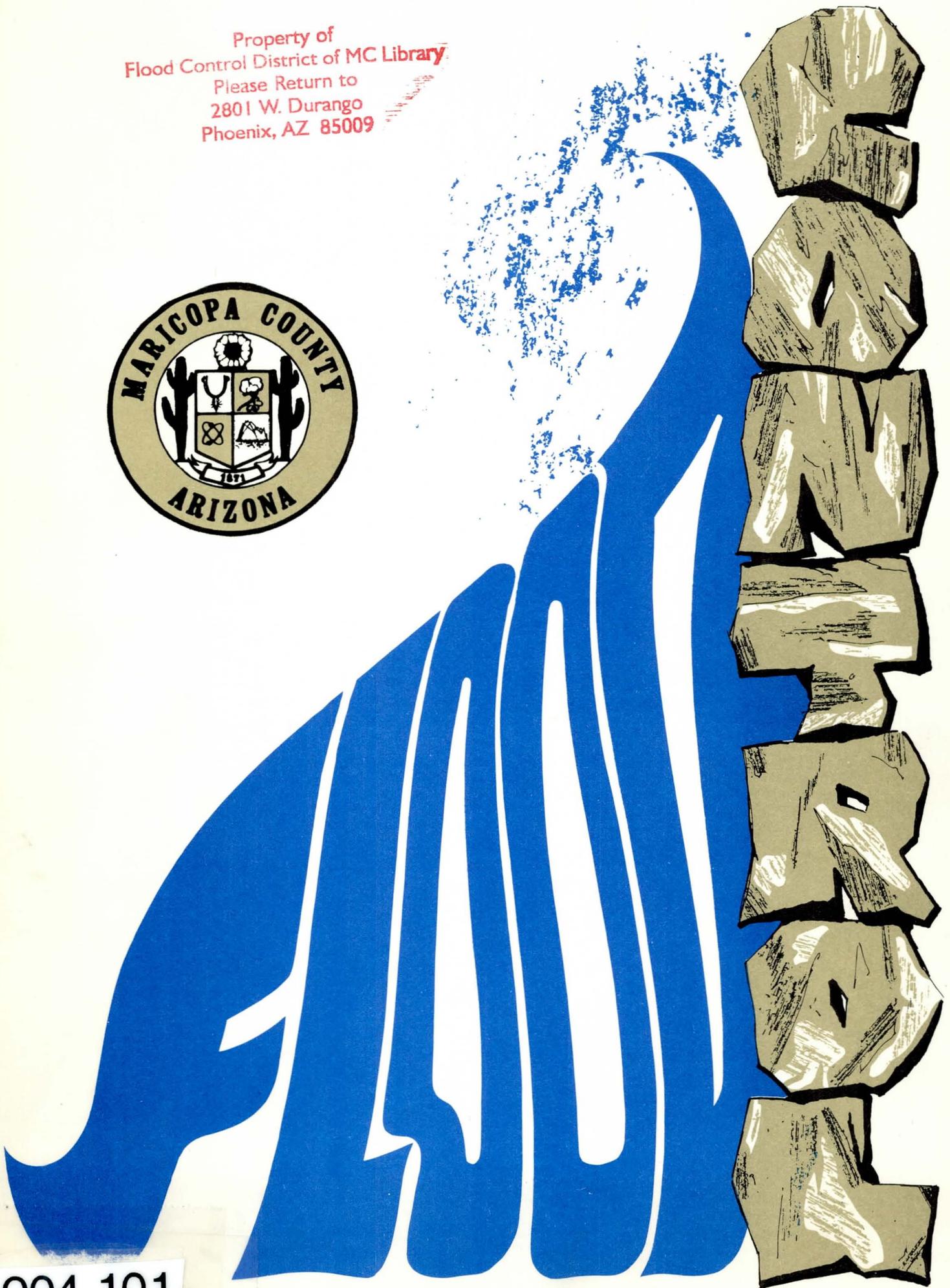


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FLOOD CONTROL DISTRICT , MARICOPA COUNTY

August 20, 1973



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Col. Herbert P. Donald



Introduction

The Flood Control District of Maricopa County was established in March 1959 as authorized by State Statute, and encompasses the entire County consisting of 9,226 square miles. In preparing the County's Comprehensive Flood Control Plan, it was necessary to determine the number, size and location of each watershed, where floodwaters are generated, which cause the flood damage in Maricopa County. There are 35 such watersheds in and adjacent to Maricopa County and covering an area totalling 24,787 square miles.

Flood Waters have rushed down the Salt, Gila, Agua Fria, New and Hassayampa Rivers, Cave, Skunk and Queen Creeks; and Indian Bend, Waterman, Centennial, Bender and Sand Tank Washes and other smaller washes. On many occasions they have exceeded the capacity of principal streams and washes, inundating the surrounding areas and damaging both rural and urban properties and, on occasion, resulting in the loss of lives. Serious floods have occurred in our County during the years: 1891, 1904, 1906, 1916, 1921, 1935, 1936, 1939, 1943, 1951, 1954, 1956, 1957, 1963, 1966, 1970, 1972.

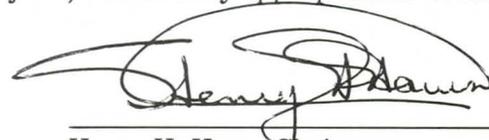
The most severe storm, amounting to a Standard Project Flood, occurred over the Queen Creek area on August 19, 1954. A local storm occurring directly over Glendale and Maryvale in August 1963, caused \$3,000,000 in property damage. The most recent severe storm in urban areas occurred on the night of June 21-22, 1972, causing serious flooding in Phoenix, Paradise Valley and Scottsdale. Urban areas along Indian Bend Wash and Cudia City Wash received the greatest damage, the total of which was \$10,500,000.

A Standard Project storm, such as occurred over Queen Creek in 1954, could occur on the Cave Creek or Indian Bend Wash Watersheds and would result in flood damage in excess of One Hundred Million Dollars, with no doubt considerable loss of lives and/or injuries. Urban growth continues to develop within our County at an unprecedented rate; further delays in our Flood Control projects raises consequential flood damage estimates accordingly. The projects planned for the protection of Greater Phoenix, Scottsdale and surrounding areas which have been authorized by the U. S. Congress for construction, must have the necessary appropriations by the Congress and a firm schedule of flood control project construction developed to ensure adequate protection of our citizens and their property improvements.

The officials of Maricopa County realize the Corps of Engineers must, within their authority, prepare in detail certain reports such as the Environmental Impact Statements. The officials of this County recognize the importance of such reports but certainly not to the extent of jeopardizing human lives and valuable properties.

The State of Arizona has recognized the urgency of flood control measures and will make State funds available up to fifty percent of local cost, for federally approved projects. Also, the State has enacted legislation requiring cities, towns and counties to regulate and control developments within their flood plain jurisdiction. State lands are now available without cost when required for flood control purposes.

Maricopa County needs and seeks the support of our Arizona Congressional Delegation in expediting the development of certain critically-needed flood control projects, and an early appropriation of federal funds, to permit construction to proceed on these projects.

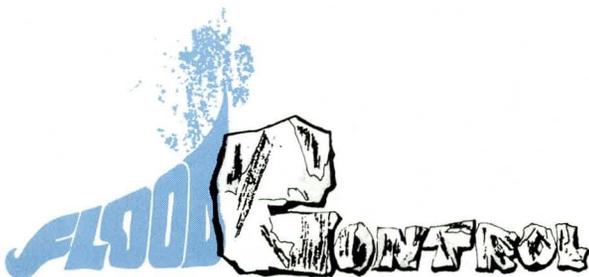


Henry H. Haws, Chairman
Board of Directors
Flood Control District of Maricopa County
August 1973

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OF PROJECTS

ITEM	PROJECT DESIGNATION	AREAS PROTECTED	PAGE
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Phase A

LOWER INDIAN BEND WASH

Areas Protected:¹ Portions of Scottsdale and Tempe, Arizona (2,400 acres)

Valuation of Property: \$35,000,000

Damage from Design Storm: \$4,200,000

Population Protected from Damage: 12,400. This wash, when flooded, isolates a large residential area from the main business area and hospitals. Fire and Police protection is hampered.

COST OF PROJECT:

Federal	\$ 9,600,000
Non Federal ²	<u>7,900,000</u>
TOTAL	\$17,500,000

Annual Average Benefits (Damages Prevented): \$1,058,000

Current Status: Design Stage (Design Memorandum scheduled to be forwarded for approval in August 1973).

PROBLEMS: Funding for construction of Arizona Canal siphon under Indian Bend Wash, estimated cost \$1,000,000.

Appropriation of construction funds.

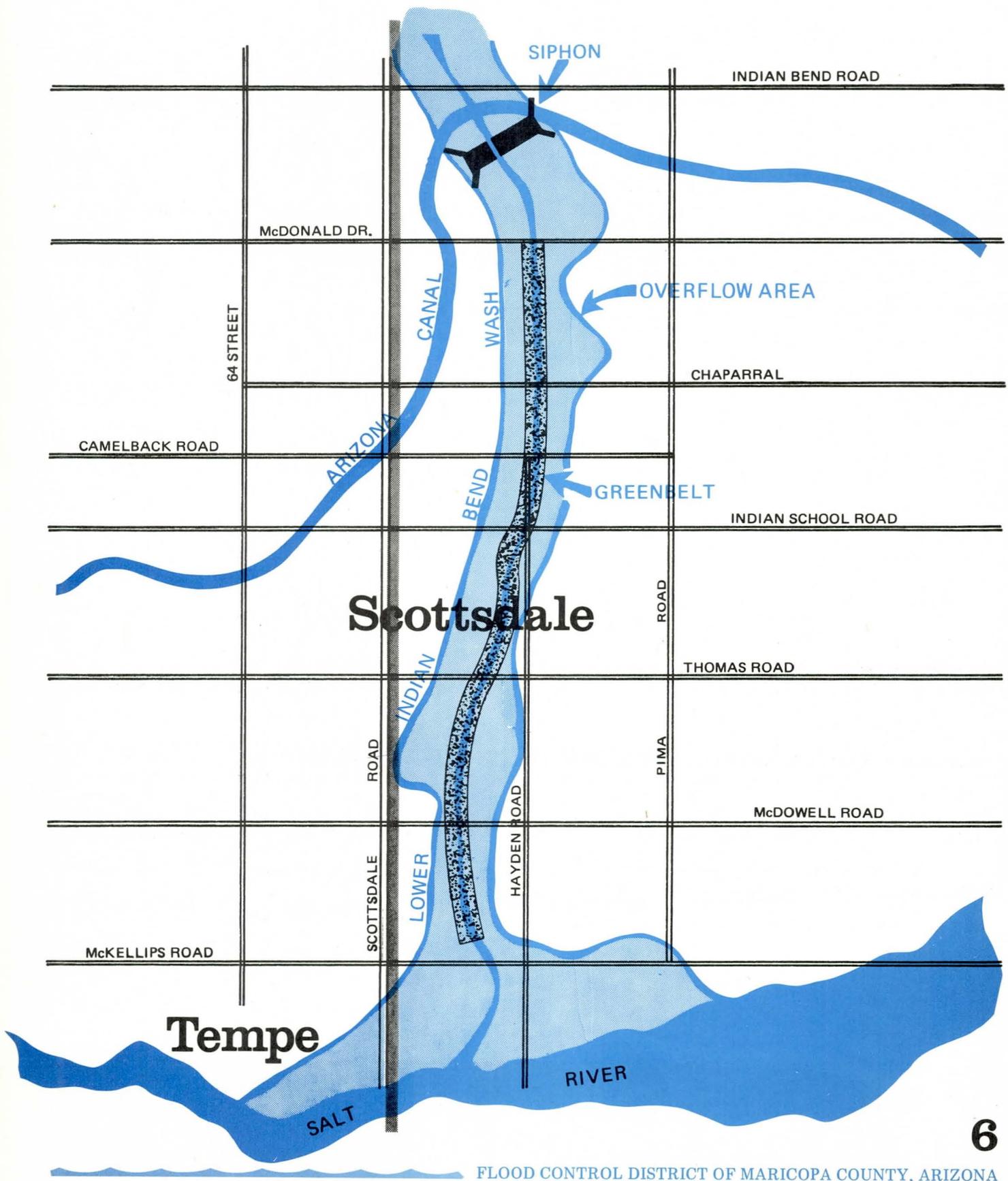
ACTION: Revise authorizing legislation for the project to incorporate design and construction of the siphon as part of the federal project.

Early appropriation of construction funds when requested by the Corps of Engineers.

¹ All figures shown are for Design Storm (100 year).

² Maricopa County Flood Control District, State of Arizona, and City of Scottsdale funds.





Phase B

MARICOPA COUNTY FLOOD CONTROL DISTRICT PROJECTS

Areas Protected:¹ Portions of Phoenix, Glendale, Peoria, and Avondale, Arizona (27,400 acres)
 Valuation of Property: \$954,000,000
 Damage from Design Storm: \$132,000,000
 Population Protected: 108,000

COST OF PROJECT:

Item	Federal	Non Federal ³	Total
Post. Auth. Studies	\$ 2,873,000	\$ 67,000	\$ 2,940,000
Dreamy Draw Dam ²	497,000	192,000	689,000
Cave Buttes Dam	9,430,000	616,000	10,046,000
Adobe Dam & Diversion Channel	5,714,000	1,489,000	7,203,000
New River Dam	4,335,000	868,000	5,203,000
Cave Creek & Union Hills Channels	13,742,000	2,502,000	16,224,000
Agua Fria, New River & Skunk Creek Channels	37,754,000	6,906,000	44,660,000
Arizona Canal & Dreamy Draw Channels	18,055,000	7,760,000	25,815,000
TOTAL	\$92,400,000	\$20,400,000	\$112,800,000

Annual Average Benefits (Damage Prevented): \$16,673,000

Current Status: Dreamy Draw Dam is essentially complete. Construction funds will be requested in the FY 75-76 budget, which will permit construction to start on Cave Buttes Dam in October 1975. The estimated completion date is June 1977.

PROBLEMS: Time required for preparation of the comprehensive re-study of all projects and preparation of Environmental Impact Study.

Appropriation of construction funds.

ACTION: Expedite re-study of all projects and Environmental Impact Study through channels for approval.

Early appropriation of construction funds when requested by the Corps of Engineers.

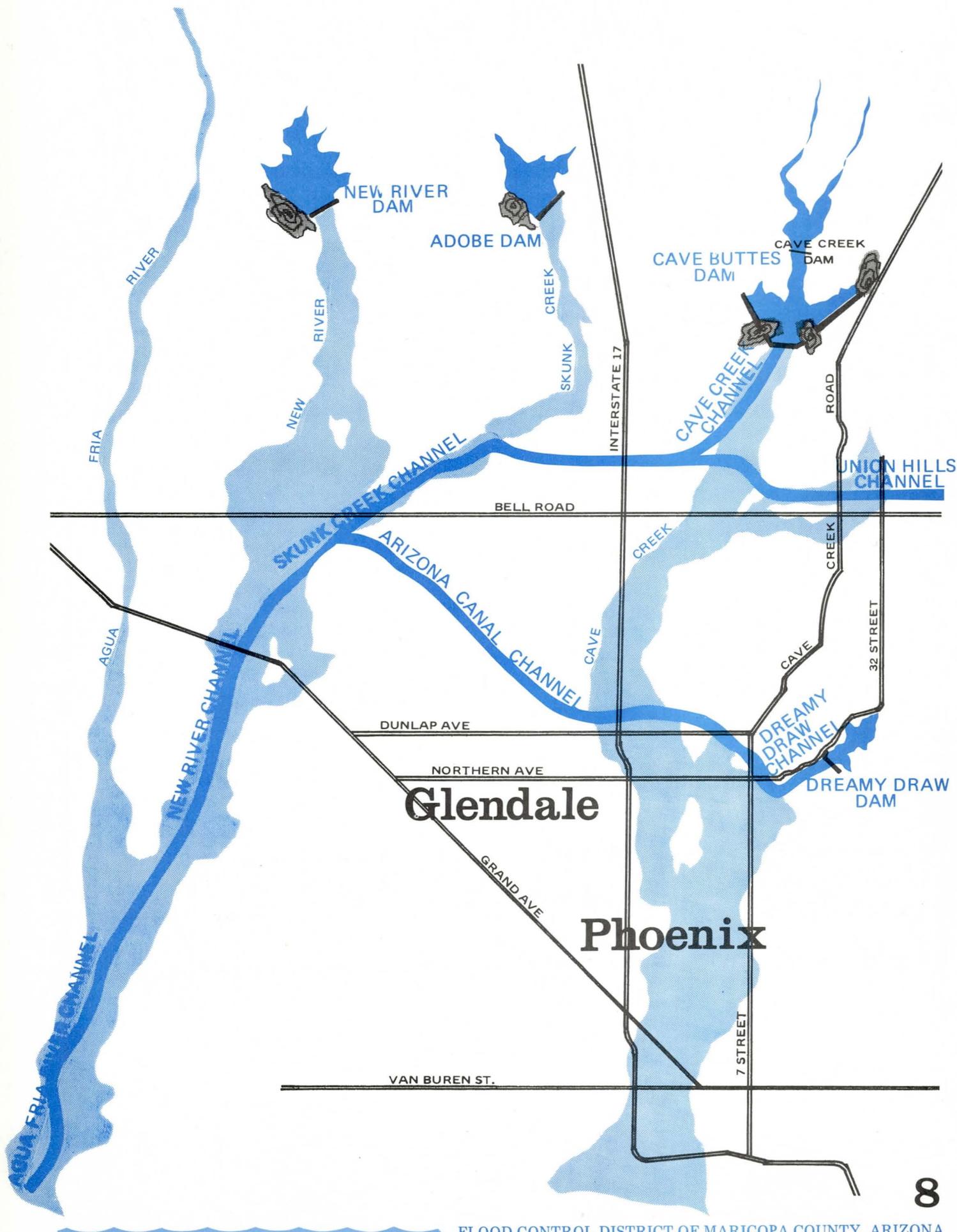
Los Angeles Engineer District to develop the most expeditious schedules for completion of required studies and construction phases.

¹ All figures shown are for Design Storms: Channels — 100 yr.; Dams — Standard Project Flood.

² Completed 7/73.

³ Includes Flood Control District, State of Arizona and other local funds.





Phase C

MARICOPA COUNTY FLOOD CONTROL DISTRICT PROJECTS

Areas Protected: Glendale, West and South Phoenix, Arizona (47,000 acres)
Valuation of Property: \$800,000,000
Damage from Design Storm: \$120,000,000
Population Protected: 100,000

COST OF PROJECT:

	<u>Glendale-Maryvale</u>	<u>South Phoenix</u>
Federal	\$25,000,000	\$15,000,000
Non Federal	<u>8,000,000</u>	<u>5,000,000</u>
TOTAL	\$33,000,000	\$20,000,000
Total Federal and Non Federal	\$53,000,000	

Average Annual Benefits (Damages Prevented): \$4,100,000

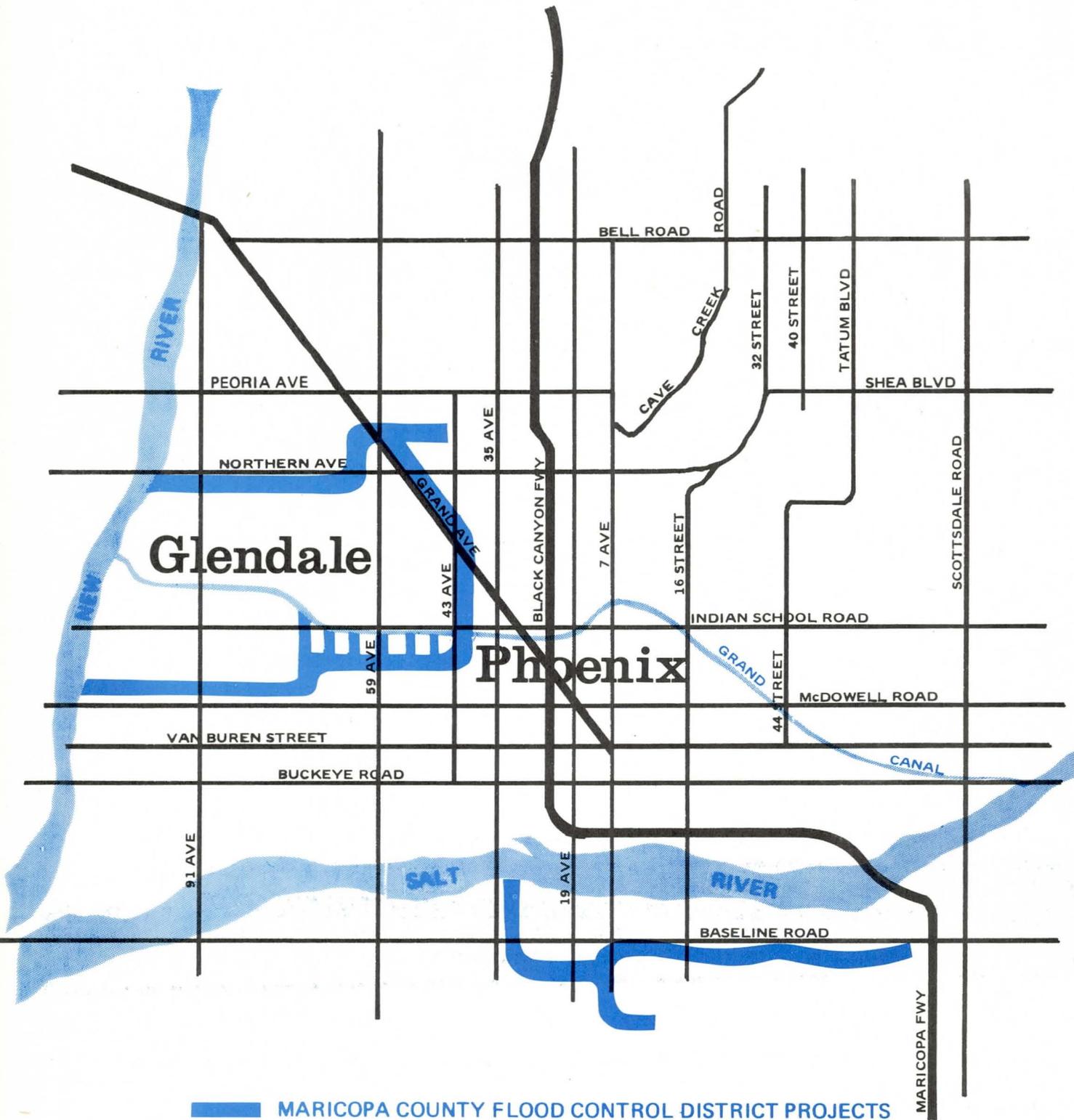
Current Status: Authorized Study Stage, not approved for construction.

PROBLEMS: Obtain approval for an Urban Study to be prepared for greater Phoenix area.

ACTIONS: Have the Committee on Public Works of the U.S. Senate or House of Representatives request an Urban Study be made of metropolitan Phoenix.

¹ Maricopa County Flood Control District, State of Arizona and other local funds.





Phase D

SALT RIVER CHANNELIZATION

Areas Protected: ¹	Portions of Maricopa County, Mesa, Tempe, and Phoenix, Arizona (13,000 acres). Granite Reef Dam west to 115 Avenue.
Valuation of Property:	\$60,000,000
Damage from Design Storm:	\$7,800,000
Population Protected:	15,000

COST OF PROJECT:

Federal	\$38,100,000
Non Federal ²	<u>13,500,000</u>
TOTAL	\$51,600,000

Average Annual Benefits (Damages Prevented): \$4,700,000

Current Status: Authorized Study Stage, not approved for construction.

PROBLEMS: Obtain approval for an Urban Study to be prepared for greater Phoenix area.

ACTIONS: Have the Committee on Public Works of the U.S. Senate or House of Representatives request an Urban Study be made of metropolitan Phoenix.

¹ Assumes Orme Dam constructed with 958,000 acre feet flood control storage and maximum outflow of 50,000 cfs.

² Maricopa County Flood Control District, State of Arizona and other local funds.





SALT RIVER CHANNEL

Phase

E

UPPER INDIAN BEND WASH

Areas Protected: Portions of Phoenix, Paradise Valley, Scottsdale and Maricopa County, Arizona (3,400 acres)¹

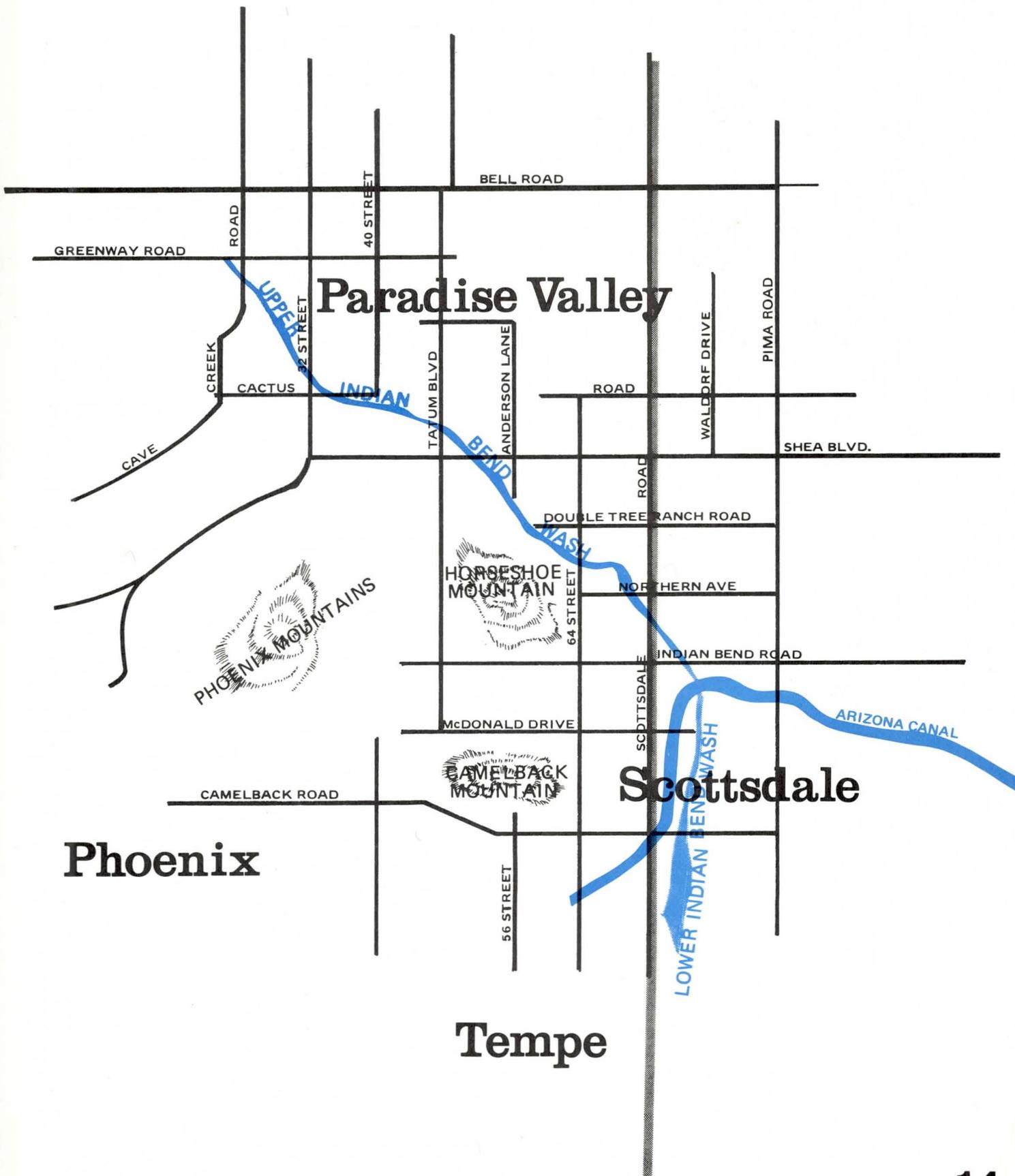
Current Status: Board of Supervisors has approved and forwarded its resolution urging Congressional authorization and funding for an urban study of the metropolitan Phoenix area.

PROBLEMS: Obtain approval for an urban study to be prepared for greater Phoenix area.

ACTIONS: Have the Committee on Public Works of the U.S. Senate or House of Representatives request an urban study be made of metropolitan Phoenix.

¹ Area within overflow from a Standard Project Flood, north of Arizona Canal to 32nd Street and Greenway Road.



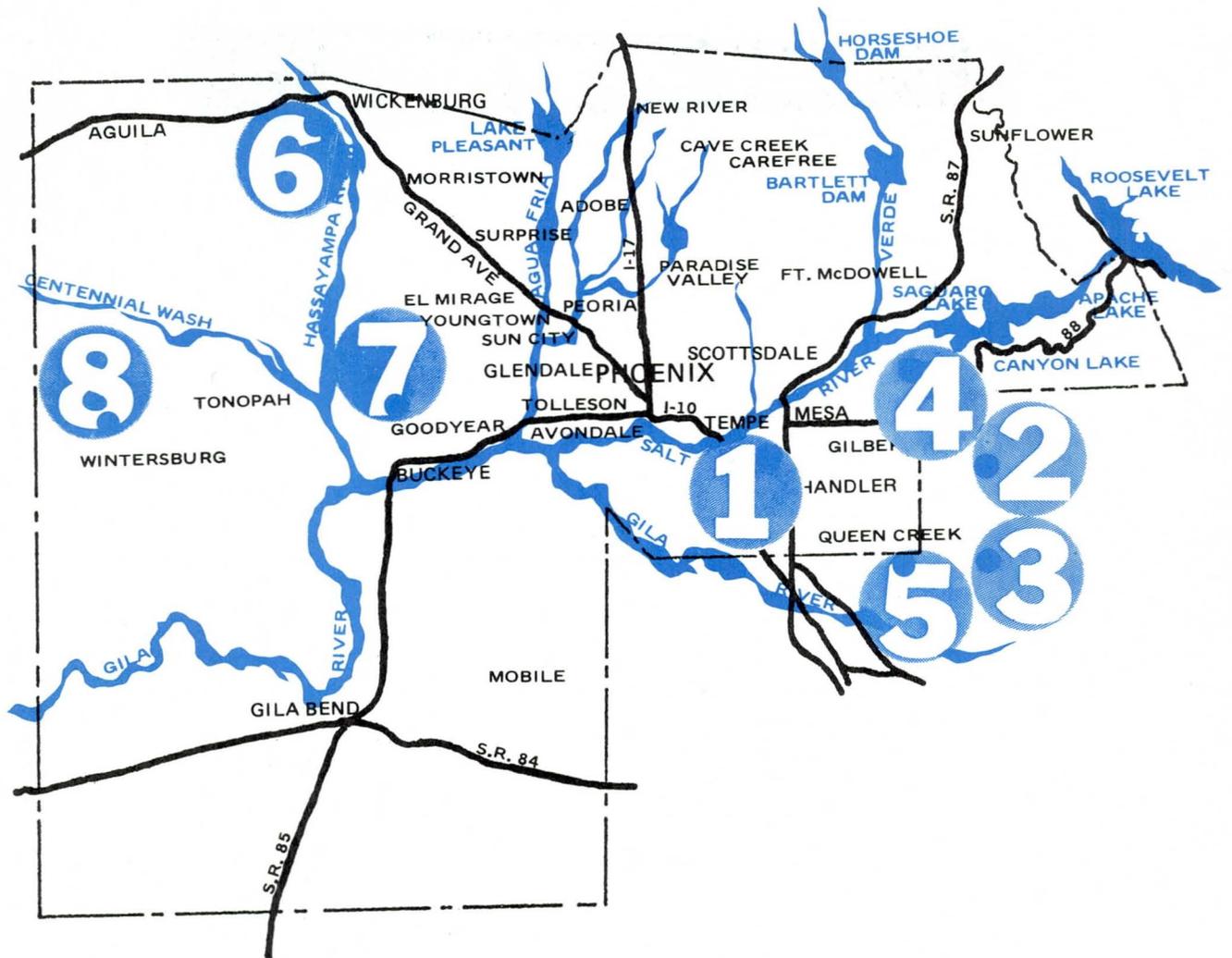




soil conservation service

	Project	Cost		Total	Annual Damage Without Project	Annual Benefits	Area Benefited (Sq. Mi.)	Population Benefited	Current Status	
		Federal	Non-Federal							
1	Guadalupe Watershed	\$ 329,410	\$ 364,290	\$ 693,700	\$274,910	\$121,100	1.07	5,900	Construction Fall 1973	
2	Apache Junction-Gilbert Watershed	5,000,000	2,400,000	7,400,000	720,000	364,000	81	10,000	Powerline Dam & Floodway completed. R/W being acquired for RWCD Floodway.	
3	Williams-Chandler Watershed	4,400,000	3,100,000	8,000,000	580,000	380,000	104	13,000	Vineyard Road & Rittenhouse Dams completed, R/W being acquired for RWCD Floodway	
4	Buckhorn-Mesa Watershed	4,900,000	5,100,000	10,000,000	460,000	630,000	27	42,000	R/W being acquired on Spook Hill Structure	
5	Queen Creek Floodway	No Data — Currently Under SCS Study.								Being designed by SCS through Indian Reservation
6	Wickenburg Watershed	315,750	121,470	437,720	37,020	35,750	.092	300	R/W being acquired	
7	Buckeye Watershed	3,900,000	2,100,000	6,000,000	290,000	200,000	90	5,900	Phase I under construction	
8	Harquahala Valley Watershed	3,300,000	4,200,000	7,500,000	600,000	430,000	67	900	Restudy and coordinate with CAP and Arizona Highway Department	





Bureau of Reclamation

PROJECT

Central Arizona Project

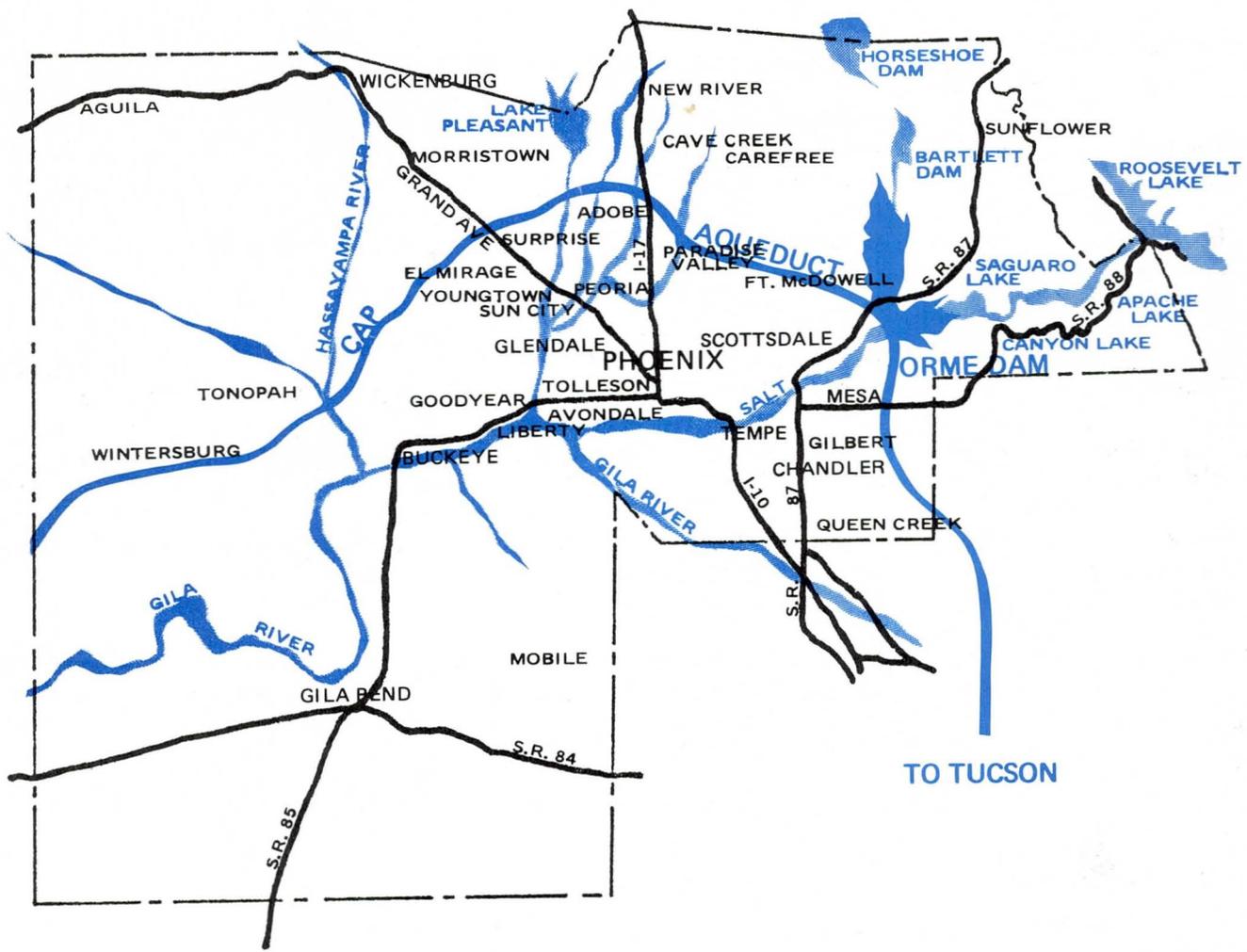
The construction of Orme Dam plus the aqueduct will provide needed water to Central Arizona and provide flood protection within the downstream area.

The Flood Control District of Maricopa County, working with the Arizona Water Commission, Bureau of Reclamation and the other federal agencies, continues to coordinate flood control plans that will ultimately save money and provide adequate flood protection.

Several planned Soil Conservation Service structures have been moved upstream to protect reaches of the aqueduct. Some reaches of the aqueduct provide flood protection on portions of several watersheds, thus reducing the required flood control works within the watershed.

Orme Dam is to have 958,000 acre feet of flood control storage capacity which will permit control of excess waters from the Salt River Project system and provide protection for Phoenix metropolitan areas bordering the Salt River. The Paradise Valley Dike feature of the CAP will control runoff from the McDowell Mountains and provide protection to large areas in Paradise Valley and Scottsdale from floods of Indian Bend Wash.





Proposed Projects

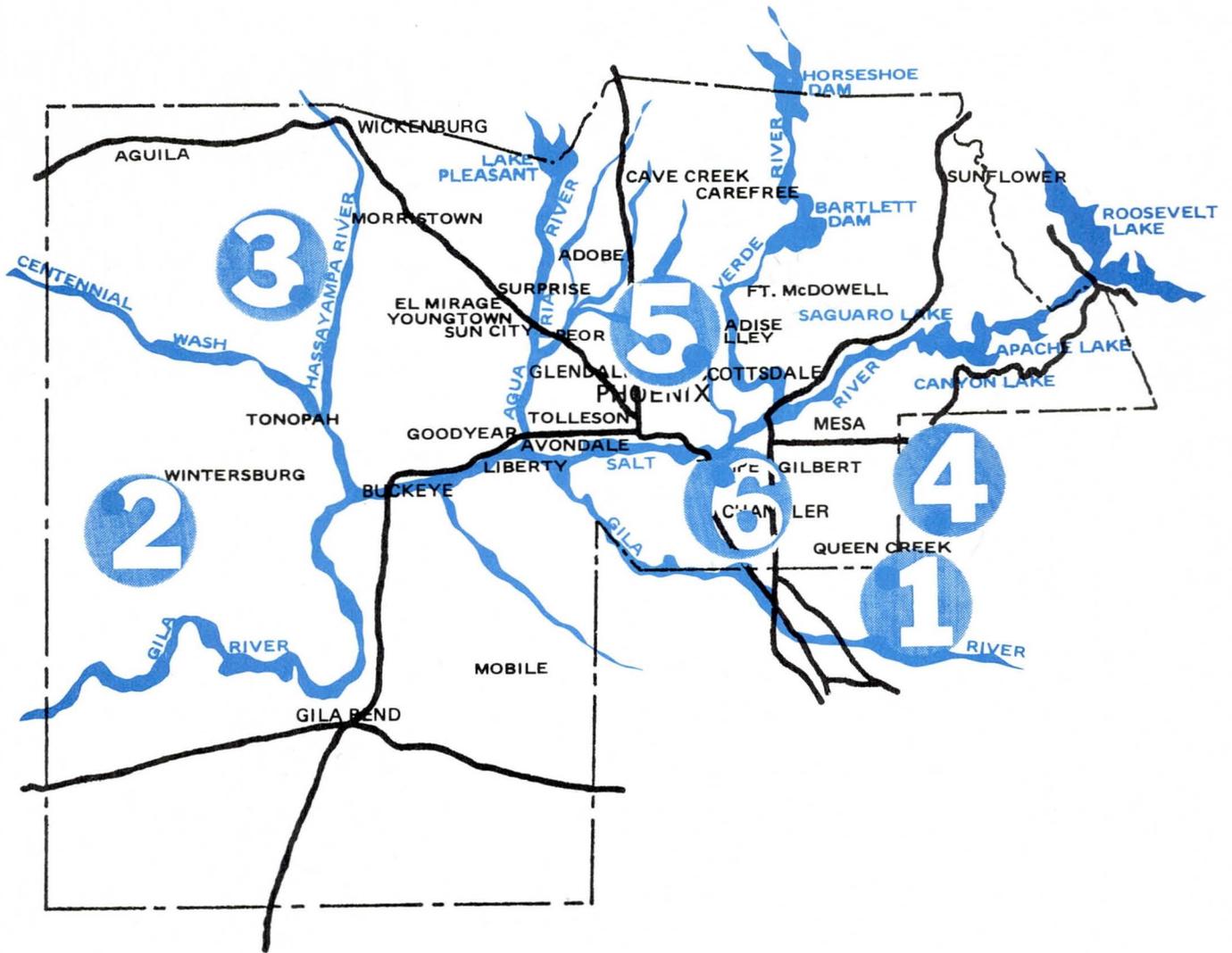
NOT AUTHORIZED

PROJECT	AGENCY	STATUS	ACTION
1. Sonoqui Watershed	SCS ¹	Application for Assistance filed with SCS September 1965	After higher priority set by State, prepare Watershed Work Plan
2. Eagle Tail Mountain Watershed	SCS	Preliminary Study completed August 1966	Prepare Watershed Work Plan
3. Tonopah Watershed	SCS	Application for Assistance filed with SCS July 1961	After higher priority set by State, prepare Watershed Work Plan
4. Queen Creek Watershed	SCS	Application for Assistance filed with SCS July 1970	Feasibility study authorized
5. Upper Indian Bend Wash	CE ²	Flood Plain Information Study prepared by Corps of Engineers June 1964	Congressional authorization required to initiate studies
6. Gila Drain	CE	Board of Directors, by Resolution, requested Corps of Engineers to prepare feasibility study. February 1973.	Obtain approval for study to be made by District Engineer, Los Angeles, Corps of Engineers.

¹ Soil Conservation Service

² Corps of Engineers





Present Project Status

PROJECT

PRESENT STATUS

PHASE 'A'

Indian Bend Wash

PHASE 'B'

Stage I

Dreamy Draw Dam
Cave Buttes Dam

Stage II

Adobe and New River Dams, Cave Creek, Union Hills, Skunk Creek, New River, Agua Fria and Arizona Canal Channels.

PHASE 'C'

Maricopa County Flood Control District Projects.

PHASE 'D'

Salt River Channelization

PHASE 'E'

Upper Indian Bend Wash

SOIL CONSERVATION SERVICE PROJECTS

Guadalupe Watershed

Apache Junction-Gilbert Watershed

Williams-Chandler Watershed

Buckhorn-Mesa Watershed

Queen Creek Floodway

Wickenburg Watershed

Buckeye Watershed

Harquahala Valley Watershed

BUREAU OF RECLAMATION PROJECT

Central Arizona Project

Greenbelt area under construction. Contract awarded for McDowell Road bridge across wash. Remainder of project under design.

Essentially complete.

Under design. Construction phase scheduled from October 1975 thru June 1977.

Projects authorized for construction. Under design. Design Memorandum to be completed November 1976.

Project authorized for study. Not approved for construction.

Project authorized for study. Not approved for construction.

Project was included as part of a comprehensive plan, but not yet authorized for study.

Construction scheduled to start in Fall of 1973.

Powerline Dam and Floodway completed. R/W being acquired for RWCD Floodway.

Vineyard Road and Rittenhouse Dams completed. R/W being acquired for RWCD Floodway.

R/W being acquired for Spook Hill Dam.

Feasibility study under way.

Design Complete. R/W being acquired.

Phase I under construction. Phases II and III under design.

Restudy required to coordinate with CAP Aqueduct and I-10 locations.

Project approved by Congress. Construction of Intake at Colorado River in progress. Acquisition of Aqueduct R/W under way. Design of Orme Dam has started.



Proposed Project Status

PROJECT	PROPOSED STATUS
<p><u>PHASE 'A'</u> Indian Bend Wash</p>	<p>Construction funds to be requested in FY 1975 budget.</p>
<p><u>PHASE 'B'</u> Stage I Dreamy Draw Dam Cave Buttes Dam</p>	<p>Essentially complete. Approved for construction. Construction scheduled to start October 1975, completion date June 1977.</p>
<p>Stage II Adobe and New River Dams, Cave Creek, Union Hills, Skunk Creek, New River, Agua Fria and Arizona Canal Channels.</p>	<p>Approved for construction. Presently under design. Design Memorandum scheduled for completion November 1976.</p>
<p><u>PHASES C, D, and E</u></p>	<p>It is proposed to include all these projects in an Urban Study of the Metropolitan area of Phoenix. The Urban Study, when approved, will expedite completion of these projects.</p>
<p><u>SOIL CONSERVATION SERVICE PROJECTS</u></p>	<p>These projects are proceeding in accordance with priorities established by the State of Arizona. No change in the present schedule is anticipated.</p>
<p><u>BUREAU OF RECLAMATION</u> Central Arizona Project</p>	<p>Design and construction of this project is dependent upon annual allocation of funds. Changes that may occur in the construction schedule cannot be envisioned at present.</p>

Glossary

OF SELECTED TERMS

APPLICATION FOR ASSISTANCE: Local organization's request to Soil Conservation Service under P.L. 566 for study and proposed solution of watershed problems.

CUBIC FEET PER SECOND (cfs): A measure of the magnitude of streamflow (i.e., the number of cubic feet of water passing a point each second).

DESIGN STORM: Magnitude of storm occurring for which desired flood control works are designed to protect against.

FLOOD: An overflow of lands not normally covered by water and that are used or usable by man. Floods have two essential characteristics; the inundation of land is temporary; and the land is adjacent to and inundated by overflow from a river, a stream, or other watercourse, an ocean, a lake, or other body of standing water.

FLOOD PLAIN: The relatively flat area or lowlands adjoining the channel of a river, a stream, or other watercourse, or adjoining an ocean, a lake, or other body of standing water that have been or may be inundated by a flood.

FLOODWAY: The channel of the stream and that part of the flood plain that would be used to carry flood-flows.

INUNDATE: To cover with flood; overflow.

100-YEAR FLOOD: A flood having an average frequency of occurrence of once in 100 years, although the flood may occur in any year of more than once in one year. It is based on statistical analyses of streamflow records available for the watershed and analyses of rainfall and runoff characteristics in the general region of the watershed.

RIO SALADO: Plan for development of special uses in Salt River from Granite Reef Dam to Gila River (38 miles).

R/W: Rights-of-Way

SIPHON: A pressure pipe carrying a flow of a canal or sewer across a depression.

STANDARD PROJECT FLOOD: The flood that may be expected from the most severe combination of meteorologic and hydrologic conditions that is considered reasonably characteristic of the geographic area in which the drainage basin is located, excluding extremely rare combinations. Peak discharges for these floods are generally about 40 to 60 percent of the Probable Maximum Floods for the same basins. As used by the Corps of Engineers, Standard Project Floods are intended as practicable expressions of the degree of protection that should be sought in the design of flood control works, the failure of which might be disastrous.

WATERSHED: An area or region bounded peripherally by a water parting and draining ultimately to a particular watercourse or body of water.





FLOOD CONTROL DISTRICT