

*Maricopa Association of Governments-MAG*

*Recommended*

*Flood Control Five Year Capital Program*

*1973*

**704.002**



# MARICOPA ASSOCIATION OF GOVERNMENTS

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January 4, 1973

TO: Members of the MAG Regional Council

FROM: Michael McNulty, Chairman, MAG Management Committee  
Marc Stragier, Chairman, Public Works Committee

SUBJECT: RECOMMENDED FLOOD CONTROL CAPITAL IMPROVEMENTS PROGRAM

Enclosed is the recommended five-year capital improvements program for flood control projects. It includes a brief narrative description of each of the 26 proposed projects. This program has been developed by the Public Works Committee and approved by the Management Committee as a means of assisting the Maricopa County Flood Control District in the development of a required five-year capital improvements program for flood control projects. The five-year listing is a product of the cooperative efforts of MAG members, including the County Flood Control District staff, the HoHoKam Resource Conservation and Development Project, the Salt River Project, the Soil Conservation Service and the Army Corps of Engineers. This program, if approved by the Regional Council, will be submitted to the Maricopa County Flood Control District, with the County Board of Supervisors acting as the Board of Directors for the District.

The Public Works Committee and Management Committee also recommended to the Regional Council that a recommendation be forwarded to the County Flood Control District indicating a bond issue program is the most feasible means of financing the total flood control program for Maricopa County. The Public Works Committee expressed concern that even with an increase in the tax rate to the maximum of twenty cents allowed by law, the Maricopa County Flood Control District would be unable to generate the annual local cost needed to carry out the total program envisioned in this five-year listing. Wes Steiner, Executive Director of the Arizona Water Commission, has also met with MAG and Maricopa County representatives regarding possibilities for State financial assistance in flood control programs which should be discussed in further detail regarding ramifications at the local level.

Enclosure

cc: Members of the MAG Management Committee  
Major Will Worthington, Corps of Engineers  
Don Womack, Salt River Project  
Cliff McGuire, Soil Conservation Service  
Dick Cox, Phoenix Chamber of Commerce  
Jim Attebery, Phoenix  
Frank Bosh, Valley Forward Association  
Art Auerbach, MAG  
Col. John Lowry, County Flood Control District

A Voluntary Association of Local Governments in Maricopa County

MARICOPA ASSOCIATION OF GOVERNMENTS

Flood Control Five Year Capital Program  
(in millions of dollars)

PROJECT AND FEDERAL AUTHORIZATION	TOTAL PROJECT COST	TOTAL FEDERAL COST	TOTAL LOCAL COST	1973-74	1974-75	1975-76	1976-77	1977-78	--5 YEAR TOTAL--		REMAINING PROJECT COSTS
									FEDERAL	LOCAL	
1. Orme Dam (Bureau)**	\$ 91.610	\$(91.610)	\$	\$ .209	\$ .450	\$13.000	\$27.250	\$25.800	\$66.709	\$	\$ 24.901
2. Indian Bend Wash (Corps)**	3.472	( 1.300)	2.172	.177	.495	.600	.900			2.172	
3. Old Cross Cut Canal	1.500		1.500	1.500						1.500	
4. Arizona Canal Channel											
40th Street - Skunk Creek (Corps)**	24.180	(16.600)	7.580	.500	1.000	1.000	1.000	1.000		4.500	19.680
5. Indian Bend Channel											
32nd Street - Arizona Canal (Corps)*	4.080	( 1.480)	2.600	.700	.450	.450	.500	.500		2.600	1.480
6. Cave Creek Channel											
19th Ave. - Union Hills (Corps)**	1.200		1.200		.100	.100	.100	.100		.400	.800
7. Union Hills Channel (Corps)**	11.820	(10.000)	1.820		.100	.100	.100	.100		.300	11.520
8. Cave Buttes Dam (Corps)**	11.600	(11.600)		(11.600)							
9. Adobe Dam (Corps)**	6.510	( 5.320)	1.190		.300	.500	.390	(5.320)	( 5.320)	1.190	
10. New River Dam (Corps)**	4.735	( 4.060)	.675		.200	.200	.275	(4.060)	( 4.060)	.675	
11. New & Agua Fria River Channels (Corps)**	29.660	(24.900)	4.760			.100	.200	.200		.500	29.160
12. Skunk Creek Channel (Corps)**	10.425	( 9.920)	.505					.100		.100	10.325
13. Grand Canal Channel	18.000	(16.000)	2.000			1.000	1.000	(6.000)	( 6.000)	2.000	10.000
14. South Mountain Channel & Dam (Corps)*	12.500	( 8.800)	3.700	.200	.300	.400	.400	.400		1.700	10.800
15. Indian Bend Channel Salt River to McKellips (Corps)**	1.831	( .975)	.856	.856	( .975)					( .975)	.856
16. Salt River Channel 48th Street - Hayden (Corps)*	3.985	( 3.600)	.385	.385	(1.800)	(1.800)				( 3.600)	.385
17. Gila Floodway	23.400	(15.000)	8.400	1.100	1.200	1.650	2.150	2.300		8.400	15.000
18. Buckhorn Mesa - Spook Hill (SCS)**	7.427	( 4.177)	3.250	2.000	1.250	(4.177)				( 4.177)	3.250
19. R.W.C.D Floodway (SCS)**	9.330	( 6.130)	3.200	.800	.900	.500	.500	.500		3.200	6.130
20. Glendale - Peoria Drain (Corps)*	12.000	9.000	3.000					1.500		1.500	10.500
21. Guadalupe (SCS)**	.373	( .308)	.065	.065	( .308)					( .308)	.065
22. Buckeye (SCS)**	3.398	( 3.028)	.370	.370	(3.028)					( 3.028)	.370
23. Wickenburg (SCS)*	.365	( .300)	.065	.065		( .300)				( .300)	.065
24. Harquahala (SCS)**	7.489	( 4.989)	2.500			.800	.800	.900		2.500	4.989
25. Queen Creek (SCS)*	3.150	( 2.350)	.800			.400	.400	(2.350)	( 2.350)	.800	
26. Eagle Tail Mountain (SCS)*	2.550	( 1.850)	.700					.350		.350	2.200
LOCAL COSTS			\$53.290	\$ 8.718	\$6.195	\$ 7.800	\$ 8.715	\$ 7.950		\$39.378	
FEDERAL COSTS		(\$253.297)		(11.809)	(6.561)	(19.877)	(27.950)	(43.530)	(109.727)		
TOTAL COSTS	\$306.590										\$157.485

Federal Authorizations

Bureau of Reclamation - Bureau

Corps of Engineers - Corps

Soil Conservation Service (SCS)

\* Authorized for Planning or Study

\*\* Authorized for Construction or Recommended Channel

Federal Costs in Parentheses

Escalated Costs - 4%/year

Local 5 year costs - \$42.704

Total Local costs - \$60.094

## MARICOPA ASSOCIATION OF GOVERNMENTS

### Five Year Capital Program Flood Control

#### 1. Orme Dam

Orme Dam is to be located below the confluence of the Salt and Verde Rivers. It is a multi-purpose dam, serving as a dam for storage of CAP water, a recreation facility, and a flood-control dam. Orme Dam can be constructed in advance of normal sequencing of the CAP work. This is because it can be used as a flood control facility. Once Orme Dam is built, flood water down the Salt River through Mesa, Tempe, Phoenix, etc., will be diminished from a potential 300,000 cfs to perhaps 65 to 75,000 cfs. Until Orme Dam is built, the channelization projects proposed in the vicinity of Scottsdale and Tempe are not feasible. Permanent low-flow channels to these areas are also unfeasible. The total cost of Orme Dam is to be borne by the Federal government.

#### 2. Indian Bend Wash from Arizona Canal to McKellips Road

The project will be an open "green belt" channel in which golf courses, parks, farms and other improvements will be constructed and used except for infrequent periods of flooding. It will receive flow from upstream portions of the channel in Paradise Valley and Phoenix and will discharge into the Wash and then the Salt River in Tempe. The project will rely to some extent on the protection provided by the embankment along the CAP canal. The project will relieve flooding that has caused about \$10 million dollars worth of damage during the past four years. It will prevent isolation of about half of the residents during flooding. Costs of the local share of the work will be shared by the City of Scottsdale and will include purchase of right of way, relocation of utilities and installation of culverts at some of the major street crossings.

#### 3. Old Cross Cut Canal

This project runs from the Arizona Canal to the Salt River in an alignment approximately 48th to 44th Streets. The purpose of this project is to provide a drainage outlet for lands that lie primarily east of this old canal channel. In addition, it will be sized to accept flood waters collecting along the north side of the Arizona Canal east of 56th Street and will provide an outlet for the flow of the Arizona Canal at 48th Street. Once the Arizona Canal water is diverted to the Old Cross Cut channel, the Arizona Canal will have its capacity available for other storm water flows that enter west of 48th Street. This project can be constructed separately from other flood control projects. The \$1.5 million cost is predominately the District's cost although the City of Phoenix and the Salt River Project will make contributions. The City of Phoenix has expended approximately \$400,000 on studies, engineering, and construction of drainage facilities along the Old Cross Cut Canal.

#### 4. Arizona Canal Channel, 40th Street - Skunk Creek

A part of the Corps of Engineers Phase B program is the construction of a drainage channel along the north side of the Arizona Canal, beginning in the City of Phoenix, westerly to a proposed channel at Skunk Creek. There have been some preliminary designs on this channel. The purpose of the channel is to collect storm waters from within the City of Phoenix, Glendale, and the County and carry them westerly to the Skunk Creek - New River channel. The ultimate disposal point would be the Gila River. This project will have to be coordinated with the construction of Cave Buttes, New River, and Adobe Dams and should be concurrent or after the Skunk Creek - Agua Fria Channel. It should be considered early in the Five-Year Program since it will be necessary to reserve rights of way that could be consumed by developers in the area. The monies budgeted in the Five-Year Program would be assigned to land acquisition.

#### 5. Indian Bend Channel, 32nd Street to Arizona Canal

This project is contemplated along the upper regions of the Indian Bend Wash. The wash starts in the City of Phoenix near 32nd Street and enters the Town of Paradise Valley in the vicinity of 56th Street. An improvement contemplated is a channel from about 32nd Street south to the Arizona Canal. The program presented contemplates right-of-way acquisition in the City of Phoenix in the year 1973-74. Construction of a pilot channel is contemplated through the years 1974-76. Right of way in the Town of Paradise Valley is contemplated in the program beginning 1976-77.

#### 6. Cave Creek Channel, 19th Avenue - Union Hills

This project would channelize flows that would remain in Cave Creek Wash after the Cave Buttes Dam and the Union Hills Channel are constructed. Minor flows in the wash would come from areas which contribute drainage below the Union Hills Channel. The waters would be channelized to the proposed Arizona Canal channel which has been described under a separate project. The construction would take place after construction of Cave Buttes Dam, the Union Hills Channel, and the Arizona Canal channel. The money shown in the Five-Year Capital Program would be used for land acquisition in advance of property development.

#### 7. Union Hills Channel

This project is included in Phase B of the Corps of Engineers' study. It would run from about 16th Street westerly to the Skunk Creek Channel. The main purpose of the Union Hills Channel is to carry waters that will be released from the Cave Buttes Dam westerly and southerly to the ultimate disposal point at the Gila River. The Maricopa County Flood Control

District has done some right of way studies and land acquisition to date. The construction must follow completion of the Cave Buttes Dam and the downstream construction of Skunk Creek, New River, and Agua Fria channels. The money shown in the Five-Year Program will be used to acquire right-of-way for the proposed channel.

8. Cave Buttes Dam

This is a flood-control dam on Cave Creek approximately 2 1/2 miles above Union Hills Drive. Its purpose is to minimize the threat of flooding to the City of Phoenix. The project has been designed and the Maricopa County Flood Control District has acquired land necessary for a construction of the dam. This project can be built independently of any other flood control facility. The money shown in the Five-Year Capital Program is the necessary Federal funds which will be required for construction of the dam and outlet work.

9. Adobe Dam

This dam is proposed on Skunk Creek in the vicinity of Adobe Mountain. It will protect Phoenix and Glendale from flood waters originating above these cities. Adobe Dam can be constructed independently of any other flood control construction. The actual site selection has not been established because of the need to study relationships with the Central Arizona Project aqueduct. The money shown in the Five-Year Program is for right-of-way for the years 1974-77. It is contemplated that a site study can be prepared which will locate the dam so that land can be acquired within this time frame. Hopefully, construction of the dam can begin by the Federal government in 1977-78. This dam is estimated to cost \$5,320,000.

10. New River Dam

This dam is proposed on New River approximately five miles above Bell Road. It will protect portions of Glendale, Peoria, Phoenix, Tolleson, Cashion, and Avondale from flooding. This dam can be constructed independently of any other flood-control facility. There is a need for site study and selection. This should be done by 1974. The years 1974 through 1977 will be used for right-of-way acquisition and for other local costs. Construction of the dam, costing approximately \$4 million, is programmed in the year 1977-78.

11. New and Agua Fria River Channels

This is the channelization of New River and the Agua Fria from the Gila River north to the Skunk Creek Channel. This project is at the low end of the channelization work contemplated under Phase B. As a consequence, it must be constructed in advance of the Skunk Creek and Arizona Canal Channels. It should not be undertaken until the dams are built. The money shown in the Five-Year Capital Program is contemplated for land acquisition necessary for the construction of the channel.

12. Skunk Creek Channel

This is the channelization of Skunk Creek from the Union Hills Diversion Channel to the New River Channel. This project cannot be done until after the construction of Adobe Dam. It should be done in advance of the Arizona Canal Channel and can be done concurrent or after the New and Agua Fria River Channels. The money scheduled in 1977-78 is for land acquisition.

13. Grand Canal Channel

A part of Phase C of the Corps of Engineers' study was improvements in the vicinity of Maryvale and Glendale. Approximately a year ago the Corps of Engineers reported that a joint flood control-irrigation channel was feasible. Additional studies are underway to evaluate this. This project contemplates flood control facilities along the Grand Canal from approximately 43rd Avenue westerly to the New River channel. This project cannot be completed until after the lower reach of the New River-Agua Fria River channel is built. The money shown in the years 1975-77 is for necessary local share costs. The amounts shown in 1977-78 contemplate the beginning of construction.

14. South Mountain Channel and Dam

Another part of Phase C of the Corps of Engineer's program is for channel and dam improvements in South Phoenix. This project will minimize flooding to sections of South Phoenix from drainage that comes from the South Mountain area. This work can be constructed independently of other flood control projects. Right of way for a detention dam near Central Avenue is contemplated in the year 1973-74. Dam construction is anticipated in 1974-75. Channel right of way will be required in the years 1975 through 1978.

15. Indian Ben Channel (Salt River to McKellips)

Description: Construction of an entrenched green belt floodway capable of handling approximately 30 cfs.

Purpose: Provide an aesthetically pleasing channel that will carry those flood waters produced in the Pinnacle Peak-Paradise Valley-Phoenix Mountains area to the Salt River.

Relationship with other projects: Receives flows from the Indian Bend Wash and the Indian Bend Channel from 32nd Street to the Arizona Canal.

Cost Summary: Local Costs:	\$0.856 (R/W & related structures)
Federal Costs:	\$0.975 (Construction)
Total	\$1.831 Million

16. Salt River Channel (48th Street-Hayden)

Description: A concrete lined low flow channel capable of handling approximately 60 cfs. Designed in such a manner that will permit the development of the Rio Salado Project within this reach.

Purpose: To provide a channel with the river bottom that will be adequate to carry releases from the Orme Dam up to 50,000 cfs and flows from the Indian Bend Channel.

Relationship with other projects: Receive flows from the Indian Bend Channel and upstream dam releases.

Cost Summary: Local Costs:	\$0.385 (R/W)
Federal Costs:	\$3.6 (Construction)
Total	\$3.985 (Million)

17. Gila Floodway

Description and Purpose: To construct a floodway that will conduct flood waters originating south of the Salt River between the Tempe Canal and the Roosevelt Canal and south of the Western Canal between South Mountain and the Roosevelt Canal, to the Gila River. Urbanization has made this project ineligible for P.L. 566 funding, but funding under RC&D or the Corps of Engineers is being investigated.

Relationship with other projects: Flows east of the RWCD Canal are intercepted by the RWCD Floodway and do not flow into the Gila Floodway Project.

Cost Summary: Local Costs:	\$ 8.4 (R/W & related structures)
Federal Costs:	\$15.0 (Construction)
Total	\$23.4 (Million)

18. Buckhorn-Mesa Watershed

Description and Purpose: The Buckhorn-Mesa Watershed Project is designed to intercept the flood waters that run off of the high ground north and east of Mesa and Apache Junction. These flood waters will be diverted through a series of floodways and low dams into Orme Lake and the Salt River with the flow regulated to a non-damaging amount and velocity. Land treatment is completed on the national forest land and is progressing well on the private land. The sponsors have organized a steering committee which has held several meetings with landowners; Federal, State and local officials; and legislators to explore means of raising funds for rights-of-way. The steering committee has received a tentative commitment from the Bureau of Reclamation to participate in the purchase of the rights-of-way to the extent that the project benefits the Central Arizona Project. The Bureau plans to begin land acquisition in the spring of 1973 and is doing a comparative analysis to determine the benefits to CAP. The Flood Control District of Maricopa County has requested that three of the floodwater retarding structures be moved onto State or Federal lands and that the RWCD floodway be extended north to Brown Road. Work is underway on a Supplemental Work Plan to include these revisions. The construction schedule is dependent upon the completion of land acquisition but is tentatively scheduled to begin in the spring of 1974.

Cost Summary: Local Costs:	\$3.25 (R/W & related structures)
Federal Costs:	\$4.177 (Construction)
Total	\$7.427 Million

19. RWCD Floodway

Description: This proposed floodway would carry off floodwaters along the general alignment of the RWCD Canal, through the Gila Indian Reservation and to the Gila River. The sponsors have requested that the work plan be supplemented to extend the RWCD floodway from the Gila River Indian Reservation boundary south to the Gila River. Design of that segment of the floodway is nearing completion. The Arizona Highway Department has agreed to construct new bridges across the floodway at Highway 86 and Highway 83. The Tribal Council has agreed to provide rights-of-way across the reservation. The supplemental work plan and environmental statement are being prepared. The Flood Control District of Maricopa County has started the purchase of rights-of-way beginning at the north reservation boundary. Phase I from the Gila River to the reservation boundary is scheduled for construction early in 1974.

Relationship with other projects: This project will prevent floodwaters from entering the area west of the RWCD Canal which area which be served by the Gila Floodway Project.

Cost Summary: Local Costs:	\$3.2 (R/W & related structures)
Federal Costs:	\$6.13 (Construction)
Total	\$9.33 Million

20. Glendale-Peoria Drain

Description: The plan consists of a lined channel trapezoidal in shape with two to one side slopes from 35th Avenue and a quarter mile south of Olive Avenue, running westerly for three and three-quarters mile, thence southerly one mile, then westerly four and one-half miles to New River.

Purpose: To provide a point of discharge for local streets and underground drainage, dividing the drainage area bound by the Grand Canal on the south and the Arizona Canal on the north, lying west of 35th Avenue and limiting the area tributary to the local drainage.

Relationship with the project: This project should be constructed some time following the completion of the channelization of Agua Fria and New River.

Summary of Costs: Much of this project is in a rapidly developing area where land acquisition costs are rising. Thus, total project costs will be proportionately higher than the total estimated cost of \$3,000,000.

21. Guadalupe Watershed

Design of the structures is nearing completion. The Arizona Highway Department is purchasing the rights-of-way for the structures and has acquired about 60 percent of those required for construction. Construction is planned to begin in the spring of 1973.

The estimated total cost of the project is \$690,000, shared \$330,000 P.L. 566 funds and \$360,000 State and County funds. (\$300,000 already spent)

22. Buckeye Watershed

A major revision of the work plan was completed and approved in November, 1972. This supplemental plan changed the location of the floodwater retarding structures so that they protect Interstate Highway I-10. The project consists of three dams and connecting floodways. The dams have a total length of 15 miles. Because of the benefits to the Interstate highway, the Arizona Highway Department has entered into an agreement with the Flood Control District of Maricopa County under which the Highway Department will purchase the rights-of-way for the flood control measures. The Highway Department will have completed land acquisition for Phase I by January 1, 1973, and construction is scheduled to begin in March, 1973.

The total cost of the project is estimated to be \$6,620,000. The P.L. 566 share of the cost is \$3,250,000 and the State and local cost is \$3,370,000. (\$3,000,000 already spent)

23. Wickenburg Watershed

Planning on the Wickenburg Watershed Project has been completed and the work plan is in the review and approval phase. Approval for construction is expected in April, 1973. The project includes two floodwater retarding structures with a total cost of \$360,000. The P.L. 566 share of the cost is estimated at \$300,000 and the county and local costs are estimated to be \$60,000.

The City has requested assistance from the Flood Control District in land rights acquisition. Construction is tentatively scheduled to begin in March, 1974.

24. Harquahala Valley Watershed

The planned structural measures for the Harquahala Valley Watershed include two floodwater retarding structures, 2.7 miles of floodways, 3.8 miles of levees and three diversions, 12.6 miles long. The project has been dormant because of the inability of the Flood Control District of Maricopa County to raise funds for rights-of-way. Preliminary discussions have been held with the Bureau of Reclamation to explore the possibility of moving the structures so that the project will protect the Central Arizona Project Aqueduct. The sponsors have agreed that the structures should be moved and preparation of a Supplemental Work Plan is scheduled.

The estimated total cost of the revised project is \$7,500,000 with P.L. 566 funds available to pay \$5,000,000 and Federal, State, and county funds totaling \$2,500,000 needed.

25. Lower Queen Creek Watershed

This watershed is made up of two sub-areas - the Gila Floodway area south of Tempe and west of Chandler and the Lower Queen Creek area south of Queen Creek. Planning to date indicates a need for a dam on Queen Creek above the Central Arizona Project Aqueduct, a dam on Sonoqui Wash, and enlargement of the Gila Drain. Additional needs may be identified as planning proceeds.

26. Eagletail Mountain Watershed

Planning done to date on the Eagletail Mountain Watershed indicates that two floodwater retarding structures, two floodways, and two diversions are needed to solve the floodwater problems in the area. Completion of the plan has been delayed until stronger local interest is exhibited and until Arizona Water Commission C.A.P. water allocation information is published.

The estimated total cost of the project is \$2,550,000 shared \$1,850,000 P.L. 566 funds and \$700,000 county and local funds.