams and 53 miles of channel--that's  
21 what was authorized by the Congress--plus an additional 13  
22 miles of channel requested by local interests after the  
23 authorization of the project. These can be added if they're  
24 determined to be necessary and feasible.

25           A piece of this, Cave Buttes Dam an earthfill structure

1 about 2 miles downstream from the existing Cave Creek Dam.  
2 Two earthfill dikes would be required, one northwest of the  
3 dam and the other northeast of the dam. The Flood Control  
4 District has acquired most of the rights-of-way at this site  
5 as it was authorized. Cave Buttes Dam would be the next  
6 feature to be recommended for early construction because of  
7 its great impact on reduction of large floods in downtown  
8 Phoenix, and also from what I can gather, early construction  
9 is certainly desirable to a number of local interests.

10 Now the Cave Creek channel would be a concrete-lined  
11 channel about 3.6 miles long extending from the Dam to the  
12 Union Hills Diversion channel.

13 Now the Union Hills diversion channel, another piece,  
14 would be a concrete-lined channel about 9.9 miles long extend-  
15 ing from the divide between Cave Creek and Indian Bend Wash  
16 drainage areas, near 40th Street, to Skunk Creek, and the  
17 Channel, east of Cave Creek, would intercept floodflows and  
18 provide protection to an overflow area tributary to Cave Creek  
19 in northern Phoenix. If the Union Hills diversion channel east  
20 of Cave Creek is not economically justified as a result of our  
21 studies, then a shorter Cave Creek diversion channel from Cave  
22 Buttes Dam to Skunk Creek will be investigated.

23 Dreamy Draw Dam, another piece of this alternative,  
24 is already under construction. This dam will provide protec-  
25 tion against floods and debris to the northeastern part of the

1 City of Phoenix. We're currently looking at alternative  
2 recreation and fish and wildlife concepts to incorporate.

3           Dreamy Draw channel would extend from Dreamy Draw  
4 Dam to the Arizona Canal diversion channel. Studies show  
5 that there is sufficient capacity in the natural channel  
6 between the dam and 16th Street to accommodate residual flows;  
7 but a concrete channel may be required between 16th Street  
8 and the Arizona Canal diversion channel. Construction of the  
9 Arizona Canal Diversion, lower Skunk Creek, New River, and  
10 Agua Fria River channels prior to the construction of the  
11 Dreamy Draw channel would be required to provide an adequate  
12 terminus.

13           The Arizona Canal diversion channel would be just  
14 upstream from the Arizona Canal and would nearly parallel that  
15 canal. The upstream reach would be a rectangular concrete  
16 channel, 2 miles long, from 12th Street to Central Avenue.  
17 The downstream reach, 10 miles long extending from Central  
18 Avenue to Skunk Creek, would be a trapezoidal earth-bottom  
19 with stone revetted sides. This diversion channel would  
20 convey intercepted flows originating downstream of the Union  
21 Hills diversion channel and from Dreamy Draw channel to the  
22 New River. This would furnish additional flood protection to  
23 the City of Phoenix. Construction of this diversion channel  
24 prior to construction of the New and Agua Fria River channels  
25 is not appropriate because it wouldn't be an acceptable

1 terminus for the water. You have to have a place to put the  
2 water.

3 In our reformulation studies we will consider  
4 modifying the authorized plan for the Arizona Canal diversion  
5 channel--by extending the channel upstream to the vicinity of  
6 40th street -- do you have a chart to put on there so they  
7 can look at that?

8 By constructing a concrete-lined channel in lieu of  
9 an earth-bottom channel to reduce right-of-way costs.

10 We will also consider aligning the diversion channel  
11 closer to a modified Arizona Canal to take advantage of exist-  
12 ing rights-of-way.

13 Okay, another piece. Adobe Dam, as authorized,  
14 would be an earthfill structure on an unnamed tributary of  
15 Skunk Creek. It's about 7 miles north of Bell Road and about  
16 1 mile west of the Black Canyon Highway. A diversion channel  
17 and levee about 2 and 1/2 miles long would be constructed to  
18 divert flows on Skunk Creek into the Adobe Detention Basin.  
19 Construction of a major bridge on Interstate Highway 17--Black  
20 Canyon Highway--would be required. The dam would be located  
21 so as to miss the proposed Granite Reef Aqueduct.

22 Now the feasibility of dams at sites alternative to  
23 the authorized Adobe Dam site are being studied. These  
24 include two sites northeast of the authorized site. Dams at  
25 those two sites would control less drainage area, but they

1 would eliminate the need for a costly diversion channel at  
2 the Black Canyon Highway crossing. Another possibility is  
3 a dam at an alternative site 5 miles downstream from the  
4 authorized site. That would control a larger drainage area  
5 and would also eliminate the need for the diversion channel  
6 upstream on Skunk Creek.

7           The Skunk Creek channel would be a concrete-lined  
8 structure along Skunk Creek just upstream from the outlet of  
9 the Union Hills diversion channel downstream to the confluence  
10 with the New River, a distance of about 6-1/2 miles. The  
11 channel would convey diverted floodflows from the Union Hills  
12 diversion channel and residual floodflows downstream from the  
13 proposed Adobe Dam.

14           New River Dam would be an earthfill structure on  
15 the New River about 8 miles upstream from the confluence with  
16 Skunk Creek. It would provide flood protection to the flood  
17 plain between the New River Dam and the Gila River.

18           We're looking at an alternative dam site for that  
19 2 miles downstream.

20           The New River channel would extend from the mouth  
21 of Skunk Creek downstream to the confluence with the Agua Fria--  
22 about 8 miles. It would be an earth-bottom and revetted side  
23 slope channel.

24           Agua Fria River channel, as authorized, would be an  
25 excavated earth channel 7 1/2 miles long from the mouth of the

1 New River to a point 2 miles downstream--south--of the bridge  
2 for U.S. Highway 80. This would be soft bottom channel lined  
3 with stone on the sides. The feasibility of relocating the  
4 terminus downstream to the low-flow channel of the Gila River  
5 will be studied in response to requests by property owners of  
6 that area.

7 Well, these are the major features of Alternative 2.  
8 As I said before, we are studying the affect of the Central  
9 Arizona Project throughout this formulation.

10 Alternative 3 consists of dams only. It would  
11 envision Dreamy Draw, Cave Buttes, Adobe and New River Dams  
12 at sites now authorized, but no downstream channel improvement.  
13 Obviously, adverse environmental impacts of channelization  
14 would be avoided by such an alternative. Because of residual  
15 floodflows from large drainage areas downstream from these  
16 dams, there would still be a large amount of nonpreventable  
17 damage. In addition, no major channel system would be avail-  
18 able for disposal of floodwaters from a local storm drainage  
19 system that's planned by the City of Phoenix.

20 Alternative 4 would consist of channels only for the  
21 remainder of the project. It would be basically the same  
22 channels that I discussed in Alternative 2. Obviously that  
23 would eliminate any adverse environmental impacts of the dams,  
24 but at the same time it would furnish nearly the same degree  
25 of flood protection as Alternative 2. The Cave Creek, Skunk

1 Creek, New River and Agua Fria River channels, however, would  
2 have to be considerably larger without dams, and consequently,  
3 they would be more costly and could have greater adverse  
4 environmental impacts.

5           Alternative 5 involves the use of nonstructural  
6 measures, such as designated floodways, flood plain zoning,  
7 building codes, floodproofing, urban renewal, flood insurance,  
8 and open space. Application of some nonstructural measures  
9 in combination with structural measures may be justified for  
10 parts of metropolitan Phoenix. But as a total nonstructural  
11 only solution to flood problems in the Cave Creek overflow  
12 area they don't look too good, because of heavy urbanization  
13 which has already taken place.

14           Flood insurance has been implemented for the City  
15 of Phoenix and incorporated areas of Maricopa County excluding  
16 National parks and Indian reservations. These areas would  
17 include most of the overflow areas of the project. Designated  
18 floodways and encroachment lines will be implemented in conjunc-  
19 tion with the flood insurance and could prevent development  
20 within the intermediate floodway of Skunk Creek, New River,  
21 Agua Fria River, and Cave Creek above the Arizona Canal.

22           Alternative 6 is a modification of a plan originally  
23 proposed by the Arizona Water Commission. This alternative  
24 combines features of the Central Arizona Project and the Flood  
25 Control Project to provide flood protection to the Granite Reef

1 Aqueduct, and allow for some water conservation of flood-  
2 waters by introducing them into the Aqueduct, while maintain-  
3 ing or increasing downstream flood control benefits. The dam  
4 sites considered in this alternative are the same as those  
5 described in Alternative 2.

6 Briefly, Alternative 6 would consist of the follow-  
7 ing:

8 The New River Dam would be about the same as previ-  
9 ously discussed.

10 A short diversion levee would drain a small drainage  
11 area just west of the proposed Adobe Dam along and across the  
12 Granite Reef Aqueduct into the proposed New River Dam Reser-  
13 voir.

14 Adobe Dam would have a small outlet into Skunk  
15 Creek and a larger outlet into the Granite Reef Aqueduct.

16 Cave Buttes Dam would have a small outlet into Cave  
17 Creek and a larger high level outlet into the modified  
18 Paradise Valley detention basins, which are a part of the  
19 proposed Central Arizona Project. Modified Paradise Valley  
20 detention basins and a channel would extend to the southeast  
21 to divert floodwaters from Cave Buttes Dam to the Salt River.

22 Diversion channels would be located along Beardsley  
23 Road from Skunk Creek to the Agua Fria River and along the  
24 Arizona Canal and Bell Road from Dreamy Draw to the Agua Fria  
25 River.

1           Finally, the Agua Fria River would be channelized  
2 from near Beardsley Road to the Gila to provide an adequate  
3 point of disposal of diverted flows.

4           Several of the alternatives that I have described  
5 I think would work. But the first alternative--which is to  
6 complete Dreamy Draw Dam and then do no more--I don't think  
7 is a good one because it would leave the Phoenix area subject  
8 to major flood damage.

9           Alternative 2 is, in essence, the authorized plan,  
10 and our planning and scheduling at the moment are based on it,  
11 even though we are not committed to carrying it through  
12 entirely.

13           Alternative 3, which calls for dams only, doesn't  
14 really seem too reasonable since it, again, would leave the  
15 area subject to flood damages which I would think would be  
16 considered unacceptable.

17           Alternative 4, is the channel plan. That would work  
18 with a modification to take into account the fact that Dreamy  
19 Draw Dam now exists. It appears at this point, however, that  
20 this alternative would raise the total price of flood control  
21 because of the extra cost of real estate--which is a local  
22 cost not a federal cost. The extra cost of real estate for  
23 the channels which would have to be much larger if the dams  
24 weren't there to trap some of the water.

25           Alternative 5, flood plain management, is not

1 feasible, I don't think, in at least some areas because of  
2 already existing development that is subject to flood dams.

3           Alternative 6 would work. We have not yet finished  
4 the economic evaluations of it. We expect to have all of the  
5 various evaluations of alternatives completed by June of next  
6 year as well as many other things done by then.

7           In the meantime, our working schedules are based  
8 on the authorized plan coupled with those factors which are  
9 common to the various alternatives which appear workable.

10           Thus we have divided the Phoenix and New River proj-  
11 ect into three units. It gets a little confusing because we  
12 call them stages. These were established in recognition of  
13 Maricopa County's ability to meet the local share of the  
14 funding as we go along.

15           Stage One consists of Dreamy Draw Dam, Cave Buttes  
16 Dam, and preparation of the Phase I Design Memorandum covering  
17 the entire project. Remember, Phase I Design Memorandum is  
18 an overall formulation to see where all the pieces are, what  
19 size they will end up being, and where they're going to go.

20           Stage Two of this project consists of Adobe Dam and  
21 diversion channel, New River Dam, Cave Creek channel, and  
22 Union Hills diversion channel. The remainder of the project--  
23 Skunk Creek channel, Arizona Canal diversion channel, and the  
24 Agua Fria River channel--could become Stage 3 or could be  
25 broken down into smaller units.

1 Obviously the selection of a final alternative for  
2 construction may effect this staging but I think Stage 1--i.e.  
3 Dreamy Draw and Cave Buttes--will remain pretty much the same.  
4 I would like to look at the timing quickly to show you how  
5 these things fit together in the system by which we work.

6 As the flow chart here -- it's hard to read but  
7 basically it says that there are three areas of work: Prepa-  
8 ration of the Phase I or reformulation Design Memorandum of  
9 the entire project; Preparation of an Environmental Impact  
10 Statement which must be submitted for the entire project;  
11 and preparation of a Phase II Design Memorandum, specific  
12 nitty-gritty details of design and the plans and specifications  
13 for Cave Butte Dam.

14 A public meeting was held in April last year. Since  
15 then we have been working concurrently on drafts of the Design  
16 Memorandum, the reformulation of the whole project--Phase I--  
17 and the Environmental Impact Statement. We will hold a public  
18 meeting which is now scheduled for March of 1974 to present  
19 the results and then we expect to have the Stage I -- and  
20 we'll get input on that -- then we expect to have the Stage I  
21 reformulation of the entire project done in June of 1974. We  
22 will also proceed concurrently on a Phase II or specific  
23 Design Memorandum for Cave Buttes Dam. This is also scheduled  
24 to be completed in June 1974. Now to a degree, this is a  
25 calculated risk. As I mentioned, there are a number of

1 alternatives. Several of them don't even include dams. If  
2 we finally arrive at an accepted alternative flood control  
3 solution which does not call for Cave Buttes Dam, we will have  
4 wasted some of that work. But if the ultimate plan does call  
5 for the dam, I personally think the odds are on our side there.  
6 We will be that much ahead of the game. In other words, what  
7 we're trying to do is make sure we've got this thing accelerated  
8 to the maximum extent possible.

9 In order to complete a Phase II Design Memorandum  
10 for Cave Buttes Dam--that's the specific details of the dam--  
11 we must have an adopted plan for the entire project. This  
12 means we must have an overall plan to see how the pieces fit  
13 together. That allows us to size the dam properly, size the  
14 channels downstream properly, and size the outlets properly.  
15 For example, under the alternatives now under study, Cave  
16 Creek outflow could go to the C.A.P. Granite Reef Aqueduct  
17 system, could go to the existing Cave Creek, to an improved  
18 Cave Creek Channel, or to a channel diversion to Skunk Creek.

19 So for these reasons it is impossible -- it has been  
20 impossible for us to speed up the design on Cave Butte Dam  
21 itself any more than we already have by working on it concur-  
22 rently.

23 But that is a digression. After the draft of the  
24 Phase I Design Memorandum of the whole project and the Environ-  
25 mental Impact working paper have been approved, we then prepare

1 them in final form. They are coordinated with various public  
2 agencies and citizens' organizations, and we look forward  
3 to another public meeting. Then we've got a March public  
4 meeting to get more input to put the pieces together and  
5 coordinate it and go back again to the public in October of  
6 1974 to get more input and bring it into the final documents  
7 and complete the final Design Memorandum and Environmental  
8 Impact Statement by January 1975. Then get them approved  
9 by April of 1975 at which time we can submit the Environmental  
10 Impact Statement to the President's Council on Environmental  
11 Quality.

12 Now let's assume that Cave Butte Dam is still in  
13 the picture following a final choice of one of the alternative  
14 plans. The final specific Design Memorandum for Cave Buttes  
15 Dam should then be completed by August along with detailed  
16 plans and specifications completed so the contract can be  
17 advertised in September 1975, and construction completed in  
18 June 1977.

19 Now as I have gone through this discussion of this  
20 planning process, you notice that there are decisions which  
21 cannot be made by the Corps of Engineers by itself. Flood  
22 control--our participation as I mentioned before, we work for  
23 you and flood control is a cooperative venture that must take  
24 place between the local people and us representing the Federal  
25 Government if you want Federal assistance and Federal partici-  
nation. In our particular case this project, the so-called

1 local interest is in fact the Maricopa County Flood Control  
2 District as an entity but it's really the people in Phoenix.  
3 After all, who's paying the taxes? Local costs come out of  
4 their right pocket. Federal costs come out of their left  
5 pocket. If the people that you represent aren't happy with  
6 these various things, don't want various aspects of flood  
7 control, then I would say it never will happen. So we need  
8 their input. We need their interest and information and their  
9 ideas.

10 The same way with the Environmental Impact Statements.  
11 We don't do this in an ivory tower. We're trying to get  
12 direct input from people both professional environmental types  
13 as well as private citizens and other government officials.  
14 We're looking for a broad divergency. To sort out the various  
15 possible alternative plans and come up with one which will  
16 receive broad public support, we're looking for active citizens  
17 participation in the planning process. Meetings such as this  
18 one I think are important to this kind of process. We've  
19 found it's really important to have a citizens advisory group  
20 of the specific projects to work with us on some of these  
21 things and help get the word down to the housewives and people  
22 that live down the street and get their input back as to what  
23 their interests are. Also to explain the reasons why some  
24 things must be the way they must be. A lot of times people  
25 will come to me and say, yes, they want flood control but

1 please don't do anything to our creek. Well, sometimes that's  
2 possible and sometimes it's not. It's quite often a matter  
3 of dialogue and discussion to explain what's really going on  
4 and what the problem is and what the various alternative  
5 solutions are. I have asked Colonel Lowry to help to set up  
6 the group of representative citizens, representing private  
7 interests, representing business, industry, various professions,  
8 property owners, even environmental groups and what have you.  
9 If we can get citizens such as this to work with us we can  
10 get into ideas and cross examination of some of our ideas  
11 and put the whole thing together and come up with an effective  
12 solution.

13 Well it's been a rather long and involved discussion  
14 of what I must say and a rather large and involved flood  
15 control problem of course has in some ways resulted in the very  
16 complicated or somewhat complicated solutions or its various  
17 alternative solutions. I think any one of the pieces of  
18 this, however, are really not too complicated. The biggest  
19 problem is trying to see how they all fit together and what  
20 size the various pieces ought to be.

21 I'm finished with my prepared speech. I apologize  
22 for the length of it but I did want to give you as much back-  
23 ground as we could in the time available. So that you have  
24 a better idea of some of the problems associated with it and  
25 some of the things that we are in fact doing.

1 I will be happy to answer any questions to start  
2 with and we do have some cards here. I have some cards here  
3 from people who have indicated that they would like to say  
4 something and what I would like to do then is call on these  
5 people and then we can get the discussion going as we go  
6 along. I would like to call on people in reverse order--first  
7 the private citizens and work our way up until finally we  
8 will get the governmental agencies, give them the last chance.

9 So I would like to call on F. J. MacDonald repre-  
10 senting the Advisory Commission on Arizona Environment in  
11 Phoenix. Mr. MacDonald?

12 MR. MACDONALD: The Advisory Commission on Arizona  
13 Environment has been very much interested in flood control  
14 all over this state. Not only from the damage standpoint  
15 that is done by the flooding, but also by the measures that  
16 are taken to control the flooding and the environmental impact  
17 they make. We have been very much pleased by the approach  
18 the engineers have been using in the past six or seven years  
19 and in involving the environmental side of the picture more  
20 heavily and I would like to particularly comment on the  
21 Dreamy Draw situation as it has been done so far it's been  
22 quite nicely and tastefully put together. I think probably  
23 it's more obvious by comparing it to the mess the developers  
24 are making right on the other side of that same mountain.  
25 That points out much better how things can be done well and

1 we would hope that with the continuing studies that are  
2 going on that this type of approach would be carried out and  
3 enhanced in your studies with whatever projects you have coming  
4 up. It is a definite improvement and we are interested in  
5 these -- in the final appearance of the projects and it's  
6 gratifying to see that you are considering earthen structures,  
7 rock facings as opposed to total concrete in many areas. We  
8 know that channelization is necessary in some cases but it can  
9 be done well. We are pleased that this type of planning is  
10 going on and we hope it will continue in this method.

11 I believe that's all I have to say.

12 COLONEL LOWRY: Mr. MacDonald, might I make a state-  
13 ment here in connection with Dreamy Draw Dam in which we pro-  
14 pose to follow on other dams to come such as Cave Buttes Dam  
15 and other dams when they are constructed. The other day Major  
16 Worthington and some of his staff and the environmental repre-  
17 sentative from the district engineer in Los Angeles met with  
18 a landscape architect at Dreamy Draw who will shortly, I  
19 believe, be under contract if it's not already so with the  
20 Corps of Engineers to do some beautification work in accordance  
21 with the plan or map presented in their environmental statement  
22 on Dreamy Draw, planting native trees and shrubbery and bushes  
23 and do some sculpturing work on the face of this levee and this  
24 dam to make it more -- to blend in more with the natural scen-  
25 ery that surrounds the dam now being constructed. We propose

1 to do that with other dams, to make that a thing of beauty  
2 rather than a blight on the scenery.

3 MR. MACDONALD: I think it's great. What you have  
4 done so far has been very well done and has really improved  
5 that situation out there. It was pretty bad. I think this  
6 approach is terrific. The Corps is to be highly commended in  
7 this area.

8 COLONEL ROPER: Thank you very much. We are inter-  
9 ested and as I say, we work for you. It's really your money  
10 and your problem and we are interested in solving it to the  
11 maximum satisfaction of the most number of citizens that after  
12 all are paying the bill and suffering the problem. If we can  
13 learn better ways to do things that's what we want to do.

14 Mr. W. W. Weigold from Buckeye Irrigation Company  
15 and Citizen Advisory Board, would you like to say something,  
16 Sir?

17 MR. WEIGOLD: Yes. I have a very short statement I  
18 would like to make and ask for some consideration.

19 In Phase B, depending on the alternative selected,  
20 we will be in the line in our area to receive waters that are  
21 going to be channeled down into the Gila immediately above our  
22 area. So we ask consideration and expect some considera-  
23 tion in the disposal of that water. At the present time,  
24 there is nothing in the works to protect our interests in the  
25 Buckeye and Arlington areas. Therefore, we ask that there is

1 consideration given to some sort of a channel down through  
2 that area possibly with hiking trails and so forth on each  
3 side of the channel so this Green Belt down there can be uti-  
4 lized. At the present time, there is no way in the world for  
5 anybody to use the Green Belt only to stand on the outside and  
6 look in. It cannot be used. You can't go through it. You  
7 can't crawl through it unless you want to fight rattlesnakes  
8 which we don't. But I think some consideration should be given  
9 if not at the present time at least at a later time that this  
10 be thought about and talked about; but if we are going to  
11 receive this water, it has to go on downstream. So if you  
12 will give this consideration we will appreciate it very much.

13 COLONEL ROPER: Thank you, Sir. I might point out  
14 that this chart or map depicts the authorized plan and that's  
15 what it was. Now we are giving consideration to this and we  
16 certainly will.

17 MR. WEIGOLD: I am very well acquainted with all of  
18 these maps. I have been on this Advisory Board for many years.  
19 I'm not speaking for the Advisory Board right now. I'm speak-  
20 ing for Buckeye Irrigation Company, the Arlington District,  
21 and all the farmers and the people that's around that area.  
22 The recent water that has been down there has not been great  
23 amount of water in the way of floods. We have been damaged to  
24 quite an extent. Some people to a large extent. Therefore,  
25 we are asking consideration. If certain alternatives are used,  
we will need it very badly. Thank you again.

1 COLONEL ROPER: We appreciate that. Thank you.

2 Mr. Jim Attebery, City Engineer, has indicated he  
3 would like to talk. Mr. Attebery?

4 MR. ATTEBERY: Thank you, Mr. Chairman. Speaking  
5 for the City of Phoenix, we would urge that you move forward  
6 promptly for the additional studies that you're contemplating  
7 and certainly we would hope for a plan that would offer a  
8 maximum amount of protection for the Phoenix urban area. AS  
9 you know, this is a rapidly growing area. Urbanization is  
10 extending. The statistical charts in your handout indicate  
11 the extent of growth in population.

12 We would also urge and we do look forward to your  
13 early construction of Cave Buttes Dam. We recognize that you  
14 have told us today that there is a risk with that and we  
15 certainly hope you do move forward so that some semblance of  
16 construction can start in June of 1975.

17 We would endorse any plan that could use the Granite  
18 Reef Aqueduct to benefit and certainly the concept you have  
19 shown seems to offer something in that line. We do look for  
20 Granite Reef and we do hope for the construction of the Arizona  
21 Canal channel since much of our local planning has anticipated  
22 this construction. We would urge studying possible combination  
23 of the Arizona Canal with the flood control facilities. I  
24 think this has at least some hopes. It would offer advantages.  
25 For one thing, we would have a maximum use of this canal right

1 of way and would reduce the right of way costs. It would  
2 minimize the impact or the cut through the City of Phoenix  
3 and I think it would probably provide a facility that would  
4 reduce maintenance costs by its very nature of construction.  
5 I think it could be enhanced by some perhaps light landscaping  
6 along the edges.

7 I think also that there's a possibility as you  
8 indicate that the Union Hills Channel can perhaps be cut back  
9 and not extended as far to the east as you originally planned.  
10 Of course, this I think becomes realistic since the Granite  
11 Reef Aqueduct is picking up some of these foreign waters.

12 We are pleased to see that your most recent book  
13 indicates that we will study the extension of Arizona Canal  
14 channel east toward 40th Street. This has the advantage of  
15 trying to handle the Cudia City Wash, a wash that has created  
16 a great amount of problems as your study shows from the June  
17 1972 storm. So either an extension or even perhaps the joint  
18 use of the canal would pick up part of the Cudia City Wash.

19 I believe that today we are perhaps not as much  
20 oriented towards the concrete channel as perhaps we were ten  
21 or twelve years ago and we hope that your studies will look  
22 at the alternatives along these open channels that are contem-  
23 plated under the authorized plans.

24 COLONEL ROPER: Thank you. That's some real good points  
25 I think it's pretty obvious that in thinking about that the

1 Corps of Engineers, the Federal Government, gets involved in  
2 flood control work and we are talking about channelization.  
3 We are involved in putting in major conduits, if you will,  
4 to allow water to flow out harmlessly or to trap water in  
5 dams or a combination of both. Cities and municipalities,  
6 local people, also have problems of getting their local  
7 drainage water to these conduits. Obviously until the exact  
8 nature and location of the major conduits is fixed, you have  
9 problems in your own local construction plans too. This is  
10 what we are trying to get all coordinated and wrapped up  
11 among our various agencies.

12 I would like to call now on Bud Bristow who indi-  
13 cated he would like to make a statement--Arizona Game and Fish

14 Mr. Bristow?

15 MR. BRISTOW: I don't have a prepared statement. I  
16 thought it was going to be more of a discussion.

17 COLONEL ROPER: That's what I hope it will be, so  
18 go ahead and discuss. The only reason we are taking a trans-  
19 cript is so we can remember what you said better.

20 MR. BRISTOW: Okay. We have several concerns with  
21 the project. The main concern, of course, has always been  
22 the area downstream on the Gila River and I would like to point  
23 out that we are a major landowner in this area and so we have  
24 the same concern that Mr. Weigold had earlier when he said  
25 this water is going to be delivered downstream to us and so

1 we have concerns. What are we going to do with it then.  
2 Where is it going to go? We would like to see it stay within  
3 the Green Belt or the river channel or whatever you want to  
4 call it. At least within the flood plain area and not be  
5 giving farmers problems on the side as well as game and fish  
6 farmland on the side problems. So we have a concern with  
7 maintaining these rights for farming areas for wildlife on  
8 the side.

9 I would like to point out that we have requested in  
10 the past that the Corps look at the alternatives of this pro-  
11 ject and also evaluate the impact of other flood control  
12 projects in Maricopa County which are also delivering water  
13 to the Gila River.

14 Now we envision that these waters could occur all  
15 at once. For instance we could get water through channeliza-  
16 tion in Queen Creek and some of these areas hitting the Gila  
17 River at the same time as the water from the Cave Creek area,  
18 Agua Fria and also New River hit the area and so we envision  
19 that maybe we would have some higher flood peaks possibly with  
20 flood control downstream than we presently have. So this is  
21 one of our concerns. We would want to make sure that we are  
22 fully aware of what the flood peaks are going to be downstream  
23 on our areas. We sure don't want to be flooded out as we  
24 have in the past or have our areas ripped out by some of the  
25 flood waters we had in '65 and '66. The ones we had this  
spring were not really a problem but the ones at that time were

1 a problem and they removed a substantial portion of our lands  
2 as well as some of the habitat.

3           In addition, I would like to point out that on the  
4 Phase B, which really is what we are talking about today,  
5 although it does concern the area downstream too, but the  
6 department -- contrary to what some people have been putting  
7 in the paper or what has been in the paper -- the department  
8 has not opposed that project; and in fact, I'm sure you have  
9 some records, we have the letters at least, to indicate that  
10 we have supported this portion of the project and we have,  
11 10 years ago in 1964, requested that there be some provision  
12 for recreation incorporated with it. What we were thinking  
13 of was minimum pools in Cave Buttes, Adobe, whatever is  
14 going to be feasible. Of course, we don't have the informa-  
15 tion and we don't have surface acres and things like this  
16 but we think that there is a possibility to use possibly water  
17 from C.A.P. as well as drainage waters and flood waters and  
18 try to enhance recreation development in the northern part of  
19 Phoenix. We think that it would be a sad case if we didn't  
20 take this opportunity and we didn't provide recreation because  
21 we all know that this area is being developed and it's going  
22 to be developed so let's provide all we can for the people.  
23 Other than that, that's about all the comments I had.

24           One other question I would like to ask. I notice  
25 when you gave your presentation you give a time frame schedule

1 for the reports, for the Design Memorandum and the Environmental  
2 Impact Statement and things like this. I got the impression  
3 from looking at your time schedule that the Environmental  
4 Impact Statement goes along with other necessary documents  
5 or reports that you have to draft.

6 COLONEL ROPER: Yes.

7 MR. BRISTOW: Is that true?

8 COLONEL ROPER: Yes. The general Design Memorandum  
9 goes in with the Environmental Impact Statement and they are  
10 collateral documents.

11 MR. BRISTOW: There's been a great deal of discussion  
12 in the local news media recently that the Environmental Impact  
13 Statement was what was holding up the project right now as  
14 far as Phoenix Phase B; is that true?

15 COLONEL ROPER: No, it's not true. Although we  
16 can't do one without the other. So you could say -- in other  
17 words, if we put all our effort and did one-half of it maybe  
18 we could speed that up a little. But it doesn't do any good  
19 because the Environmental Impact Statement has to be completed  
20 concurrently. On the other hand, we might put all our effort  
21 on the Environmental Impact Statement and what good is that  
22 as long as we don't have the other. What I'm really saying  
23 is that the project if we get it to the point where we are  
24 looking for it to be, i.e. under construction, both of these  
25 things have to be done.

1 MR. BRISTOW: Well, really, then, it doesn't neces-  
2 sarily slow it down. It's just another planning process that  
3 has to be done in conjunction and at the same time with all  
4 the other plans as far as the design plans.

5 COLONEL ROPER: It's a requirement. As a matter of  
6 fact, as I pointed out, we tried to accelerate to a maximum  
7 extent by at least making the educated assumption that Cave  
8 Buttes will probably be part of the plan that will be ulti-  
9 mately decided on and therefore we are going on separately  
10 and concurrently working on that design as best we can so that  
11 it's ready to go at the same time.

12 MR. BRISTOW: One other question. On Cave Buttes or  
13 the ones that you're working on right now, are you going to  
14 come up with criteria as far as what is feasible for minimum  
15 pools at the same time that you come up with design memorandum  
16 for it, detailed planning?

17 COLONEL ROPER: We should.

18 MR. POTTER: The sites there are very porous at the  
19 present time and we haven't as yet decided to put gates on  
20 it so whether you have an impounded pool or not would depend  
21 on whether the thing will hold water. The other thing is  
22 whether you have water to maintain it and that's going to  
23 depend on allocation of the C.A.P. flows I guess and where the  
24 Fish and Game wants to put their waters after they get them.  
25 So we have a considerable amount of planning to do with you in

1 developing the plan whether it has water or doesn't have water.

2 COLONEL ROPER: It will be worked out, of course, in  
3 time.

4 MR. POTTER: I would like to ask you your concern  
5 on the Gila downstream on the Agua Fria. It's a concern  
6 that's double-edged in the effect that you're concerned about  
7 damage to your properties and you are also concerned that it  
8 might require a flood control improvement that would wipe out  
9 some natural vegetation. You're more concerned about that than  
10 you are about flood damages I believe; aren't you?

11 MR. BRISTOW: That's true. We have about 2,300  
12 acres of fee title deeded property which some of it is farmed  
13 for food crops for wildlife and things like this and some of  
14 it has phreatophytes. In addition to that, we have through  
15 agreement, management of about 5,000 acres of phreatophytes  
16 and this includes almost all of the wildlife habitat on the  
17 Gila River and we are also still acquiring some property, small  
18 parcels of 100 or 200 acres.

19 But we have two concerns. First we have concerns for  
20 the habitat itself. Of course we don't want to see it cleared  
21 with a channel or at least not all of it. Next, we don't want  
22 to see it flooded out or ripped out with flood flows and also  
23 we have a concern for our area that is farmed and actually  
24 cultivated with crops for our wildlife. So we certainly are con-  
25 cerned with it and if anyone is affected more along the

1 Gila River than our department or our resources, I'm not  
2 aware of who it would be.

3 COLONEL ROPER: I am personally looking for, as I  
4 think most people are, for a solution to a problem rather  
5 than a simple transference of a problem. I think that's  
6 really what you're talking about. We are trying to do the  
7 best we can on that.

8 MR. BRISTOW: I recognize that.

9 COLONEL ROPER: And we do understand, I think, your  
10 concern on it and it's ours too.

11 MR. POTTER: In that respect, we have caused to be  
12 made environmental assessments of the Gila River with respect  
13 to the impact of Phoenix Stage B on it. As yet we haven't  
14 issued it down to a final selection or operating plan or  
15 anything like that, but we do have the inventories and such  
16 from which we can make the determination. So we will be with  
17 you on that when we get into that.

18 COLONEL ROPER: It could be for example an all  
19 channel plan would greatly increase your problem whereas a  
20 dam construction would decrease or slow down the acceleration  
21 of the waters.

22 MR. BRISTOW: We might quite possibly find that the  
23 dams north of Phoenix decrease the need for channelization  
24 down through there and actually can serve our area but we  
25 don't really have the information and that's what we are asking  
for.

1 COLONEL ROPER: And that's what we are working on.

2 MR. BRISTOW: Thank you.

3 COLONEL ROPER: One more card. Cliff Humphrey  
4 representing Congressman John Conlan has indicated he would  
5 like to submit a written statement. I would be happy to take  
6 that, Cliff, anytime.

7 I don't have any more cards so if you have any  
8 questions or thoughts or something that we have forgotten  
9 that we ought to be looking at as part of this --

10 Would you please state your name?

11 MR. ELMORE: James W. Elmore from the College of  
12 Architecture of Arizona State University.

13 Do you know yet how big these diversion channels will  
14 be--the Union Hills and the Arizona Canal diversions? Because  
15 I understand that you have two alternatives. One that would  
16 enlarge the canal presumably the Arizona Canal and it would be  
17 at the same time the canal and the diversion channel. The  
18 other might be a separate protective channel so that there  
19 would be two. The purpose of my question is to try to under-  
20 stand just how big a thing this will be along its length. Is  
21 there some way you could characterize that?

22 COLONEL ROPER: It's not exactly fixed but we ought  
23 to be able to give you a ballpark idea.

24 Vance, do you have the widths of those channels that  
25 you considered whether the concrete widths or what would be the

1 soft bottom widths?

2 MR. CARSON: The channel on the Arizona Canal as we  
3 studied it originally I believe requires right of way at the  
4 west end of some 400 feet.

5 MR. POTTER: That's what kind of cross section?

6 MR. CARSON: That's a soft bottom.

7 MR. POTTER: Was that in a gradient so that you could  
8 incorporate a dual use or was it just parallel to the canal?

9 MR. CARSON: That was just parallel to the canal.

10 MR. ELMORE: Would that be enlarged if you extend  
11 it eastward?

12 MR. CARSON: No. Oh, yes, it would be. It would  
13 pick up those flows.

14 MR. POTTER: We haven't yet resolved what the dis-  
15 charges from the reservoirs are going to be so we've got an  
16 array of channel widths that we are looking at and we have  
17 got in effect an array of discharges and we've got to decide  
18 and put these all together in some kind of combination that  
19 seems to give the best solution so the widths would be dependent  
20 on what kind of regulation we have.

21 COLONEL ROPER: This is really why we are taking a  
22 look at the whole project and trying to formulate it because  
23 each piece has an effect on at least one other piece if not in  
24 general on more than one other piece. So you can't really  
25 fix the width or depth of the channel unless you know how much

1 water is going to come and the difference in sizing of the  
2 dams and what not have to relate to that as well as the length  
3 of channel and the amount of the area surface is related to  
4 that.

5 MR. ELMORE: I wonder if on the same basis if it  
6 would be possible also to clarify what the right of way  
7 requirement would be for the eastern end of the Arizona Canal  
8 channel and then for both ends of the Union Hills just to get  
9 again this approximation of how big?

10 COLONEL ROPER: Vance, could you give us a ballpark  
11 number on that?

12 MR. CARSON: I don't have the information on the  
13 Union Hills.

14 COLONEL ROPER: How about the east end of Arizona  
15 Canal?

16 MR. CARSON: It's narrow there at Dreamy Draw. It's  
17 quite narrow. I don't know the dimensions.

18 MR. POTTER: Do you recall what your discharges are,  
19 Vance? Do you know what you're going to intercept in those  
20 two channels as they extend eastward from the -- well the  
21 one extending eastward from Cave Creek I guess it is?

22 MR. CARSON: I can't recall the --

23 MR. FORD: I think it's in the 10- to 20,000 range.  
24 This does not include the discharges east of Dreamy Draw. We  
25 haven't even considered that yet.

1 COLONEL ROPER: How about thoughts on those various  
2 alternatives? The more ideas we get on which direction we  
3 ought to go the more help they are.

4 MR. VANCE: Mike Vance from the City of Phoenix  
5 Planning Department. Question: Is the final alignment on the  
6 Union Hills Diversion Dam established now? We have heard  
7 some conflict on this--on the channel. Is the channel align-  
8 ment established?

9 MR. FORD: No, it is not. I might, if I may make--  
10 Cliff Ford, Project Engineer. The problem that we are getting  
11 into on the Union Hills diversion channel is the Granite Reef  
12 Aqueduct does -- the detention dikes at the Granite Reef  
13 Aqueduct does provide some protection for the eastern extension  
14 of the diversion channel. That would be east of Cave Creek,  
15 and we are in the process right now of trying to determine if  
16 this will in fact negate the need for the flood control  
17 channel east of Cave Creek. If it becomes apparent that it  
18 is not a required segment, then we can consider possibly realign-  
19 ing the diversion channel from Cave Creek Dam a little farther  
20 to the north and actually cut out about a mile of length by  
21 coming off across country rather than dropping clear down to  
22 below Beardsley Road and then coming back up to Beardsley Road.  
23 So because of this eastern extension we have not yet been able  
24 to definitely align the channel west of Cave Creek. We hope  
25 to come up with this answer in the very near future.

1 MR. VANCE: You must obviously be as aware of this  
2 as we are that development is taking place up there like crazy  
3 and if you're going to preserve some alignment at all that  
4 decision has got to be made soon. As a matter of fact, I  
5 think there are two subdivisions. One subdivision is right in  
6 the alignment, the first center line that you determined. I  
7 think that's how imminent or how important this decision is.  
8 This is west of Cave Creek not necessarily east. So apparently  
9 you're going to build that section from your comments so  
10 whether it's on the present alignment or the mile north the  
11 timing is now.

12 COLONEL ROPER: That's a good point. Sometimes this  
13 business is like galloping after a runaway railroad train in  
14 an area that a lot of development is taking place. It's very  
15 important to try and get this stuff ironed out and fixed so  
16 that we don't get overcome by events.

17 I have a card that was brought up to me. Mr. H. L.  
18 Anderson of the Maricopa County Flood Control District,  
19 Citizens Advisory Board.

20 MR. ANDERSON: I'm also President of Maricopa County  
21 Farm Bureau and I would like to point out that the confluence  
22 of the Agua Fria and Gila River presents a problem when Phase  
23 B that is associated with the discharge from the sewer treat-  
24 ment plant at 91st Avenue and the discharge that has maintained  
25 the growth of vegetation some of which is scoured out by the

1 flows of this past winter, as you're no doubt aware, and there  
2 has been some relocation of sedimentation there.

3 But we are concerned with the entire problem, from  
4 inside Phoenix and even above 91st Avenue clear to Gillespie  
5 Dam. I'm sure that if Phase B resulted in accelerated flows  
6 at the confluence we would have a problem there with the  
7 intake to Buckeye Irrigation District Canal as well as the  
8 areas that have flooded by the control flows by the Salt River  
9 this year. As you know, the Farm Bureau has been one of the  
10 active supporters of this flood control project from its very  
11 inception and we want to be as helpful as we can in a solution  
12 of this problem that would involve all of the flows clear to  
13 the Gillespie Dam and the holding of the damage to lands on  
14 either side to a very minimum.

15 COLONEL ROPER: Thank you, Mr. Anderson.

16 MR. ELMORE: Another question. I believe I under-  
17 stood Mr. Attebery to refer a moment ago to the map in use  
18 in the Granite Reef Aqueduct in conjunction with the flood  
19 control measure and I'm aware also that the Paradise Valley  
20 detention dike eastward of Cave Creek Road is a factor which  
21 would claim that area depending on how far the Union Hills  
22 channel would extend. I wonder if it's at all a feasible  
23 alternative to think about a dike all along the Granite Reef  
24 Aqueduct in lieu of the Union Hills channel or is there some  
25 obvious flaw in that that would eliminate it from consideration?

1 COLONEL ROPER: What do you think? Have you looked  
2 at it?

3 MR. FORD: Generally speaking, we do have to get rid  
4 of the water that would be stored behind the dike one way or  
5 another and the Granite Reef Aqueduct itself is only carrying  
6 some 3,000 cubic feet per second of its maximum design flow.  
7 If we depended entirely upon the Aqueduct to carry this water  
8 we would be possibly carrying water for the whole period of  
9 time and during the time that say the area behind the dike  
10 would be filled then we wouldn't have capacity if a second  
11 storm came in in a reasonable period of time. There's one  
12 thing about storms. You may tag a 100-year frequency on it  
13 but it can happen twice in a month. So I don't know if that  
14 would be a good concept or not.

15 COLONEL ROPER: Well, it's something you haven't  
16 looked at?

17 MR. FORD: No, we have not looked at this possibility.

18 COLONEL ROPER: I think it's a point that ought to be  
19 looked at from the standpoint at least of feasibility.

20 MR. FORD: There's one other point that I might  
21 mention in this. We can look at it yet, yes.

22 COLONEL LOWRY: Doctor Elmore, if I may make a state-  
23 ment. The other day representatives of the District Engineer's  
24 office and representatives of the Bureau of Reclamation who are  
25 responsible for the design and construction of the Granite Reef

1 Dam Aqueduct and the retarding structures which they are going  
2 to put up north of Paradise Valley in Scottsdale, met in Wes  
3 Steiner's office, the Director of State Water Commission, and  
4 this same problem came up. How much water could we plan to  
5 put in the Aqueduct from these dams which is now proposed to  
6 be built on Phase B of the plan that you just saw on the screen  
7 here? The subject came up as Mr. Ford just mentioned. The  
8 capacity of the Aqueduct canal carrying water from the  
9 Colorado River into Orme Dam is limited to a maximum of 3,000  
10 CFS and at many times we will have floods coming down off the  
11 McDowell Mountains in excess of 3,000 CFS with no room for any  
12 other water from any other dam or any other area to such an  
13 extent that the Bureau of Reclamation is designing the  
14 reservoir areas upstream from this Aqueduct in the Paradise-  
15 Scottsdale and Indian Reservation area to carry and hold a  
16 maximum standard projected flood. I don't believe that we  
17 could eliminate -- and it's for that reason and I don't believe  
18 that we could eliminate, or the Corps of Engineers could elim-  
19 inate although they are studying it, any of these dams with  
20 the idea of putting all of that water in the Aqueduct because  
21 at times it wouldn't carry it. That was the unanimous decision  
22 of those who met in Mr. Steiner's office the other day. But  
23 the Corps of Engineers representatives I know will go back  
24 to this office with that information and they will continue  
25 to study until they are firm in their belief whatever they

1 come up with.

2 MR. POTTER: There may be a need to keep these diver-  
3 sions in there to break up the area, the cumulative area, that  
4 has no reasonable outlet at the present time. So that if you  
5 talk about eliminating Union Hills diversion, meaning Cave  
6 Creek, would go down the Arizona Canal you then have a very  
7 large tributary area there without any main drain running  
8 through it. So we probably want to look seriously at the  
9 need for outlets for the urbanization that's tending to move  
10 northward there.

11 COLONEL LOWRY: One other thing, Doctor Elmore, that  
12 we discussed at the same meeting. It was also the consensus  
13 and opinion of those present that in the design of these dams  
14 where water would be introduced into the Aqueduct canal by  
15 gravity such as Cave Buttes Dam, the provision should be made  
16 that it's piped and gated pipes or something, so that when  
17 water would be put into the canal it would be put in there if  
18 the water were behind the dam. On occasion when we can do  
19 it we want to make provisions so we can salvage as much of  
20 that water as we possibly can. They agreed to that thought  
21 also.

22 COLONEL ROPER: But in the event that you can't put  
23 it in there because it's full, you still get rid of it without  
24 causing damage.

25 MS. BOHN: My name is Gertrude Bohn, 8001 North 7th

1 Street. I would like to ask what will be the final project  
2 and plan in the north part of Phoenix coming down Northern  
3 Avenue where Little Dreamy Draw comes down along 18th Street  
4 north of Northern down through across 16th Street coming on  
5 down through a 10-acre piece of land on the north side which  
6 is being developed with 500 apartments in it where they  
7 have put in--you call it conduit, I call it tiling--cement  
8 tiling, 6-foot, two of them across this 10-acre piece of land.  
9 See what I am getting at?

10 Then we come on down across 12th Street to the bridge  
11 on Little Dreamy Draw then we come back and cross Northern  
12 west of 12th Street, go into what we used to call Bud Brown's  
13 property where the two Knoells have built townhouses and they  
14 have been permitted to put a bridge with cement tiling about  
15 14 inches across there and when the water comes down it throws  
16 all the water down on Northern Avenue right straight down the  
17 road. How are we going ahead now with this if we are permitted  
18 to put in 6-foot tiling, two of them, across a 10-acre piece,  
19 why can't the rest of us do the same way if yours goes through  
20 ours like up at Orangewood off 16th Street where they have all  
21 these washes through the Orangewood retirement home. What can  
22 we do to that?

23 COLONEL ROPER: Is this tiling, is it intended to  
24 divert the water away from that piece of property?

25 MS. BOHN: They are leveling it over. I don't know

1 whether they are building on it or not. There are two 6-foot  
2 tilings across this 10-acre piece on the north side -- you can  
3 walk through them. We are at the present time while they are  
4 building. There is no provision to keep children out of there.  
5 Now when you run water through a hose you come out of a large  
6 wide stretch you run into something smaller, the force is more  
7 when you get to the other end. It would be the same in  
8 those two 6-foot sets of tiling. Now how do we answer that?  
9 If one builder is permitted to throw the water into tiling  
10 will the rest of them in the Dreamy Draw area be permitted to  
11 do the same thing?

12 COLONEL ROPER: I think somebody from the county  
13 ought to answer that.

14 MR. ATTEBERY: I think, Colonel, that's a city issue.  
15 We are working under a drainage program we've had in effect  
16 about a year where we require that they keep the natural  
17 washes and natural drainage ways open and the effort you see  
18 above 12th Street is that effort so that they are providing  
19 capacity by installing the pipelines. Simply that they are  
20 doing this, we are going to certainly be satisfied with the  
21 open channel except that they wish to use some of this land  
22 for parking lot which is the way that they are getting maximum  
23 benefit off their property, but they are providing capacity.

24 Moving on downstream, we've kept the channel open on  
25 the south side of Northern on down to your area. The thing

1 that we face here and the thing of issue when you are talking  
2 flood control or local drainage, is the more you urbanize the  
3 more you create increased runoff. And in our areas we feel  
4 that perhaps we're changing it so that we are increasing run-  
5 off from 2 1/2 to perhaps 4 times. So it isn't that you're  
6 keeping the channels open. It's simply that you're adding  
7 more runoff than you had in the past. So we are also studying  
8 a detention basin on Little Dreamy Draw. It's just off the  
9 edge of the mountain preserve upstream. We think that that  
10 detention basin if it goes to that, is a satisfactory solution  
11 and would help a lot to keep the big charge off the water.  
12 And again, as I said this earlier, all of our local planning  
13 contemplates some type of flood control facilities. We don't  
14 have the facilities right now nor have we planned that or tried  
15 to finance the type of facilities that it would take to handle  
16 flood control projects. We are looking to the Maricopa County  
17 Flood Control District for that. So it means that we are  
18 anticipating the channel along the north side the Arizona Canal.

19 MS. BOHN: In the meantime, where the one -- the two  
20 canals over the wash is they're diverting the water onto my  
21 property.

22 MR. ATTEBERY: I believe that's natural drainage  
23 going in there. Again what you're seeing is increased runoff  
24 from urbanization. Then again the answer has to be the channel  
25 along the north side of the Arizona Canal.

1           Colonel, if I could on a couple of issues, questions  
2 that were raised by Dean Elmore. Even say regarding the width  
3 of the channels along the canals or with the channel along  
4 Union Hills or the channel along the north side of Arizona  
5 Canal this is the reason that we have asked that you consider  
6 using the Arizona Canal as a joint use facility. You have  
7 got some right of way there and you're going to improve the  
8 hydraulics if you can go through a concrete-type channel. Your  
9 concrete channel would certainly help your irrigation system  
10 and certainly help the hydraulics of your flood control system.  
11 So if you can use that right of way in joint then the width  
12 that you've been talking about is in the neighborhood of  
13 200 or 300 feet certainly of earth type but your hydraulics  
14 will improve tremendously in concrete-type channels. So if  
15 you can put a little landscaping along the edges, these widths  
16 that we are talking about don't have to be 300 feet if they are  
17 concrete. I think that's a rather significant point to make.  
18 Also along the north side of the Granite Reef Aqueduct I think  
19 you are going to find yourself laying a balancing -- doing a  
20 balancing act between dams and channels. You can certainly  
21 hold back more water if you go into another dam.

22           COLONEL ROPER: Construction costs versus real  
23 estate costs.

24           MR. ATTEBERY: Yes. If you're going to build a bigger  
25 dam you can hold more water and you can release it off slower

1 and it won't impact you that much. So you can build bigger  
2 dams or you can reduce the sizes of your channels or you can  
3 trade off one for the other and certainly this concept  
4 probably would be, in my opinion, more advisable than the  
5 detention basin along the Granite Reef Aqueduct. In addition  
6 to that, all you can possibly do by getting into that aqueduct  
7 thing right now is further delay in the design and construction  
8 of that.

9 Thank you, Sir.

10 COLONEL ROPER: I would like to give our young lady  
11 a chance to break. We'll take about a five-minute break.

12 (A short recess was taken.)

13 COLONEL ROPER: Let's get on back.

14 I would like to mention that there's been some dis-  
15 cussion about right of way. I know right of way is of extreme  
16 concern to many many people. For one thing, right of way is  
17 generally a local cost--the local government has to pay for  
18 the land necessary for right of way. It's not a whole lot  
19 of a good idea to go out and buy land on the assumption that  
20 something is going to go down that right of way and turn out  
21 that due to the engineering, environmental or economics or  
22 another reason, it ought to go some other direction. Basically  
23 what I'm saying is when there are procedures and rules, the  
24 rights of way are not firmly established until the actual pieces  
25 of the project are fixed and the design memorandum that discusses

1 them and fixes them is approved. So some of these right of  
2 way questions really are unanswerable at the present time. We  
3 can talk about possibly 400-foot widths for channels in  
4 certain areas. If you want a soft bottom trapezoidal channel  
5 that takes a wide spot including roads to maintain it along  
6 the side, certain landscaping and this sort of thing. If, on  
7 the other hand, to carry the same amount of water it's decided  
8 that a concrete rectangular channel is appropriate, it may  
9 well be that it would require rights of way of something more  
10 at the order of 100 feet. This merely is a number that I  
11 grab out of the air. So there are many, many questions and I  
12 think this is the point I have been trying to make that there  
13 are so many pieces to the project, so many areas to be pro-  
14 tected that the total crossword or jigsaw puzzle has to be  
15 looked at in a system content so that the individual pieces  
16 can be properly sized, properly directed, so that we come up  
17 with the best possible project for all concerned.

18 Okay.

19 MR. BASKETT: I am Ralph Baskett, Jr. My family  
20 owns land along New River between Thunderbird and Cactus. We  
21 have a considerable amount of confidence in the Corps' ability  
22 to design and execute a flood control program if they have the  
23 funds. But we are concerned about the pressures and forces  
24 that might give us an incomplete. In other words, we are con-  
25 cerned about new water coming into our area until the channel

1 is taken care of first.

2 COLONEL ROPER: That's a good point.

3 MR. BASKETT: We would like to have some assurance  
4 on what your plans are about whether you are going to channel  
5 first or whether you are going to divert the water first.  
6 That's what it really boils down to.

7 COLONEL ROPER: There again is another good reason  
8 for the completion of the overall plan and it's approval. So  
9 that there is a fix on just exactly what it's going to look  
10 like. Then from the construction side we decide how we are  
11 going to do it, so that we don't cause anybody trouble during  
12 the time that the construction period takes place. And in  
13 this case we are talking about a construction period that is  
14 going to extend, I'm sure, over a number of years. Normally  
15 it's just kind of a rule of thumb what we do when we're con-  
16 structing channels, we work downstream such that we work our  
17 way upstream trying to avoid the obvious problems that would  
18 occur if you start upstream and you're increasing the velocity  
19 of the water and the poor guy that lives downstream and is yet  
20 unprotected has a problem that is greater than he had under  
21 Mother Nature's conditions. This is the kind of thing that  
22 we will do in this case also. I look on the project that we  
23 are talking about here as well as the other phases of it--C,  
24 D and E--as somewhat akin to the total flood control project  
25 in Los Angeles which consisted of, oh, just a huge variety and

1 number of channels, dams, open areas, and whatnot; and this  
2 was all done without creating problems for the guy downstream  
3 that were greater than they were originally. Obviously if  
4 you're going to stretch -- if it's going to take anywhere from  
5 10 to 20 years perhaps to build a total fix to the problem,  
6 some people are going to have to wait longer than others for  
7 the ultimate protection but we try to do it in such a way as  
8 not to aggravate the problem while they are waiting.

9 MR. POTTER: I will try to get a little bit more  
10 specific. I think what we are trying to do is build a storage  
11 first so that we regulate the tributary area and that then  
12 reduces the major peak flows coming down New River. There is  
13 an urgent need to solve Cave Creek's problem and we are going  
14 to have to look very hard there about how we are going to  
15 discharge Cave Creek in the interim period of completion of  
16 the project. As you say, as we start diverting flows across  
17 why you take into a stream that's unimproved, why you're  
18 adding water to it unless we can offset that by storage on  
19 New River and Adobe basins there well you would be subject to  
20 a time when you could get more flow than you would have without  
21 the project. So we are aware of that problem. I think that  
22 it's going to be a tough one to answer really. We need the  
23 storage to cut the peaks down to the size that we design the  
24 channels. We have some really urgent problems on the Cave  
25 Creek which tend to say I will take care of Cave Creek first

1 and that is somewhat contrary to the concept of starting at  
2 the bottom and building upstream.

3 MR. BASKETT: This is the point I was trying to make.  
4 If you dump Cave Creek in before you get the channel ready, we  
5 have got problems.

6 MR. POTTER: We recognize that. We will be consider-  
7 ing that as we schedule this project. We have some urgent  
8 problems too that we've got to solve.

9 COLONEL ROPER: That might have some relation to  
10 the size of Cave Creek, too--Cave Creek Dam.

11 MR. POTTER: I get the point anyhow.

12 MR. BASKETT: I just wonder if you're going to give  
13 me a crying towel or help us.

14 MR. RECKER: My name is Oscar Recker and I have land  
15 on New River, Sir.

16 I have been following this flood control for some  
17 time. The last I have any official figures on is the interim  
18 report of January 15, 1964. In that, the New River -- the Lower  
19 New River Dam, as I understand was around 42,000 acre feet or  
20 thereabouts, I have forgotten the exact figures. But the 1951  
21 flood would have more than filled that plus there was over two  
22 days that it was overflowing the banks and on my place it was  
23 up to a canal -- not a canal, an irrigation, cement irrigation  
24 ditch and stayed there for over two days. The Santa Fe Railroad  
25 had a man walking their railroad bridge for three nights and

1 that shows how long it ran and according to the S.C.S. they  
2 did engineer what the water flow was from the high points of  
3 it and they figured it at least 20,000 cubic feet per second.  
4 And that's in my calculations from somewhere else, I'm not  
5 an engineer and cannot tell what it was, but it filled that  
6 lower New River Dam in one day's time. Well, what are you  
7 going to do with the rest of it? Well, as far as I am con-  
8 cerned I went to the Corps of Engineers in Los Angeles years  
9 ago and they said it could be doubled in size, but I don't  
10 believe that there's any inclination as far as I know to do  
11 it. And as far as I heard today that you were going to put  
12 levees on both sides of New River between Skunk Creek and the  
13 Grand Avenue or where the railroad crosses; is that correct?  
14 That's the first time I've heard that.

15 MR. FORD: From Skunk Creek?

16 MR. RECKER: From Skunk Creek to Grand Avenue and  
17 from there on I think you're going to take care of 50,000  
18 cubic feet per second.

19 MR. FORD: Yes. The water will be channelized depend-  
20 ing on what our hydrology people say.

21 MR. RECKER: But your report of '64 did not show that.

22 MR. POTTER: We had a channel on New River and adjoin-  
23 ing channel on Agua Fria.

24 MR. RECKER: Well, let me read just a little statement  
25 here showing my concern about the thing.

1           In a letter to Colonel Lowry from Lt. Col. A. M.  
2 Marshall on April 24, 1964, I will read one paragraph.

3           In Paragraph 8 of your letter you mentioned Mr.  
4 Recker's suggestion that land on the west side of New River  
5 from Skunk Creek to the railroad bridge should be protected  
6 with a levee as well as that from the east side. This present  
7 design in this reach will accommodate a flow of about 25,000  
8 cubic feet per second without flooding.

9           Skunk Creek is going to be built so it will carry  
10 41,430 feet per second but that reach in there will only carry  
11 25,000 feet per second. On the west side is now Sun City. It  
12 was then but not as big as it is now. And the Agua Fria River  
13 on the railroad is about 8 feet and 1 inch higher at 107th  
14 or about the highest part of Del Webb Boulevard right now  
15 than the railroad track at New River but on beyond and further  
16 north where it crosses the Agua Fria that trestle there is about  
17 10 feet 1 inch lower than the New River at Grand Avenue. Well,  
18 where is that extra water going to go? Right through Sun City?  
19 Now that's the engineering--that's all I have had anything to  
20 hear about. I have asked but I haven't received anything.  
21 However, I know you won't do that. I do know that that proposed  
22 reservoir on lower -- behind lower New River Dam would not have  
23 held a '51 flood. So now you're not even going to build it  
24 until you divert water over according to a conversation just  
25 a minute ago. I think it's a sad situation.

1           MR. POTTER: What I said was that we have Cave  
2 Buttes Dam scheduled in what amounts to State 1 construction  
3 and Adobe and New River in Stage 2 construction and then the  
4 channel improvements downstream would follow, so we will  
5 provide the storage. We are restudying, making hydrologic  
6 studies, restudying all of the storms of record that we hav  
7 to verify what you say and we are not relying upon the  
8 hydrology which we had in the survey before. We are doing  
9 it completely over again.

10           MR. RECKER: Well, you did it over but there was no  
11 record of any rainfall on that area. But you still come up  
12 with 8 and 1/2 inches. Where you received it I don't know.  
13 There's no record anyplace that I can find out of that situa-  
14 tion.

15           MR. POTTER: It says that we used in a '65 report  
16 or '64, I think we are using a Queen Creek storm transposed.  
17 But they are reviewing occurrences of large storms in Arizona  
18 and meteorological potentials for large storms to come up  
19 with a new hydrology for the old system.

20           MR. RECKER: Well, I contended then that the west  
21 side was going to grow and it is growing and growing fast so  
22 why dump a lot of water over on us that we don't want until  
23 it is taken care of properly. As far as I know there never has  
24 been any property purchased over there to construct that dam.

25           MR. POTTER: Not yet. That's true.

1 MR. RECKER: When is it going to be done? After the  
2 other channel is already completed to dump all the water on  
3 us then you will start doing that. It doesn't make sense to  
4 me. That is the diverted water and that is illegal even if  
5 the county does it.

6 MR. FUQUAY: I think that we have a little wrong  
7 impression of what we planned or maybe we had a misunderstand-  
8 ing here. We are still studying the -- as the Colonel mentioned,  
9 we have the all dam proposal. We have an all channel proposal.  
10 We cannot buy property for these other sites until we know if  
11 we are going to build them and having studied them where we  
12 are going to build them. The proposition that was mentioned by  
13 this gentleman of putting some water from Cave Buttes Dam over  
14 into the channel is one serious concern. It normally is con-  
15 trary to what we would do in constructing. We are considering  
16 seriously of having an interim control on Cave Buttes so that  
17 we will release a minimum amount of water rather than we would  
18 when it was under full operation with the other dams in view.  
19 We are studying also the proposition of should we allow this  
20 similar flow to go down Cave Creek in the normal path or should  
21 we really go back over to divert that into Skunk Creek. And I  
22 think that is the concern, the interest and concern of both of  
23 the gentlemen.

24 COLONEL ROPER: And if we do, what amounts can we  
25 release over that way without causing a problem.

1 MR. FUQUAY: And I think all of us are aware of your  
2 concern and I think it is well worthwhile that you bring it  
3 up and we can convey this concern to our people who are working  
4 with us.

5 MR. RECKER: That's the reason I am bringing it up  
6 and I appreciate that thought.

7 MR. FUQUAY: And I certainly don't want to be in a  
8 position of handing both of you a towel.

9 MR. RECKER: One suggestion that was made by someone  
10 else that maybe if they did divert water over on us they could  
11 cut it out and not divert any more if our dam was full. Could  
12 that be done and would it be done?

13 MR. FUQUAY: Well, if we have the dams built and we  
14 will have the capacity in the diversion channel to carry the  
15 releases that we will make on the dams. These dams will be  
16 designed for capacities that we have established with the new  
17 hydrology which certainly will take care of the foreseeable --

18 MR. RECKER: It wouldn't have taken care of that '51  
19 flood and this letter that I quoted that one paragraph from  
20 expecting the water that fell and all of that and still the  
21 other was greater and I say that it would not have held that  
22 '51 flood. But my foreman was right on the ranch and lives  
23 right alongside of it.

24 MR. FUQUAY: I don't know the details of that but  
25 normally the Corps of Engineers we get heat from the other side.  
They say we are too conservative so I find it a little bit --

1 when using our conservative methods to imagine there being  
2 a flood that we would not be able to take care of in those  
3 dams and the channels that are designed. That is, there may  
4 be local thunderstorms in some areas but we will pick up that  
5 and take it out in channels and I'm sure that somehow there's  
6 a misunderstanding between what you have and what we are  
7 building and we would be glad to talk with you about it later.

8 MR. RECKER: Fine. Would it be feasible to stop the  
9 flow from the east side provided we were full on the west side  
10 and that dam is running over? Would it be possible to stop  
11 any more water coming over to us when that dam was full if  
12 it ever became full?

13 MR. POTTER: If we put gates on it. At the present  
14 time it is authorized without outlet gates so we wouldn't have  
15 an ability to shut it off. If we gate the outlet then we have  
16 an ability to -- if the storm's concentrated over New River  
17 and not the other areas then we could close it down and mani-  
18 pulate the flows. Without the outlets we cannot manipulate  
19 the flows--without the gates on the outlets.

20 MR. RECKER: Then it could be built large enough to  
21 be sure to take care of any water that fell up there?

22 MR. POTTER: We plan to design it for our standard  
23 project flood and I know that we have talked about this before  
24 and not resolved this one problem. It's true that if you flow  
25 20,000 CFS that you have got 40,000 acre feet a day and if it

1 sustained itself for two days you had 80,000 acre feet. But  
2 it's not characteristic for the storms around here to have a  
3 uniform peak that way.

4 MR. RECKER: This is not a characteristic flood.  
5 It's supposed to be a minor flood.

6 MR. POTTER: Well, we're still studying the hydrology.

7 MR. RECKER: I just wanted to bring that up because  
8 it seems to be landing somewhere.

9 MAJOR WORTHINGTON: If I may --

10 COLONEL ROPER: Yes, Will.

11 MAJOR WORTHINGTON: Mr. Recker and I have discussed  
12 this at length in the fairly recent past and we arrived at  
13 the conclusion that his ideas should be very seriously consi-  
14 dered and we should adopt them as best we can. I might add  
15 that any kind of documentation we could get on this --

16 MR. RECKER: Well I didn't come up with it but I  
17 will, because the person that was going to give the deposition,  
18 his wife was in the hospital and I haven't been able to get a  
19 hold of him.

20 COLONEL ROPER: I would appreciate this because it's  
21 all considerations such as this that are enabling -- we have  
22 to work in so we can figure out the sizing, or as Mr. Potter  
23 mentioned, whether or not you incorporate an ability to control  
24 the outflow in a particular dam. We build a lot of them where  
25 we don't because we know the channel downstream will take

1 anything we put into it. Others we gate them and it's up to  
2 us to operate them so as to do it efficiently. All of these  
3 things must be taken into consideration as part of this over  
4 all reformulation stage. How big should the dam be? How much  
5 water is going to come in? How much can you let out while  
6 it's coming in.

7 MR. FUQUAY: If Mr. Recker has information that's  
8 more severe than it's a matter of record, then somehow we  
9 have missed it and if he has a suggestion it's certainly  
10 worthwhile that we should get it.

11 COLONEL ROPER: As I say, we're looking for solutions  
12 and we are trying to look at this whole package system so that  
13 the solution arrived at is the best possible one. And we are  
14 looking for public support and the way to get that, as far as  
15 I'm concerned, is to get the public to assist us in preparing  
16 the various alternative plans. With that in mind, as I say  
17 gentlemen, I am looking for some sort of a group that can be  
18 officialized as an assistance to us so that when we do end up  
19 with several alternatives that seem to be leaning in one direc-  
20 tion, well this alternative looks the best to the majority of  
21 the people and we've gotten that impression not just from  
22 talking to professional city engineers and the county engineers  
23 but also people that live in the area, own houses there, own  
24 real estate there and the ones that are really subject to flood-  
25 ing. What I don't want to do is end up with a plan that I think

1 has widespread support and then find out in the first public  
2 hearing that we have to present it that we have widespread  
3 opposition, because that doesn't get any of us anywhere.  
4 What it amounts to, it sends you back to the drawing board and  
5 you end up with another period of time beyond which flood  
6 control is postponed.

7 Yes, Sir?

8 MR. ATTEBERY: Colonel, one final thought. We were  
9 just talking about it back where I'm sitting.

10 We would like to recommend that on the construction  
11 of Cave Buttes Dam that it be gated. We are talking about  
12 concepts of a park through the City of Phoenix along Cave  
13 Creek. Out at Deer Valley Park some recent thinking indicates  
14 it may extend farther north and certainly as an interim stage  
15 of flood control programming and construction I think the  
16 gates do make a difference and we would like to enter that  
17 into the record.

18 COLONEL ROPER: Even if in the ultimate solution  
19 control features ultimately aren't necessary, it may be neces-  
20 sary to put some in to take care of the interim problems such  
21 as were mentioned a few minutes ago.

22 MR. ANDERSON: Colonel, if I may, I would like to  
23 emphasize that Jim Attebery's statement there and the history  
24 of Cave Creek Dam alone is certainly indication of the need for  
25 gates. This is an agreement between the City of Phoenix and

1 the Colorado water users with respect to the operation of Cave  
2 Creek Dam. It had to be maintained a controlled aperture  
3 there so that -- which I think justified possibly at that time  
4 because of the inability to manage the gate should it be  
5 closed at the time of a storm. But now certainly that condi-  
6 tion is different entirely and as much as 15 to 20 years ago  
7 we were -- a great many of us felt that we possibly should  
8 open negotiations to then put in a gate to rescind the previous  
9 agreement and gate the structure so that its flows and outlets  
10 could be controlled. Certainly the history in the operation  
11 of that dam, Jim, will bear out your thinking.

12 COLONEL ROPER: Thank you.

13 Any other thoughts at this stage of the game?

14 I would like to thank everybody personally for parti-  
15 cipating. As I say, we can't work for you unless we know what  
16 you're thinking and what your problems are and what some of  
17 the ramifications and impacts on you, both as individuals and  
18 cities and whatnot, are.

19 John, I'll turn it over to you.

20 COLONEL LOWRY: I would like to make one announcement.  
21 To those of you who will attend this afternoons meeting, instead  
22 of on the 6th floor of the Supervisor's Administration Building,  
23 it will be in the Supervisor's Auditorium a building similar  
24 to this. I have no other statement to make, Colonel.

25 Thank you very much all of you for coming to this meet-  
ing. (Whereupon at 12:15 p.m. the meeting was closed.)