

TEXAS
WATER
DEVELOPMENT
BOARD



REPORT 40

**PROGRESS OF TOPOGRAPHIC
MAPPING IN TEXAS**

FEBRUARY 1967

TEXAS WATER DEVELOPMENT BOARD

REPORT 40

THE PROGRESS
of
TOPOGRAPHIC MAPPING
in
TEXAS
1958-1966

By
G. Emil Blomquist

February 1967

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DEDICATION

This report is fondly dedicated to Mr. H. A. Beckwith, who has recently retired from the position of Topographic Engineer with the Texas Water Development Board.

Mr. Beckwith has given over a half-century of service to his fellowmen as a professional engineer. A substantial percentage of this professional career has been devoted to fostering water development in Texas. At the time of his retirement, Mr. Beckwith had served in State government nearly 20 years.

Mr. Beckwith has substantially furthered the effort to obtain topographic mapping coverage of the State of Texas. It is difficult to separate Mr. Beckwith's contribution to the water development effort and to the topographic mapping effort in Texas. Just as these endeavors are closely related and impossible to completely separate, so Mr. Beckwith's dedication to both causes has been evidenced through the years.

Although limited in its treatment of the topographic mapping program in Texas, this report is nevertheless dedicated to a man who over the years has made unlimited efforts to advance that program.

FOREWORD

The impact of a growing population and rapidly developing industrial society has imposed grave problems on the natural resources of Texas. Water in adequate quantity and of suitable quality to meet the needs of the people of this State is of supreme importance. Topographic maps are an essential part of the geologic and hydrologic studies on the quantity and quality of water, just as they are important to cities, highway planners, industries, and individuals. Great progress has been made in the preparation of accurate, descriptive maps for the 267,340-square-mile area of Texas in the past 8 years. This report presents a measure of the progress that has been made toward the completion of that goal.

Additionally, this report is being submitted to the Chief Topographic Engineer of the U.S. Geological Survey in lieu of the Annual Report of the Texas Mapping Advisory Committee, generally completed about this time of year. Due to the accumulation of priority requests and the difficulty of arranging a Fall meeting of the Texas Mapping Advisory Committee, it was decided that this progress report could be assembled and submitted in lieu of an Annual Committee Report. For this reason, this report contains a number of the tables reflecting priority mapping requests of the Texas Mapping Advisory Committee, and it also includes the map indicating priority of mapping requests as of January 1967.

Information on file and in some cases published has been drawn upon to assemble this report. Material from the paper presented to the American Society Civil Engineers Water Resources Engineering Conference at Mobile, Alabama, in March 1965, by John P. Dougherty, formerly Topographic Engineer for the then Texas Water Commission, was utilized freely. Herbert M. Cook, Assistant Director of the Basic Hydrologic Data Division of the Board, reviewed and made revisions of the text.

TEXAS WATER DEVELOPMENT BOARD



C. R. Baskin
Assistant Chief Engineer

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THE PROGRESS OF TOPOGRAPHIC MAPPING
IN TEXAS, 1958 - 1966

ACKNOWLEDGEMENTS

The Texas Water Development Board especially acknowledges the helpful and cooperative working relationship which it enjoys with the Topographic Division of the U.S. Geological Survey. A special note of appreciation is due these people also for their willing response in accomplishing priority mapping work in Texas that enabled certain water development and conveyance studies to proceed. This priority mapping work was accomplished on a schedule which was extremely difficult and demanding. The Survey accomplished the work within the time limitations set out, and the Board wishes to say "thank you" for a job well done.

Each individual member of the Texas Mapping Advisory Committee is commended for their faithful work. The suggestions, study, and interest of the various members of this Committee have done much to foster the progress of topographic mapping in Texas. The Committee has provided an appropriate medium to assemble, consolidate, and channel priority requests for all-Federal topographic mapping work to meet the needs of Texas in a logical and orderly sequence.

DEFINITION OF TERMS

Quadrangle.--The tract of country represented by one of the atlas sheets published by the U.S. Geological Survey. Each map covers a land area bounded by specific latitude and longitude coordinates.

7 $\frac{1}{2}$ -minute quadrangle map.--A map bounded by a span of 7 $\frac{1}{2}$ minutes of arc of the earth's surface. A geographical area of 7 $\frac{1}{2}$ minutes of latitude and longitude is covered by one map. Scale is set as 1:24,000. An average 7 $\frac{1}{2}$ -minute map in Texas covers about 63 square miles areally and approximately seven and one-third miles east to west and eight and four-seventh miles north to south linearly.

15-minute quadrangle map.--A map covering twice as much of the earth's arc as a 7 $\frac{1}{2}$ -minute map. Scale is set as 1:62,500. The linear distance coverage is twice that of a 7 $\frac{1}{2}$ -minute map and the areal coverage is four times as great.

First-order maps.--Published standard 7 $\frac{1}{2}$ - or 15-minute quadrangles complying with the 1941 Mapping Accuracy Standards of the U.S. Geological Survey which were formally adopted in 1947.

Second-order maps.--Published, usable standard $7\frac{1}{2}$ - and 15-minute quadrangles (mapped since 1931 and based on 1927-29 datum) but not complying to the more exacting Mapping Accuracy Standards of the U.S. Geological Survey.

Survey Investigations Research (SIR).--Title of the Federal mapping program under the Topographic Division, U.S. Geological Survey, financed solely with Federal funds.

State-Federal Cooperative Mapping Program.--The mapping program financed with State funds matched by Federal funds or State-Local funds matched by Federal funds.

INTRODUCTION

Topographic maps have many uses as fundamental tools for planning and executing projects that are necessary to modern, industrialized technology and methods of livelihood. The study and application of flood control, soil and water conservation, and reforestation practices are greatly facilitated by the use of detailed topographic maps. Over most of Texas, water availability has historically been limited and sometimes critically short. An intelligent, efficient plan to remedy this situation depends greatly upon the availability of adequate topographic maps.

In order to provide complete coverage of Texas it is estimated that approximately 4,400 quadrangles of the $7\frac{1}{2}$ -minute map series will be required. The Texas Water Planning Act, passed by the First Called Session of the 55th Texas Legislature in 1957, made State funds available to begin a State-Federal Cooperative Mapping Program. Costs for mapping under this program are shared with the U.S. Geological Survey. Until the passage of the 1957 Water Planning Act, practically all topographic mapping in Texas had been accomplished under the SIR Mapping Program. This program continues to operate concurrently with the Cooperative Mapping Program, and the combined efforts of the two programs are resulting in efficient, low-cost completion of mapping projects.

HISTORICAL PROGRESS OF TOPOGRAPHIC MAPPING IN TEXAS

In 1950, first- and second-order maps were available for only 12.5 percent of Texas and two-thirds of these were second-order maps dating as far back as 1931. By 1958, the combined coverage had increased to only 26.1 percent or an average increase of 1.9 percent per year.

As of January 1958, a total of 835 first-order maps and 311 second-order maps covering 26.1 percent of the State were available. Mapping was in progress under the SIR Mapping Program on 466 quadrangles covering 10.6 percent of the State. A remainder of 63.3 percent of Texas was not covered by first- or second-order maps at the beginning of the State-Federal Cooperative Mapping Program.

State financial participation began in the 1958-59 State fiscal biennium with an appropriation of \$348,000 and rose to an expenditure of \$600,000 in each of the bienniums 1962-63 and 1964-65. A State appropriation of \$590,000 has been provided for the present 1966-67 biennium. In addition to the State-Federal Cooperative Mapping Program, for a period of about 4 years a concurrent

State-Federal-Local Program operated within the State Cooperative Program. The overall Topographic Mapping Program in Texas was further accelerated by Local entities contributing \$138,000 toward the mapping of areas in which they had specific interests. Local funds were largely matched by State funds. These funds, combined, were in turn matched by Federal funds. Thus, with the intensified interest from each level of government, and the additional funds provided for the costs of the program, more mapping was accomplished in a relatively shorter period of time. Total expenditures for the Cooperative Mapping Program involving the funds from the Federal-State-Local participation were \$4,771,134 for the years 1958 through 1966.

The State adopted the $7\frac{1}{2}$ -minute quadrangle as the standard map for the Cooperative Mapping Program. The Texas Mapping Advisory Committee has recommended the $7\frac{1}{2}$ -minute quadrangle for all maps in Texas.

As of August 31, 1966, a total of 2,071 first-order maps and 299 second-order maps covering 53.9 percent of the State were available. Cooperative and SIR mapping was in progress on 889 quadrangles covering an additional 20.2 percent of Texas.

State cooperative financial participation has resulted in the mapping of an additional 7.9 percent of Texas since the beginning of the program early in 1958. This represents approximately 21,000 square miles or the equivalent of mapping about 20 average Texas counties. Cooperative Mapping work has been done in each region of Texas.

During the same period, the U.S. Geological Survey, through the SIR Program, completed mapping of 20.2 percent of Texas, representing about 54,000 square miles.

The combined coverage of the Cooperative- and SIR-completed mapping on August 31, 1966 represents an average increase of 3.3 percent per year during the January 1958-August 1966 period.

TEXAS MAPPING ADVISORY COMMITTEE

In an effort to present to the Topographic Division, U.S. Geological Survey, the mapping needs of numerous local entities in addition to the views of the State, the Texas Mapping Advisory Committee was created in September 1960. This Committee is composed of representatives of State agencies, professional organizations, and regional development interests. The members of the Committee have assembled over 7,600 requests for mapping from their respective organizations since 1960. These requests have been consolidated into annual reports to the Topographic Division, U.S. Geological Survey, as recommendations for inclusion in the SIR Mapping Program. The requests of the Committee are considered by the Topographic Division in conjunction with requests from numerous Federal agencies active throughout the State.

Weighted priority values are assigned to the requests as shown in Table 7. As a specific indication of mapping needs, the status of mapping for a number of Texas cities having more than 5,000 inhabitants is shown in Tables 8 and 9.

The requests of the Committee for priorities in the SIR Mapping Program as of January 1967 are included in Tables 4, 5, and 6 and on Plate 3. The

quadrangles listed in all tables are designated by the Texas Code Index Number explained below and in Figure 1.

TEXAS CODE INDEX SYSTEM

The Texas Code Index is a numerical filing system utilizing the latitude and longitude of the southeast corner of topographic maps for identification purposes. H. A. Beckwith, then Topographic Engineer of the Texas Board of Water Engineers (a predecessor agency of the Texas Water Development Board), devised and initiated use of this system.

Physical filing arrangements for maps indexed in this fashion are much simpler than those for filing maps alphabetically. No means are available to accurately anticipate the names which will be given to various quadrangles as they are mapped and provide proper filing space for maps. By its very nature the Code Index enables anticipation of required filing spaces. Additionally, filing maps for an area of the size of the State of Texas in an alphabetical fashion would present the serious disadvantage of not having a group of maps covering a specific area filed in a convenient fashion for ready assembly.

The Texas Code Index Number is assigned by utilizing the whole-degree designation of first the latitude and then the longitude of the southeast corner of the one-degree area in which any map may lie. The 1-degree quadrangle is then sectioned into four 30-minute quadrangles that are numbered in a clockwise fashion, from 1 to 4, beginning with the southeast quadrant. The 30-minute quadrangles are then quartered to form four 15-minute quadrangles which are likewise numbered in a clockwise fashion, beginning in the southeast quadrant. Lastly, the 15-minute quadrangles are then divided into $7\frac{1}{2}$ -minute quadrangles, designated in the same clockwise fashion beginning with number 1 for the southeast quadrangle. A 1-degree quadrangle is thus subdivided into 64 sections which are easily and quickly identified by assigning the numbers as prescribed.

For areas in Texas which lie in 1-degree quadrangles west of the 100th meridian, only the last two digits of the whole-degree meridian designation are utilized in the Texas Code Index Number. Thus, for the 1-degree quadrangle whose southeast corner lies at latitude $31^{\circ} 00' 00''$ and longitude $101^{\circ} 00' 00''$, the first four digits of the Code Number would be 3101. After recording the latitude and longitude coordinates as the first four digits of a Code Index Number, a hyphen is next set down, and the number designating the 30-minute, 15-minute, and $7\frac{1}{2}$ -minute quadrangle in which a particular map is located is then shown. For maps covering a 15-minute quadrangle, a 0 (zero) is assigned to the last digit (representing $7\frac{1}{2}$ -minute quadrangle designation). Likewise, if a map covers a 30-minute quadrangle, two 0's (zeros) appear after the first digit (one each for the 15-minute and $7\frac{1}{2}$ -minute quadrangles thereby identified).

Reference to Figure 1, and a careful reading of this explanation will enable the reader to understand and use the Texas Code Index Number for any standard topographic map in Texas.



1 - degree quadrangle 3198-000



30 - minute quadrangle 3198-200



15 - minute quadrangle 3198-320



7 1/2 - minute quadrangle 3198-424

All quadrant designations include the latitude and longitude coordinates of the southeast corner of the 1-degree quadrangle.

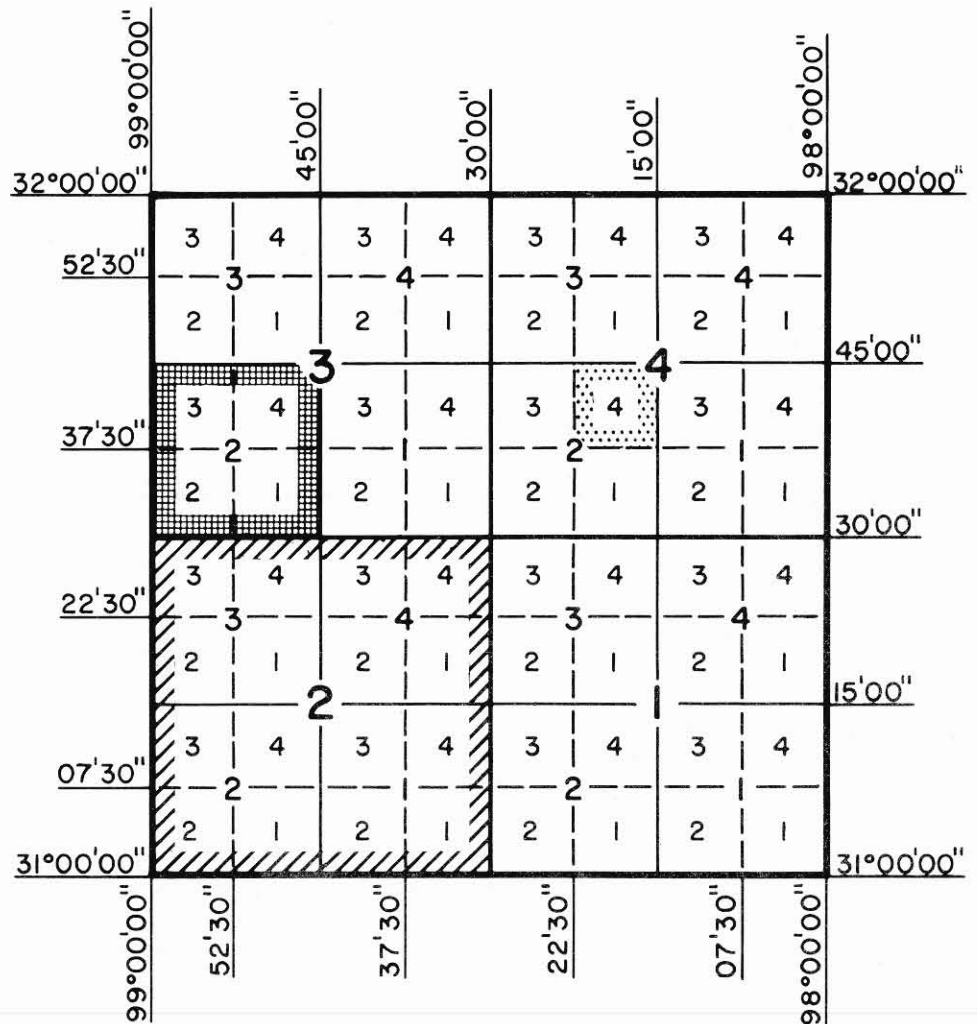


Figure 1
Diagrammatic Explanation of the Texas Code Index System

Table 1.--Progress of topographic mapping in Texas

Status as of January 1, 1958

	Number of $7\frac{1}{2}$ -minute quadrangles*	Percent of total
First-order maps-----	835	19.0
Second-order maps-----	311	7.1
Mapping in progress (first-order)-----	466	10.6
Not covered by first- or second-order maps-----	2,788	63.3
Total-----	4,400	100.0

Status as of August 31, 1966

	Number of $7\frac{1}{2}$ -minute quadrangles*	Percent of total
First-order maps-----	2,071†	47.1
Second-order maps-----	299	6.8
Mapping in progress (first-order)-----	889	20.2
Not covered by first- or second-order maps-----	1,141	25.9
Total-----	4,400	100.0

* Numbers are given as equivalent $7\frac{1}{2}$ -minute quadrangles. Some State coverage in first-order maps and all second-order maps are in the 15-minute quadrangle series. Each 15-minute quadrangle is counted as four $7\frac{1}{2}$ -minute quadrangles. All new maps being produced are of the $7\frac{1}{2}$ -minute quadrangle series.

† Of these, 1,723 quadrangles were completed under the SIR Mapping Program (888 since 1958), and 348 quadrangles were completed under the State-Federal Cooperative Mapping Program (all since 1958). The 888 quadrangles completed under the SIR Mapping Program since 1958 represent 72.0 percent of the mapping accomplished during this period, and 348 quadrangles completed under the State-Federal Cooperative Mapping Program account for the remaining 28.0 percent.

Table 2.--Local Cooperator participation in the State-Federal
Cooperative Mapping Program as of August 31, 1966

Date of agreement	Cooperator	Amount of contribution	Number of quadrangles	Project name	Percent complete	Date completed
Jan. 24, 1958	San Jacinto River Authority*	\$ 60,000	16	San Jacinto 58-59	100	Aug. 3, 1961
Oct. 20, 1958	Collingsworth County Water Control and Improvement District	5,000	2	Arlie 58-59	100	Oct. 5, 1960
July 9, 1959	San Jacinto River Authority	28,000	3	San Jacinto Extension 58-59	100	Aug. 31, 1963
Do.	North Texas Municipal Water District	5,000	3	Trenton 58-59	100	May 7, 1962
Apr. 4, 1960	Tarrant County Water Control and Improvement District No. 1	6,000	2	Rosser 60-61	100	Sept. 17, 1962
Do.	Edwards Underground Water District	6,000	2	Utopia 60-61	100	May 14, 1962
May 26, 1960	West Central Texas Water District	6,000	2	Breckenridge 60-61	100	Aug. 13, 1962
Dec. 19, 1960	Brazos River Authority and City of Stephenville	15,000	5	Stephenville 60-61	100	Feb. 20, 1963
Feb. 1, 1962	High Plains Underground Water Conservation District No. 1	7,000	7	Muleshoe--Part I 62-63	100	June 8, 1965
TOTAL.....		\$138,000	42			

* The San Jacinto River Authority contributed directly to the U.S. Geological Survey.

Table 3.--Expenditures for the Cooperative Mapping Program

Fiscal period	State	Local	Matching Federal	Total
1958-59 biennium	\$348,000.00	\$98,000.00*	\$446,000.00	\$ 892,000.00
1960-61 biennium	387,700.00	33,000.00	420,700.00	841,400.00
1962-63 biennium	600,000.00	7,000.00	607,000.00	1,214,000.00
1964-65 biennium	600,000.00	0	611,956.00	1,211,956.00
1966 State fiscal year	301,129.00	0	310,649.00	611,778.00
Total Cooperative expenditures.....				\$4,771,134.00

* The San Jacinto River Authority contributed \$60,000.00 directly to the U.S. Geological Survey. This was matched by the Survey but not by the State.

NOTE: State expenditures represent value of mapping completed, and where variations from appropriations appear, billings have accomodated such differences in succeeding fiscal periods.

Table 4.--First-priority mapping requests,
by Texas Code Index Number

2998-321	3000-111	3103-211
-323	-112	-212
-324	-113	-213
	-114	-214
2999-131	-121	-241
-132	-122	-242
-141	-123	-243
-142	-124	-244
-211		-431
-212	3003-341	-432
-213	-342	-433
-214	-343	-434
-224	-344	-441
-231	-421	-442
-233	-422	-443
-234	-423	-444
-241	-424	
-242	-431	3104-321
-321	-432	-322
-322	-433	-323
-323	-434	-324
-324		
-331	3100-221	3394-111
-332	-222	-112
-333	-223	-113
-334	-224	-114
	-231	-121
3099-131	-232	-122
-132	-233	-123
-133	-234	-124
-134		
-221	3101-111	3301-111
-222	-112	-112
-223	-113	-113
-224	-114	-114
-231		-121
-232	3103-111	-122
-233	-112	-123
-234	-113	-124
-241	-114	-131
-242	-121	-132
-243	-122	-142
-244	-123	
-312	-124	
-313		

Table 5.--Second-priority mapping requests,
by Texas Code Index Number

2899-131	3003-121	3199-121	3201-311
-132	-122	-122	-312
-133	-123	-211	-313
-134	-124	-212	-314
-141	-131	-213	-321
-142	-132	-221	-322
-143	-133	-222	-323
-144	-134	-223	-324
-241	-141	-224	-331
-244	-142		-332
-411	-143	3100-321	-333
-412	-144	-322	-334
-413	-211	-323	-341
-414	-212	-324	-342
	-213		-343
2900-141	-214	3101-411	-344
-142	-221	-412	-421
-143	-222	-413	-422
-144	-223	-414	-423
	-224	-421	-424
3099-321	-231	-422	-431
-322	-232	-424	-432
-323	-233		-433
-324	-234	3103-221	-434
-331	-241	-222	
-332	-242	-223	3502-341
-333	-243	-224	-342
-334	-244	-231	-343
-341	-411	-234	-344
-342	-412		-432
-343	-413	3104-111	-433
-344	-414	-112	
-431	-441	-113	3602-122
-432	-442	-114	-211
-433	-443	-121	-212
-434	-444	-122	
		-123	
3000-441	3004-111	-124	
-442	-112		
-443	-113		
-444	-114		

Table 6.--Third-priority mapping requests,
by Texas Code Index Number

3001-211	3003-311	3103-341	3302-211
-212	-312	-343	-212
-213	-313	-344	-213
-214	-314		-214
-221	-321	3104-131	-223
-222	-322	-132	-224
-223	-323	-133	-231
-224	-324	-134	-232
-231	-331	-231	-241
-232	-332	-232	-242
-233	-333	-233	
-234	-334	-234	3600-211
-241		-241	-212
-242	3004-441	-242	-213
-243	-442	-243	-214
-244	-443	-244	-221
	-444	-343	-222
3002-111		-344	-223
-112	3005-431	-433	-224
-113	-432	-434	-231
-114	-433	-443	-232
-121	-434	-444	-233
-122			-234
-123	3100-111	3105-141	-241
-124	-112	-142	-242
-131	-113	-143	-243
-132	-114	-144	-244
-133	-121		
-134	-122	3201-442	
-141	-123	-443	3601-111
-142	-124	-444	-112
-143	-211		-114
-144	-212	3202-133	-121
-311	-213	-134	-122
-312	-214	-411	-123
-313	-331	-412	-132
-314	-332	-413	-133
-321	-333	-414	-134
-322	-334	-421	-141
-323	-342	-422	-144
-324		-441	-211
-331	3101-311	-442	-212
-332	-312	-443	-213
-333	-313	-444	-214
-334	-314		-221
-411		3302-111	-224
-412	3102-221	-112	-231
-413	-222	-113	-234
-414	-223	-114	-241
-421	-224	-121	-242
-422	-331	-122	-243
-423	-332	-123	-244
-424	-333	-124	
	-334	-131	
		-132	

Table 7.--Weighted priority values

Member	Weighted priority value			
	First	Second	Third	Fourth
Texas Water Development Board	40	30	20	10
West Texas Chamber of Commerce	36	27	20	10
South Texas Chamber of Commerce	36	27	20	10
East Texas Chamber of Commerce	36	27	20	10
Texas Surveyors Association	36	27	20	10
Texas Society of Professional Engineers	36	27	20	10
State Soil and Water Conservation Board	36	27	20	10
Bureau of Economic Geology	30	25	20	10
Texas Highway Commission	25	20	15	10
General Land Office	20	16	8	4
Texas Industrial Commission	20	16	8	4

Table 8.--Cities in Texas over 5,000 population not covered
by first- or second-order mapping

City	County	Code number of needed 7½-minute maps
Andrews	Andrews	3202-241
Brownfield	Terry	3302-113, 124
Carrizo Springs	Dimmitt	2899-321, 322
Crystal City	Zavala	2899-324
Dalhart	Dallam-Hartley	3602-211
Eagle Pass	Maverick	2800-314, 423
Fort Stockton	Pecos	3002-331, 332, 333, 334
Hereford	Deaf Smith	3402-432
Hondo	Medina	2999-142
Kermit	Winkler	3103-441
Lamesa	Dawson	3201-323, 332
Pecos	Reeves	3103-241, 244
Perryton	Ochiltree	3600-234
Post	Garza	3301-123, 124
Seminole	Gaines	3202-313
Uvalde	Uvalde	2999-224

Table 9.--Cities in Texas over 5,000 population covered by 15-minute mapping requiring conversion to 7½-minute series

City	Name of 15-minute quadrangles	Code number of needed 7½-minute maps
Athens	Athens	3295-223, 224
Beeville	Fleming, Skidmore	2897-234, 243
Big Spring	Big Spring South, Big Spring North	3201-123, 132
Brownwood	Zephyr	3198-323
Burkburnett	Burkburnett	3498-211
Canyon	Canyon	3401-333
Carthage	Carthage	3294-124
Del Rio	Del Rio	2900-231, 232, 233, 234
Georgetown	Round Rock	3097-312, 313
Henderson	Henderson	3294-224
Jacksonville	Jacksonville, Rusk	3195-434, 443
Jasper	Curtis, Roganville	3093-333, 3094-444
Kilgore	Kilgore	3294-231, 232, 233, 234
Kingsville	Riviera, Kingsville	2797-234, 321
Liberty	Liberty	3094-221
Longview	Tatum	3294-243
Mathis	Mathis	2897-221
Mineral Wells	Mineral Wells	3298-441, 442
Nacogdoches	Nacogdoches	3194-312, 313
Palestine	Elkhart, Palestine	3195-313, 314, 341, 342
Paris	Paris	3395-314
Quanah	Quanah	3499-242
Refugio	Refugio	2897-131
Robstown and San Pedro	Robstown	2797-342
Rosenberg	Richmond	2995-321
Rusk	Rusk	3195-441, 442
Silsbee	Silsbee	3094-142
Sinton	Sinton, Woodsboro	2897-122, 211
Taft	Corpus Christi	2797-433
Vernon	Vernon	3499-124

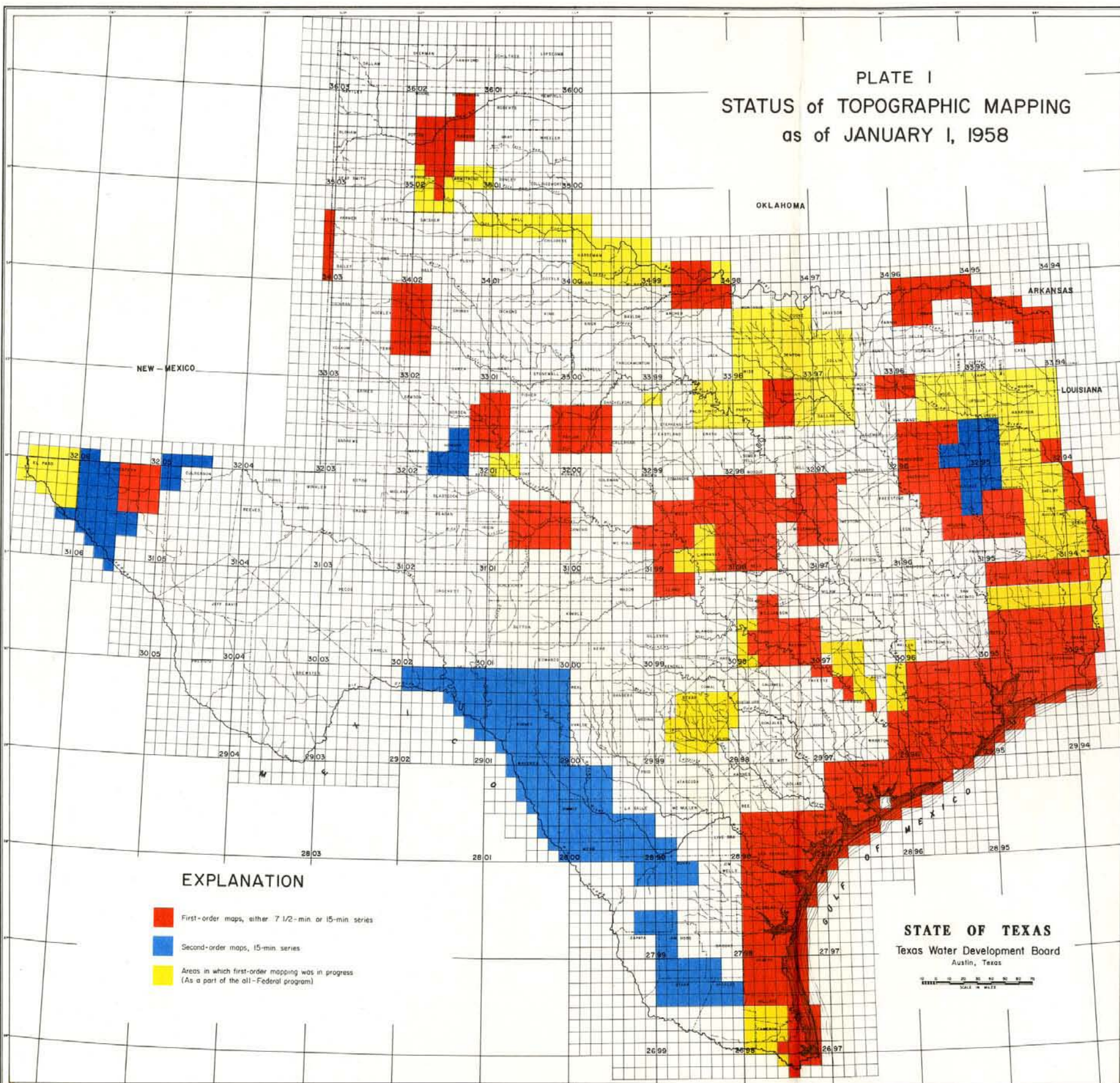
APPENDIX

TEXAS MAPPING ADVISORY COMMITTEE MEMBERSHIP
SINCE ESTABLISHMENT

- | | |
|---|--|
| H. A. Beckwith, Secretary
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| Mac L. Coker, Member
Texas Railroad Commission
Austin, Texas | * E. D. Morse, Member
Texas Surveyor's Association
Houston, Texas |
| * Harvey Davis, Member
State Soil and Water Conservation
Board
1012 First National Bank
Temple, Texas | J. M. Norton, Member
State Soil and Water Conservation Board
Temple, Texas |
| John P. Dougherty, Secretary
Texas Water Development Board
Austin, Texas | William C. Russell, Member
General Land Office
Austin, Texas |
| * Frank W. Ebaugh, Vice Chairman
East Texas Chamber of Commerce
P. O. Box 1031
Jacksonville, Texas | E. V. Spence, Member
West Texas Chamber of Commerce
Big Spring, Texas |
| * W. L. Eeds, Member
Texas Society of Professional
Engineers
c/o Freese, Nichols and Endress | * John J. Vandertulip, Chairman
Texas Water Development Board
Austin, Texas |
| * Peter T. Flawn, Member
Bureau of Economic Research
The University of Texas
Austin, Texas | * McDonald D. Weinert, Member
South Texas Chamber of Commerce
1619 Tower Life Building
San Antonio, Texas
also, Engineer and General Manager
Edwards Underground Water District |

* Current officers and members.

PLATE I
 STATUS of TOPOGRAPHIC MAPPING
 as of JANUARY 1, 1958



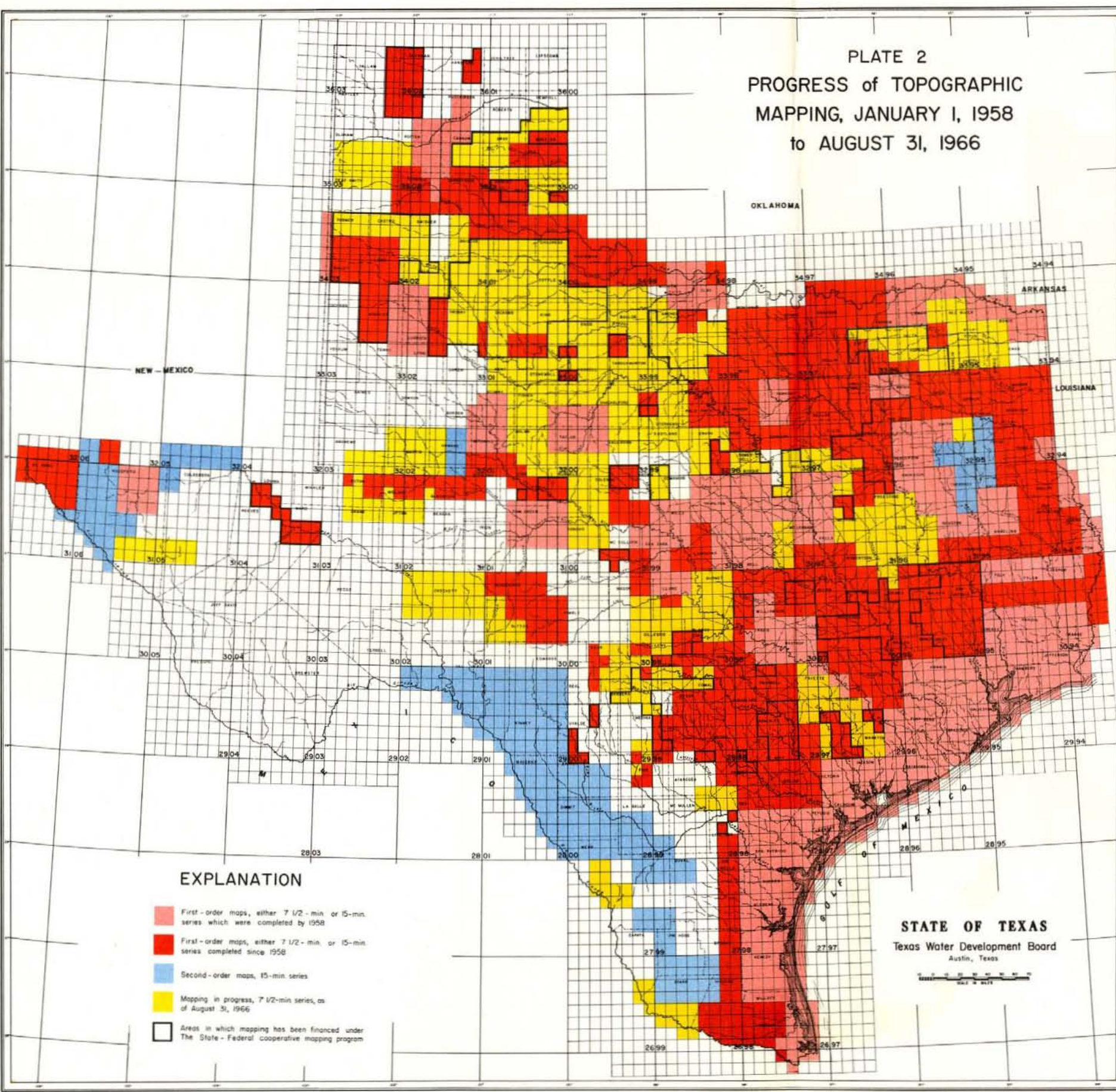
EXPLANATION

- First-order maps, either 7 1/2-min or 15-min series
- Second-order maps, 15-min series
- Areas in which first-order mapping was in progress
(As a part of the all-Federal program)

STATE OF TEXAS
 Texas Water Development Board
 Austin, Texas

0 10 20 30 40 50 60 70 80 90 100
 SCALE IN MILES

PLATE 2
 PROGRESS of TOPOGRAPHIC
 MAPPING, JANUARY 1, 1958
 to AUGUST 31, 1966



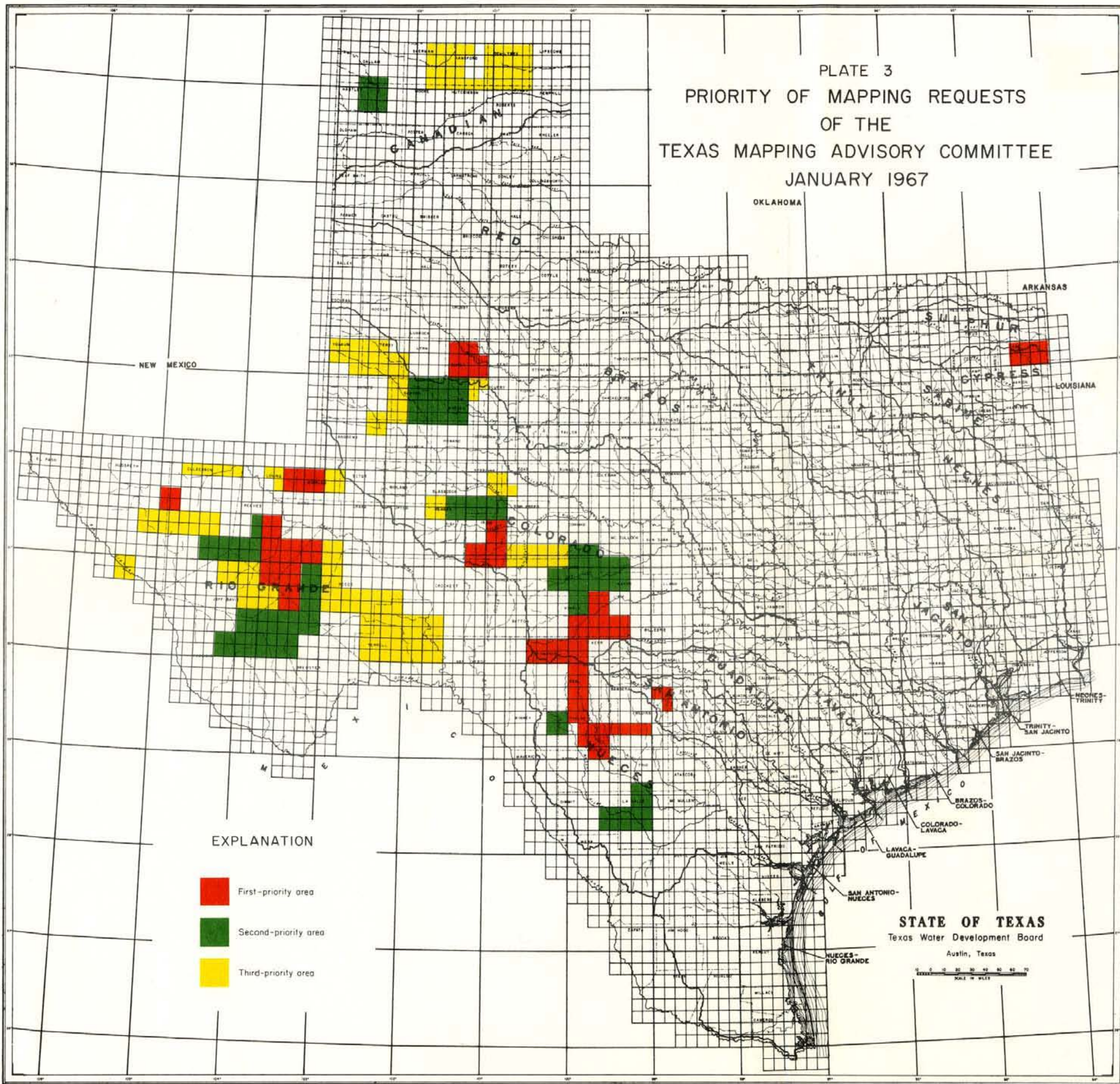
EXPLANATION

- First-order maps, either 7 1/2-min or 15-min. series which were completed by 1958
- First-order maps, either 7 1/2-min. or 15-min. series completed since 1958
- Second-order maps, 15-min series
- Mapping in progress, 7 1/2-min series, as of August 31, 1966
- Areas in which mapping has been financed under The State - Federal cooperative mapping program

STATE OF TEXAS
 Texas Water Development Board
 Austin, Texas



PLATE 3
 PRIORITY OF MAPPING REQUESTS
 OF THE
 TEXAS MAPPING ADVISORY COMMITTEE
 JANUARY 1967



EXPLANATION

- First-priority area
- Second-priority area
- Third-priority area

STATE OF TEXAS
 Texas Water Development Board
 Austin, Texas

0 10 20 30 40 50 60 70
 MILES
 SCALE IN MILES