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No. 17

**PLANNING AND CONTROL OF
PUBLIC WORKS**

PLANNING AND CONTROL OF PUBLIC WORKS

REPORT OF THE COMMITTEE ON RECENT ECONOMIC CHANGES
OF THE
PRESIDENT'S CONFERENCE ON UNEMPLOYMENT

INCLUDING THE REPORT OF
LEO WOLMAN
OF THE
NATIONAL BUREAU OF ECONOMIC RESEARCH, Inc.

NEW YORK
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PLANNING AND CONTROL OF PUBLIC WORKS

A REPORT OF THE COMMITTEE ON RECENT ECONOMIC CHANGES OF THE PRESIDENT'S CONFERENCE ON UNEMPLOYMENT

FOREWORD

In May 1929, the Committee on Recent Economic Changes of the President's Conference on Unemployment published its report on post-war developments in American economic life, particularly those since the recovery from the depression of 1920-21. At the suggestion of President Hoover, and with the assistance of the National Bureau of Economic Research and the Department of Commerce, the committee undertook, in July 1929, an examination of the planning and control of public works and their relation to employment. The report now made public is, like its predecessor, the result of the collaboration of a large number of agencies, governmental and private.

In connection with its various activities, the committee desires particularly to thank the Carnegie Corporation of New York and the Rockefeller Foundation for the funds which have made possible its investigations. It wishes to acknowledge also the services of Dr. Leo Wolman, Dr. Edwin F. Gay, and Dr. Wesley C. Mitchell, of the National Bureau of Economic Research (Inc.), for the basic survey and the fact finding report; the United States Departments of Commerce, of Agriculture, of Labor, of the Treasury and of the Post Office for data on public construction of various kinds; and the states and municipalities for coöperation in providing information.

The services of Hon. Robert P. Lamont, Secretary of Commerce, and those of the Division of Building and Housing and of the new Division of Public Construction set up in the Department of Commerce have been especially noteworthy. Dr. John M. Gries, and Messrs. James S. Taylor and John R. Riggelman have made very valuable contributions. The committee is also indebted to Dr. Alan-

son D. Morehouse, I. Mansfield Spasoff, Robinson Newcomb, Thomas M. Curran, J. C. Leukhardt, R. M. Gates, A. B. Fridinger, and Frank Johnson, of the Department of Commerce; Thomas C. Coleman, Office of the Supervising Architect, Treasury Department; Colonel Thomas M. Robins, Corps of Engineers; T. Warren Allen, Bureau of Public Roads; Colonel Lewis H. Tripp, United States Veterans Bureau; Captain Y. S. Williams, Aide to the Secretary of the Navy; General L. H. Bash, chief, Construction Division, Quartermaster Corps, United States Army; Colonel U. S. Grant, 3d, Director of Public Buildings and Public Parks, Washington, D. C.

Generous coöperation and advice have been received from the agents of the Federal Government and from local public officials throughout the country. Without the assistance of the F. W. Dodge Corporation, the Engineering News-Record, the United States Bureau of the Census, and many departments of the governments of New York State and New York City, basic materials and estimates would not have been available. To these many individuals and to T. S. Holden, Vice President of the Statistical Division of the F. W. Dodge Corporation; C. B. Loudon, of the Statistical Division of the F. W. Dodge Corporation; Thomas P. Smith, Examiner of the Board of Estimate and Apportionment, New York City; A. M. Welch, Manager of Business News Department, Engineering News-Record; Robert R. Updegraff, Scarsdale, N. Y.; Prof. Baker Brownell, of Northwestern University; J. Scott Nicholls, Supervisor of Accounts and Auditor of Revenue, Department of Audit and Control, New York State; H. O. Schermerhorn, engineer of bridges and grade crossings, Department of Public Works, New York State; G. C. Ahles, senior assistant engineer, Division of Highways, Department of Public Works, New York State; H. S. Fairbank, chief engineer, Department of Agriculture, Bureau of Public Roads; R. Ridgway, chief engineer, Board of Transportation, New York City; Thaddeus Merriman, chief engineer, Board of Water Supply, New York City, the committee expresses its appreciation.

Dr. Leo Wolman and the National Bureau of Economic Research (Inc.) are solely responsible for the fact-finding survey herewith published; the Committee is solely responsible for the conclusions drawn from these facts and from other information put before it, which conclusions it presents in the following brief report.

REPORT OF THE COMMITTEE

SECTION I

The Principle and Technique of Economic Balance.—In the report of the committee on Recent Economic Changes, completed on February 28, 1929, attention was directed to the principle and technique of economic balance. It was recognized that private initiative, under conditions of relatively free competition, tends to establish an equilibrium among economic forces. But in practice this tendency, unrestrained, tends to produce alternate periods of depression and marked prosperity, and within each period to show a "spotty" condition as capital, enterprise, and labor unevenly concentrate.

The committee pointed out that the forces which bear upon our economic relationships have always been sensitive. From the prime processes of making and marketing to the facilitating functions of finance, all parts of our economic structure are interdependent and easily affected. And therein lies the danger; that through failure to recognize the inexorable operation of economic principles, or through private greed or lack of public understanding of the far-reaching influence of unsocial individual actions, this balance will be disturbed, greatly to our economic detriment.

It becomes increasingly clear that steady employment, the factor upon which our economic welfare is so largely dependent, is in turn dependent upon a growing and widely diffused skill in coördinating and steadying all the manifold and sensitive business processes which pivot about the consuming home, processes which serve its necessities and minister to the broadening life of the individual and the family.

A perfectly even flow of economic activities is not practically attainable, but an increasing degree of economic stability is undoubtedly the goal toward which the world is now working.

The survey of our own country's economic developments since 1922, already published by the committee, clearly demonstrated

the value of maintaining, year in and year out, a reasonable economic balance which enables the intricate machinery of our industrial and commercial life to function smoothly.

Recent experiences have reinforced the committee's conviction of the necessity of studying more intensively the factors which make for the maintenance of economic balance.

A Continuing Study of Economic Factors.—The committee regards the comprehensive survey which accompanied its first report primarily as a point of departure. It is an initial step in a continuing study.

The changes affecting economic welfare were there described and, when possible, statistically measured. Now the most active and influential factors in that progress should be segregated and subjected to analysis, with the hope of contributing to a practical, workable technique designed to promote a reasonable balance of economic forces. With this in view, the committee is carrying on investigations along several broad lines and plans to present its findings from time to time as progress warrants.

Two inquiries, somewhat more detailed, were taken in hand by the committee shortly after the conclusion of the work upon its first report on recent economic changes in the United States. One of these was an exploration into the broad field of price relationships. The other was a preliminary examination of public construction as an element in any program of economic stability. In view of recent events, this examination has been rapidly pushed forward. The fact-finding survey of this subject, prepared by the National Bureau of Economic Research, with the cooperation of the United States Department of Commerce, accompanies this report.

SECTION II

The Stabilizing Influence of Public Construction.—If the sources for current information as to expenditures for public works and for budgeted future projects could be materially improved, and if Federal, State, and municipal authorities were prepared to act in concert, as the factors which affect the course of economic events indicate an approaching depression, the accumulation, on a national scale, of even relatively small and scattered margins of public construction which might wisely and with promptness be expedited, added to the amount of public construction hitherto available for

acceleration would make up a sum ordinarily sufficient to be an appreciable factor in restoring reasonable economic balance.

But obviously, it is only one factor. The business community can not expect to operate without restraints of its own or to counterbalance careless excesses by undue reliance solely on public construction. In its proper place, however, as one among a number of steadying influences, and at its proper time, the acceleration of public construction may well become useful. This is the conclusion which emerges from consideration by the committee of the information put before it.

National Influence of Public Works.—On public construction about \$3,500,000,000 is expended each year and about 900,000 men are directly employed, according to the survey by the National Bureau of Economic Research and the Department of Commerce. The general trend is still rising.

These public expenditures on permanent improvements in the United States represent from 35 to 40 per cent of the total volume of expenditures for all private and public construction. Because of the difficulty of making satisfactory estimates of the total expenditures for repairs and maintenance, which are increasing from year to year, and of the total outlay of towns and townships, it is probable that these figures understate the total outlay on public works in this country.

Along with the increase in the American standard of living characteristic of this period, has been a continued increase in public works. The future programs of American governments reflect the pressing physical requirements of our communities, their rising standards and the increased coördination of all their parts. Participation by the people as a whole in many of the benefits of increased productivity, which of itself has varied as between different groups and geographical areas, has been one of the marked characteristics of American economic life.

While industrial, agricultural, and commercial activity has been "spotty," the broad social advantages of our accelerated activity have flowed out over the land. The highway building programs throughout the Nation have not been limited to the intensely active areas; good roads have been extended in all directions, serving the whole population. The same might be said for educational advantages, hospital and health facilities, personal mobility made possible by low-priced motor cars, swift and dependable transporta-

tion and communication, and numerous other facilities and services making for comfort and well-being, beyond the elemental requirements of food, clothing and shelter. Among these consequences of higher living standards increased public construction has an important place.

Public roads in 1929, the largest single element in public construction, cost more than \$1,500,000,000. On roads more than one-third of the public works outlay of the Federal Government was expended, and on roads and shipbuilding more than one-half was spent. The leading expenditures of the state governments were on road-building, grade crossings and on public buildings. American municipalities spent their moneys largely for permanent improvements, notably on transportation facilities in the form of subways, bridges, viaducts, street extensions and widenings, on public buildings, on general schools and hospitals, and on systems of water supply and sewage disposal. These works are scattered through every State in the Union and the activity stimulated by them is widely distributed.

Today the principal spending agencies are behind in their programs for permanent improvements. It is impossible to make a statistical estimate of the public expenditure on public works in the next few years, but it would appear that communities whose growth continues must make programs of construction requiring substantial outlays for traffic relief, water supply, sewage disposal, and hospital and educational facilities. Though per capita debt burdens have increased in recent years sampling studies of the margins of unused borrowing power indicate no financial embarrassment on the part of most of our governmental units.

There are great public works to be built, there is money to do it, and in this country where future projects of permanent public improvements are so fixed and well defined, it is unnecessary to resort to makeshifts for additional work. Never have programs of poor relief or charity colored, to any appreciable extent, the American policy toward public works in relation to unemployment and advocates of long range planning favor active prosecution of projects which are economically desirable at the most desirable time. From the standpoint of the tax payers who provide the funds and from that of labor which may be employed upon the work, non-economic reasons for public construction have not been favored.

Public Construction Normally Slow in Reaction.—That declines in public works started during periods of depression have continued even after general business has revived, is indicated by studies of the National Bureau of Economic Research. In recent months, however, this tendency has been measurably counteracted and public construction has been increased. Contracts awarded for public works and public utilities in the first four months of 1930 showed an increase of 30 per cent over the corresponding period of 1929. This is striking evidence of acceleration.

Left to themselves contracts for public construction are not highly sensitive to the cyclical movements in business. Having started to decline during periods of depression, public works have continued to decline sometimes all the way through the revival of the next cycle. To offset this natural tendency, to turn the course of public construction from a depressing to a stimulating influence, is of the very essence of the usefulness of public works as a balancing economic factor. And it is in promptly and comprehensively expediting work on projects already planned, rather than in initiating new undertakings, that the key to the problem lies.

The "Timing" Factor.—The amount of public construction which it is possible to push forward in order to influence employment and the trend of business in a period of recession is less important than the timing of the acceleration. The psychological effect of advancing public construction at the right time suggests that here is to be found an important factor in the problem of maintaining a reasonable economic balance. If properly timed, as the pendulum of employment starts to swing in an unfavorable direction, the influence of the prompt expedition of public works is effective out of all proportion to its size. Timeliness multiplies the effectiveness of each project accelerated.

Prompt action, before conditions become serious, can be assured only as there is developed a practical method of gauging the economic situation, so that unfavorable trends which threaten adversely to influence the economic balance may be anticipated and compensating factors influenced earlier than would be the case if natural forces were left to act in their own time and way. Skilled use of the time factor must, therefore, enter into a program of planning for stabilization.

An unplanned form of emergency relief for unemployment, public construction has long been tried and found in great measure

wanting. Nor does it appear practicable or necessary on any *large scale* to withhold expenditure on public construction during years of prosperity in order to accumulate a reserve of work during business depressions. The skillful timing in the use of a comparatively small margin of public construction is far more important. In this lies the real advantageous opportunity for practical influence upon the economic balance.

Slow acting, and properly so, are the restraints on public bodies made to safeguard bond issues and appropriations and the expenditures of public money. To conform to this legitimate rigidity, and at the same time to help to preserve the economic balance in times of threatened depression, it is necessary to have both mobility and protection. The timing of public works must be adjusted to these two principles.

Experience in recent months seems to show that even in the face of present legal requirements much can be done where a determined effort is made. But more might be done in the future if the problem were more completely explored with the double purpose of advancing both the financial mobility of states and municipalities and the safeguards and security of the tax-paying citizens.

The committee suggests that the American Bar Association appoint a committee to examine the legal questions involved in present procedure and to make recommendations for dealing with this dual problem.

Planning and Acceleration.—Long-range planning and budgeting are necessary if the full value of public works as a stabilizing influence is to be developed. At present there are many obstacles in the way of pushing public projects with such speed as is possible on private work, especially during the steps preliminary to contract-letting. Fortunately, the recent trend toward city and regional planning makes the task an easier one than it would have been even a few years ago. City planning commissions, bureaus of municipal research, and special committees appointed by the heads of local governments, city, county, and state, have contributed to this development. Comprehensive physical planning of public works within each city and region is a clear and evident need. This enables sites to be acquired in advance and plans to be made well ahead of the actual start of the work, so that when an emergency comes discretionary projects can go ahead with assurance that they

are properly located and well adapted for the purpose for which they are intended, and without the delays that might ensue if the relative merits of different locations and alternative plans for structures had to be debated, or else decided arbitrarily on the basis of hasty consideration.

Long-range budgeting of capital expenditures, in which the programs of the several local government departments are harmonized, is another feature of planning which has not yet been adapted as widely as it should be, though the committee finds that a number of city planning commissions, bureaus of municipal research, and special committees appointed by heads of local governments, county, and state, have participated in preparing such programs.

Even without conscious planning some degree of balancing adjustment already exists, since certain types of construction activities tend to decline with the tightening money market. An increase in the cost of securing capital, in competition with other demands for capital, tends automatically to be a check on public construction. And, conversely, in an easier money market after a recession has set in, some kinds of private and of public construction tend to increase before the rise of general business activity. But this compensatory tendency cannot, as a rule, act with sufficient promptness. Deliberate acceleration of public works remains desirable at times.

Successful preparation for this in the future will require careful investigation of all the factors involved in connection with the various departments of state, county, and municipal governments throughout the country. This will require the working together of local officials and of interested citizens, either as individuals or through their local civic or commercial organizations. In many cases, the experience gained in attempting to expedite public construction work during recent months will serve as a guide in removing obstacles that might impede similar attempts in the future.

It remains, now, to improve the central sources of current information regarding public construction in order to provide the necessary data on which timely action can be based in threatened emergencies. It may be possible to measure month by month the number of workers employed directly in the public service or indirectly on contract, extending to the Government itself the plan already developed for uniform monthly reports from private indus-

try to Federal and State bureaus of labor statistics. There should be regular reports on the expenditures for public construction projects for the principal spending agencies. The Division of Public Construction, recently set up by the Federal Government in the Department of Commerce, is a promising agency for the purpose.

With a nation-wide improvement, properly safeguarded and flexible, in the financial and administrative organization of governmental agencies, and with information as to their current operations centrally located, a long step will have been taken toward the use of public construction as a steadying influence. The moderate elasticity in spending power which any reasonable budgeting system must provide will yield, by accumulating on a national scale the relatively small margins of each unit, a sum ordinarily sufficient to be an effective factor in the maintenance of economic balance.

SECTION III

A Program of Exploration and Appraisal.—As has been indicated, the committee regards the preliminary survey of public construction which accompanies this report as but one of the steps in bringing together the material from which it is hoped there may be set-up a “technique of balance,” the need for which was developed in its original report.

The planning and control of public construction seems to be an important step, not as a large scale measure of emergency relief, but, in the group of active balancing factors, that one which is closely related to the movement of interest rates and to the volume of employment.

It is with this group of active or positive factors that the committee is most concerned. It believes that one by one, successively, they may be explored and appraised until their nature and their influence on the course of economic events are better understood. The relations of these influencing factors to each other and to the whole economic system are highly complex and the analysis and presentation of them cannot, without danger, be over-simplified. But it is the hope of the committee that, step by step, it may bring together and clarify our knowledge of the more significant processes now operating in our economic life.

As the above statement and, indeed, as its whole program of exploration presupposes, the committee believes that unbalanced

economic relationships are susceptible to modifying influence if their nature is more clearly understood and some basis of measurement, or continuous gauging of those factors which are premonitory, is devised so that future trends may be more accurately anticipated.

In its frequent use of the terms "stabilization" and "technique of economic balance," the committee desires to guard the readers of this report against a possible misconception. A perfectly adjusted balance is not only considered practically unrealizable; it might even, if attained, tend to impede progress.

It was early recognized that the most the committee can hope to accomplish, is to enlarge the foundation for an appraisal mechanism which may assist the public in gauging the importance of the various forces in operation, so that it may take steps to set in motion, during times of threatened economic stress, forces which may tend to modify excesses. It was further recognized that even so broad a program as this must accommodate itself to the actualities of life.

A "Zone of Tolerance."—One of these actualities is the necessity of recognizing what may be termed a "zone of tolerance" within which the action and reaction of the most active economic forces has to be considered normal, and even healthy.

Only when some factor, or combination of factors, threatens to carry the situation beyond the boundaries of this theoretical "zone of tolerance," and it becomes apparent that we shall presently be seriously out of balance economically, if no counter influences are set up, should steps be taken to modify the influences of an overweighted or one-sided development.

Further Inquiries.—The committee is planning a further exploration into the effects of varying interest rates or capital costs upon the chief types of construction. It is also undertaking an examination of that fundamental incentive, the "lure of profits," as manifested during the last 10 years in American economic life.

A more immediate step, however, is a study of price relationships, of the changing levels in the basis of exchange of the work of one man or group of men for the work of another man or group. This survey, comparing statistically these shifting levels over successive periods, is bound up with the everyday concerns of our people and their welfare. It is expected that the results of this survey will appear before the end of this year. Like the present report, it will take its place in the step-by-step analysis which the

committee is making, in the hope that with better and more general understanding of economic forces, and the laws of their operation, American business may develop increasing self-control.

The ultimate aim of the committee's program of exploration and appraisal, to the end that employment may be more stable and adequate income more assured, is the intelligent and reasonable stabilization of business, mainly by the business community itself, aided by public administrators and an informed and responsive public opinion.

ARCH W. SHAW, *Chairman*

RENICK W. DUNLAP	ADOLPH C. MILLER
WILLIAM GREEN	LEWIS E. PIERSON
JULIUS KLEIN	JOHN J. RASKOB
JOHN S. LAWRENCE	LOUIS J. TABER
MAX MASON	DANIEL WILLARD
GEORGE MCFADDEN	CLARENCE M. WOOLLEY
EUGENE MEYER	OWEN D. YOUNG

EDWARD EYRE HUNT, *Secretary*

APPENDIX A

TABLE 1.—PUBLIC CONSTRUCTION CONTRACTS AWARDED IN ALBANY, NEW YORK, 1919-1928

(In thousands)

Purpose	1919	1920	1921	1922	1923	1924	1925	1926	1927	1928 ^a
Educational buildings.....	\$544	\$295	\$33	\$7	\$1,328	\$207	\$909	\$435 ^c	\$1,557 ^c	\$1,001 ^c
Hospitals and institutions.....	5	187	20	125	21	102	13	1,035	10	1,000
Military and naval buildings.....	.....	15	.....	3	.....	.....	.....	.....	.....	10
Public buildings.....	342	46	2	250	.....	60	.....	81	135	2,557
Waterfront developments.....	62	13	17	.....	65	136	.....	721	644	415
Bridges.....	.....	.....	5	.....	.....	.....	.....	24	.....	13
Incinerators.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	200
Lighting systems.....	.....	.....	.....	.....	550	200	.....	.....	5	.....
Docks and piers.....	.....	.....	.....	.....	.....	.....	.....	^b	^b	^b
Subways and tunnels.....	.....	.....	.....	.....	.....	.....	.....	^b	^b	^b
Sewage systems.....	493	10	2	.....	.....	.....	20	16	21	20
Street paving and road construction	1,519	69	1,135	234	683	511	70	331	1,419	632
Water supply systems.....	.....	.....	65	.....	50	.....	.....	.....	49	445
Parks (public).....	11	.....	.....	.....	.....	.....	.....	.....	.....	15 ^c
Total public construction.....	\$2,976	\$635	\$1,279	\$619	\$2,697	\$1,216	\$1,012	\$2,643	\$3,840	\$6,308
Total public construction (inclusive of private schools and exclusive of subways, tunnels, docks and piers).....	\$2,976	\$635	\$1,279	\$769	\$2,867	\$1,216	\$1,012	\$2,643	\$3,840	\$6,308

Source: F. W. Dodge Corporation, Statistical Division.

^a Private schools, which were subtracted from the figures for educational buildings in earlier years, are included in these three years. In 1922 they amounted to \$150,000 and in 1923 to \$170,000. In 1919, 1920, 1921, 1924 and 1925 there were no expenditures for private schools.

^b Not reported in these three years.

^c Estimated as one-half total parks.

APPENDIX A

TABLE 2.—PUBLIC CONSTRUCTION CONTRACTS AWARDED IN BIRMINGHAM, ALABAMA, 1923-1928
(In thousands)

Purpose	1923	1924	1925	1926	1927	1928
Educational buildings.....	\$805	\$649	\$1,891	\$445 ^a	\$1,183 ^a	\$717 ^a
Hospitals and institutions.....	258	157	252	174	570	197
Military and naval buildings.....	.....	.....	.....	.....	.....	.....
Public buildings.....	3	26	133	663	459	121
Waterfront developments.....	.....	.....	.....	.....	.....	.....
Bridges.....	.....	.....	318	23	.....	229
Incinerators.....	.....	.....	.....	.....	400	.....
Lighting systems.....	.....	4	914	40	45	12
Docks and piers.....	.....	.....	.....	b	b	b
Subways and tunnels.....	.....	.....	.....	b	b	b
Sewage systems.....	4	326	48	271	483	244
Street paving and road construction.....	271	1,532	2,320	3,712	2,197	2,783
Water supply systems.....	2	.....	32	82	.....	.....
Parks (public).....	.....	.....	3	18 ^c	.....	.....
Total public construction.....	\$1,343	\$2,694	\$5,911	\$5,428	\$5,337	\$4,303
Total public construction (inclusive of private schools and exclusive of subways, tunnels, docks and piers).....	\$1,343	\$2,935	\$6,090	\$5,428	\$5,337	\$4,303

Source: F. W. Dodge Corporation, Statistical Division.

^a Private schools, which were subtracted from the figures for educational buildings in earlier years, are included in these three years. In 1923 they amounted to 0; in 1924 to \$241,000; and in 1925 to \$179,000.

^b Not reported in these three years.

^c Estimated as one-half total parks.

APPENDIX A

TABLE 3.—PUBLIC CONSTRUCTION CONTRACTS AWARDED IN BOSTON, MASSACHUSETTS, 1919-1928

(In thousands)

Purpose	1919	1920	1921	1922	1923	1924	1925	1926	1927	1928
Educational buildings.....	\$748	\$720	\$2,998	\$1,160	2,781	\$5,024	\$2,727	\$3,892 *	\$4,891 *	\$1,026 *
Hospitals and institutions.....	392	279	1,269	1,716	520	888	5,259	2,977	2,222	3,997
Military and naval buildings.....	175	273	118	70	18	.....	.....	273	.....	.....
Public buildings.....	499	566	683	615	463	1,166	1,000	920	508	1,069
Waterfront developments.....	132	547	80	235	210	21	436	54	23	125
Bridges.....	527	450	125	1,783	68	1,283	487	1,306	780	292
Incinerators.....	.....	.....	.....	17	.....	.....	13	.....	22	2
Lighting systems.....	83	215	25	150	213	347	150	37	510	13
Docks and piers.....	94	32	3	228	110	203	132	♯	♯	♯
Subways and tunnels.....	477	.....	1,700	.....	.....	.....	.....	♯	♯	♯
Sewage systems.....	601	486	243	802	611	695	635	486	1,152	510
Street paving and road construction	1,532	1,538	554	799	1,745	1,005	1,328	1,751	1,463	1,881
Water supply systems.....	345	122	38	128	212	222	152	319	386	179
Parks (public).....	33	53	13	843	109	30	3	23 °	58 °	18 °
Total public construction.....	\$5,638	\$5,281	\$7,849	\$8,546	\$7,060	\$10,884	\$12,322	\$12,037	\$12,015	\$9,717
Total public construction (inclusive of private schools and exclusive of subways, tunnels, docks and piers)	\$5,277	\$5,711	\$6,196	\$9,103	\$7,000	\$10,926	\$17,574	\$12,037	\$12,015	\$9,717

Sources: F. W. Dodge Corporation, Statistical Division.

* Private schools, which were subtracted from the figures for educational buildings in earlier years, are included in these three years. In 1919 they amounted to \$210,000; in 1920 to \$468,000; in 1921 to \$50,000; in 1922 to \$785,000; in 1923 to \$50,000; in 1924 to \$245,000; and in 1925 to \$5,394,000.

♯ Not reported in these three years.

° Estimated as one-half total parks.

APPENDIX A

TABLE 4. — PUBLIC CONSTRUCTION CONTRACTS AWARDED IN BUFFALO, NEW YORK, 1919-1928
(In thousands)

Purpose	1919	1920	1921	1922	1923	1924	1925	1926	1927	1928
Educational buildings.....	\$884	\$1,205	\$1,270	\$2,684	\$2,715	\$2,382	\$5,040	\$2,063 *	\$3,562 *	\$6,351 *
Hospitals and institutions.....	1,214	3	10	318	45	230	500	2,461	2,261	1,317
Military and naval buildings.....	54	8	....	....	4	....	....	25	22	3
Public buildings.....	28	61	84	100	773	605	123	288	1,109	180
Waterfront developments.....	34	619	....	350	2,200	....	250	1,389	335	493
Bridges.....	549	439	....	10	....	....	3,000	....	43	666
Incinerators.....	....	....	....	....	....	....	459	....	....	....
Lighting systems.....	....	25	8	148	2,048	85	....	....	....	....
Docks and piers.....	129	23	....	50	75	....	1,000	^b	^b	^b
Subways and tunnels.....	9	....	....	....	....	....	37	^b	^b	^b
Sewage systems.....	24	17	....	....	28	....	....	38	169	60
Street paving and road construction	688	442	215	55	55	....	15	1,971	5,008	1,546
Water supply systems.....	348	1,449	....	4,000	....	....	....	82	13	8
Parks (public).....	19	5	....	....	....	45	....	....	....	....
Total public construction.....	\$3,980	\$4,296	\$1,587	\$7,715	\$7,943	\$3,347	\$10,424	\$8,317	\$12,522	\$10,624
Total public construction (inclusive of private schools and exclusive of subways, tunnels, docks and piers)	\$3,923	\$4,273	\$1,797	\$8,480	\$7,948	\$4,032	\$9,507	\$8,317	\$12,522	\$10,624

SOURCE: F. W. Dodge Corporation, Statistical Division.

* Private schools, which were subtracted from the figures for educational buildings in earlier years, are included in these three years. In 1919 they amounted to \$31,000; in 1920 to 0; in 1921 to \$210,000; in 1922 to \$815,000; in 1923 to \$80,000; in 1924 to \$885,000; and in 1925 to \$120,000.

^b Not reported in these three years.

APPENDIX A

TABLE 5.—PUBLIC CONSTRUCTION CONTRACTS AWARDED IN CHICAGO, ILLINOIS, 1919-1928

(In thousands)

Purpose	1919	1920	1921	1922	1923	1924	1925	1926	1927	1928
Educational buildings.....	\$5,266	\$623	\$3,081	\$11,080	\$4,564	\$5,694	\$20,955	\$16,736 *	\$17,715 *	\$22,423 *
Hospitals and institutions.....	1,076	1,345	1,684	1,262	1,981	4,440	6,150	6,567	4,197	5,902
Military and naval buildings....	50	35	5	....	5	160	....	71	108	517
Public buildings.....	69	1,539	5,499	396	49	125	387	4,786	7,204	965
Waterfront developments.....	40	1,149	800	36	390	80	30	119	718	2,905
Bridges.....	4,230	1,264	265	4	1,929	1,676	3,298	3,787	8,674	2,294
Incinerators.....	....	....	....	....	....	15	200	....	788	....
Lighting systems.....	293	42,277	100	315	393	227	1,979	325	250	525
Docks and piers.....	18	....	....	75	....	100	....	^b	^b	^b
Subways and tunnels.....	140	230	....	....	165	400	100	^b	^b	^b
Sewage systems.....	2,212	1,300	1,200	5,071	980	24	140	2	7,895	6,231
Street paving and road construction.....	393	91	3,031	8,822	322	10,996	2,147	944	440	2,720
Water supply systems.....	40	....	162	....	....	376	3,039	200	1,205	3
Parks (public).....	100	187	....	....	....	....	....	....	....	112 *
Total public construction.....	\$13,927	\$50,040	\$15,827	\$27,061	\$10,778	\$24,313	\$38,425	\$33,537	\$49,194	\$44,597
Total public construction (inclusive of private schools and exclusive of subways, tunnels, docks and piers).....	\$13,849	\$50,143	\$16,517	\$27,311	\$11,728	\$26,463	\$67,570	\$33,537	\$49,194	\$44,597

Sources: F. W. Dodge Corporation, Statistical Division.

* Private schools, which were subtracted from the figures for educational buildings in earlier years, are included in these three years. In 1919 they amounted to \$79,300; in 1920 to \$333,000; in 1921 to \$690,000; in 1922 to \$325,000; in 1923 to \$1,115,000; in 1924 to \$2,650,000; and in 1925 to \$29,245,000.

^b Not reported in these three years.

* Estimated as one-half total parks.

APPENDIX A

TABLE 6. — PUBLIC CONSTRUCTION CONTRACTS AWARDED IN CLEVELAND, OHIO, 1919-1928

(In thousands)

Purpose	1919	1920	1921	1922	1923	1924	1925	1926	1927	1928
Educational buildings.....	\$3,425	\$3,028	\$8,809	\$2,140	\$7,176	\$904	\$3,761	\$3,651 ^a	\$4,470 ^a	\$4,148 ^a
Hospitals and institutions.....	18	856	4,250	23	1,567	320	1,620	2,648	1,679	8,537
Military and naval buildings.....	10	50	200	15	.....	.....	.....	.....	.....	.....
Public buildings.....	23	160	190	623	175	127	1,059	40	58	181
Waterfront developments.....	75	58	107	34	.....	520	582	733	891	160
Bridges.....	526	27	166	5	396	48	490	992	1,252	1,925
Incinerators.....	.....	.....	.....	.....	1,000	.....	.....	.....	.....	.....
Lighting systems.....	13	566	85	60	46	175	751	427	288	155
Docks and piers.....	65	.....	12	.....	32	.....	.....	^b	^b	^b
Subways and tunnels.....	.....	.....	50	.....	140	100	.....	^b	^b	^b
Sewage systems.....	1,735	1,398	488	722	846	1,376	2,103	1,642	2,059	659
Street paving and road construction	3,790	1,321	2,034	1,923	4,790	5,408	7,135	2,497	5,783	3,966
Water supply systems.....	175	331	1,931	60	4,616	1,373	1,024	282	140	18
Parks (public).....	3	.....	.....	.....	.....	.....	.....	^c	^c	^c
Total public construction.....	\$9,858	\$7,795	\$18,322	\$5,605	\$20,784	\$10,351	\$18,525	\$12,912	\$16,620	\$19,749
Total public construction (inclusive of private schools and exclusive of subways, tunnels, docks and piers)	\$9,840	\$7,835	\$18,899	\$6,112	\$21,286	\$12,056	\$18,805	\$12,912	\$16,620	\$19,749

SOURCE: F. W. Dodge Corporation, Statistical Division.

^a Private schools, which were subtracted from the figures for educational buildings in earlier years, are included in these three years. In 1919 they amounted to \$47,000; in 1920 to \$40,000; in 1921 to \$638,500; in 1922 to \$507,000; in 1923 to \$675,000; in 1924 to \$1,805,000; and in 1925 to \$280,000.

^b Not reported in these three years.

^c Not reported in these three years. Estimated as zero, on basis of previous years.

APPENDIX A

TABLE 7.—PUBLIC CONSTRUCTION CONTRACTS AWARDED IN DETROIT, MICHIGAN, 1919-1928

(In thousands)

Purpose	1919	1920	1921	1922	1923	1924	1925	1926	1927	1928
Educational buildings.....	\$3,068	\$3,368	\$9,740	\$3,522	\$1,989	\$4,693	\$4,247	\$11,905 *	\$6,062 *	\$4,769 *
Hospitals and institutions.....	1,062	158	637	154	20	2,418	1,227	1,007	5,402	2,938
Military and naval buildings.....	.....	.....	.....	.....	.....	.....	.....	9	.....	.....
Public buildings.....	157	222	1,471	170	877	253	391	715	1,189	848
Waterfront developments.....	103	8	.....	139	25	.....	26	156	107	121
Bridges.....	.....	1,000	3,057	53	216	400	125	325	2,318	8,014
Incinerators.....	.....	.....	.....	.....	.....	33	.....	6	76	.....
Lighting systems.....	583	85	290	353	50	470	887	204	750	125
Docks and piers.....	.....	6	25	186	.....	80	7	b	b	b
Subways and tunnels.....	75	3,315	.....	.....	.....	20	.....	b	b	b
Sewage systems.....	4,296	2,501	10,285	2,409	200	422	3,029	6,766	6,742	8,071
Street paving and road construction	2,863	1,513	2,039	685	1,179	1,943	7,392	11,398	10,896	6,659
Water supply systems.....	199	1,000	1,282	687	5,508	87	75	3,507	3,485	1,928
Parks (public).....	20	30	.....	.....	.....	.....	.....	18 °	500 °	3 °
Total public construction.....	\$12,426	\$13,206	\$28,826	\$8,358	\$10,064	\$10,819	\$17,406	\$36,016	\$37,527	\$33,476
Total public construction (inclusive of private schools and exclusive of subways, tunnels, docks and piers).....	\$12,550	\$9,993	\$28,975	\$12,822	\$10,544	\$12,152	\$20,061	\$36,016	\$37,527	\$33,476

Source: F. W. Dodge Corporation, Statistical Division.

* Private schools, which were subtracted from the figures for educational buildings in earlier years, are included in these three years. In 1919 they amounted to \$199,000; in 1920 to \$108,000; in 1921 to \$174,000; in 1922 to \$4,650,000; in 1923 to \$480,000; in 1924 to \$1,432,500; and in 1925 to \$2,662,700.

° Not reported in these three years.

b Estimated as one-half total parks.

APPENDIX A

TABLE 8—PUBLIC CONSTRUCTION CONTRACTS AWARDED IN HOUSTON, TEXAS, 1925-1928

(In thousands)

	<i>Purpose</i>	<i>1925</i>	<i>1926</i>	<i>1927</i>	<i>1928</i>
	Educational buildings ^a	\$2,810	\$1,640	\$836	\$2,152
	Hospitals and institutions.....	....	95	212	110
	Military and naval buildings.....	100	....	....	613
	Public buildings.....	172	863	111	63
	Waterfront developments.....	54	....	....	1,000
	Bridges.....	374	68	351	81
	Incinerators.....	15	....	....	60
190	Lighting systems.....	49	....	....	261
	Docks and piers.....	1,353	^b	^b	^b
	Subways and tunnels.....	....	^b	^b	^b
	Sewage systems.....	88	381	1,264	1,514
	Street paving and road construction.....	298	1,209	2,278	1,691
	Water supply systems.....	320	235	153	102
	Parks (public).....	....	....	....	....
	Total public construction.....	\$5,633	\$4,491	\$5,205	\$7,647
	Total public construction (inclusive of private schools and exclusive of subways, tunnels, docks and piers).....	\$4,280	\$4,491	\$5,205	\$7,647

Source: F. W. Dodge Corporation, Statistical Division.

^a Includes private schools.

^b Not reported in these three years.

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TABLE 9—PUBLIC CONSTRUCTION CONTRACTS AWARDED IN INDIANAPOLIS, INDIANA, 1919-1928

(In thousands)

<i>Purpose</i>	1919	1920	1921	1922	1923	1924	1925	1926	1927	1928
Educational buildings.....	\$813	\$2,058	\$1,292	\$130	\$1,433	\$302	\$1,006	\$3,958 *	\$3,480 *	\$1,244 *
Hospitals and institutions.....	346	42	195	2,664	205	440	790	710	1,679	1,050
Military and naval buildings.....	.....	.....	.....	.....	.....	.....	400	.....	.....	18
Public buildings.....	12	16	.....	.....	25	143	22	89	97	14
Waterfront developments.....	5	.....	38	.....	783	.....	.....	.....	517	4
Bridges.....	14	.....	13	20	60	925	82	398	815	435
Incinerators.....	.....	.....	.....	.....	375	80	.....	.....	.....	.....
Lighting systems.....	50	.....	12	54	16	125	200	67	.....	360
Docks and piers.....	.....	.....	.....	.....	.....	.....	.....	b	b	b
Subways and tunnels.....	.....	.....	.....	.....	.....	.....	.....	b	b	b
Sewage systems.....	2,045	100	401	750	2	209	415	501	2,094	773
Street paving and road construction	446	545	896	1,761	385	652	2,341	1,363	3,671	2,529
Water supply systems.....	.....	83	.....	500	.....	5	800	426	.....	.....
Parks (public).....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Total public construction.....	\$3,731	\$2,844	\$2,847	\$5,879	\$3,284	\$2,881	\$6,056	\$7,512	\$12,353	\$6,427
Total public construction (inclusive of private schools and exclusive of subways, tunnels, docks and piers)	\$3,738	\$3,094	\$2,852	\$5,984	\$3,284	\$2,881	\$6,186	\$7,512	\$12,353	\$6,427

SOURCE: F. W. Dodge Corporation, Statistical Division.

* Private schools, which were subtracted from the figures for educational buildings in earlier years, are included in these three years. In 1919 they amounted to \$6,600; in 1920 to \$250,000; in 1921 to \$5,000; in 1922 to \$105,000; in 1923 to 0; in 1924 to 0; and in 1925 to \$130,000.

b Not reported in these three years.

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TABLE 10.—PUBLIC CONSTRUCTION CONTRACTS AWARDED IN NEWARK, NEW JERSEY, 1919-1928
(In thousands)

Purpose	1919	1920	1921	1922	1923	1924	1925	1926	1927	1928
Educational buildings.....	\$464	\$1,883	\$1,447	\$913	\$832	\$1,414	\$1,772	\$839 ^a	\$110 ^a	\$1,854 ^a
Hospitals and institutions.....	.....	17	56	329	2,730	95	376	2,638	762	138
Military and naval buildings.....	3	.....	.....	.....	.....	.....	.....	.....	.....	.....
Public buildings.....	127	167	962	40	223	28	20	2,936	18	894
Waterfront developments.....	.....	60	739	297	96	70	198	266	257	26
Bridges.....	301	95	31	5	15	11	50	2,374	1,215	59
Incinerators.....	.....	.....	.....	.....	.....	.....	.....	.....	8	.....
Lighting systems.....	.....	44	5	10	200	110	120	.....	.....	30
Docks and piers.....	116	950	.....	25	.....	35	300	b	b	b
Subways and tunnels.....	.....	.....	.....	.....	.....	.....	.....	b	b	b
Sewage systems.....	267	50	146	171	162	98	326	86	844	515
Street paving and road construction	630	1,023	164	385	665	747	1,379	1,163	2,833	4,191
Water supply systems.....	3	.....	.....	.....	34	.....	.....	22	400	181
Parks (public).....	.....	.....	.....	.....	.....	68	.....	46 ^c	.....	15 ^c
Total public construction.....	\$1,911	\$4,289	\$3,550	\$2,175	\$4,957	\$2,676	\$4,541	\$10,370	\$6,447	\$7,903
Total public construction (inclusive of private schools and exclusive of subways, tunnels, docks and piers)	\$1,895	\$3,339	\$3,765	\$2,274	\$6,037	\$2,781	\$4,423	\$10,370	\$6,447	\$7,903

Source: F. W. Dodge Corporation, Statistical Division.

^a Private schools, which were subtracted from the figures for educational buildings in earlier years, are included in these three years. In 1919 they amounted to \$100,000; in 1920 to 0; in 1921 to \$215,000; in 1922 to \$124,000; in 1923 to \$1,080,000; in 1924 to \$140,000; and in 1925 to \$182,000.

^b Not reported in these three years.

^c Estimated as one-half total parks.

APPENDIX A

TABLE 11.—PUBLIC CONSTRUCTION CONTRACTS AWARDED IN NEW HAVEN, CONNECTICUT, 1919-1928
(In thousands)

Purpose	1919	1920	1921	1922	1923	1924	1925	1926	1927	1928
Educational buildings.....	\$762	....	\$1,773	\$356	\$1,900	\$139	\$6,083	\$3,401 *	\$7,765 *	\$1,167 *
Hospitals and institutions.....	445	\$22	265	410	580	475	....	....	32	516
Military and naval buildings.....	....	....	....	....	....	15	....	....	....	700
Public buildings.....	1	7	80	126	28	....	27	....	30	35
Waterfront developments.....	45	....	36	12	....	....	....	....	44	33
Bridges.....	198	....	98	420	95	....	49	13	10	....
Incinerators.....	....	....	....	....	....	....	....	....	....	....
Lighting systems.....	....	....	....	12	22	5	100	17	167	25
Docks and piers.....	....	....	....	....	....	....	....	b	b	b
Subways and tunnels.....	....	....	....	....	....	....	....	b	b	b
Sewage systems.....	178	63	14	158	130	144	66	23	15	16
Street paving and road construction	91	220	371	100	293	309	217	152	301	543
Water supply systems.....	....	....	....	....	....	....	12	....	....	5
Parks (public).....	....	....	....	....	....	....	....	....	13 °	5 *
Total public construction.....	\$1,720	\$312	\$2,637	\$1,594	\$3,048	\$1,087	\$6,554	\$3,606	\$8,377	\$3,045
Total public construction (inclusive of private schools and exclusive of subways, tunnels, docks and piers)	\$1,728	\$637	\$2,637	\$3,524	\$3,198	\$1,257	\$7,994	\$3,606	\$8,377	\$3,045

Sources: F. W. Dodge Corporation, Statistical Division.

* Private schools, which were subtracted from the figures for educational buildings in earlier years, are included in these three years. In 1919 they amounted to \$7,200; in 1920 to \$325,000; in 1921 to 0; in 1922 to \$1,930,000; in 1923 to \$150,000; in 1924 to \$170,000; and in 1925 to \$1,440,000.

° Not reported in these three years.

* Estimated as one-half total parks.

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TABLE 12.—PUBLIC CONSTRUCTION CONTRACTS AWARDED IN NEW ORLEANS, LOUISIANA, 1923-1928
(In thousands)

<i>Purpose</i>	1923	1924	1925	1926	1927	1928
Educational buildings.....	\$831	\$1,585	\$858	\$1,250 ^a	\$1,325 ^a	\$1,638 ^a
Hospitals and institutions.....	1,029	2,179	677	657	239	206
Military and naval buildings.....	.....	.....	.....	.....	.....	.....
Public buildings.....	.....	98	17	12	40	129
Waterfront developments.....	331	372	2,285	.....	94	110
Bridges.....	452	732	184	5,000	53	30
Incinerators.....	.....	.....	.....	.....	.....	460
194 Lighting systems.....	331	26	135	45	.....	.....
Docks and piers.....	1,787	2,669	752	^b	^b	^b
Subways and tunnels.....	25	.....	.....	^b	^b	^b
Sewage systems.....	50	.....	.....	200	.....	557
Street paving and road construction.....	3,990	1,036	680	582	.....	75
Water supply systems.....	.....	2,098	.....	10	.....	10
Parks (public).....	.....	10	.....	.....	39 ^c	.....
Total public construction.....	\$8,826	\$10,805	\$5,588	\$7,756	\$1,790	\$3,215
Total public construction (inclusive of private schools and exclusive of subways, tunnels, docks and piers)	\$8,249	\$9,449	\$5,008	\$7,756	\$1,790	\$3,215

Source: F. W. Dodge Corporation, Statistical Division.

^a Private schools, which were subtracted from the figures for educational buildings in earlier years, are included in these three years. In 1923 they amounted to \$1,235,000; in 1924 to \$1,313,000; and in 1925 to \$172,000.

^b Not reported in these three years.
^c Estimated as one-half total parks.

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TABLE 13.—PUBLIC CONSTRUCTION CONTRACTS AWARDED IN NEW YORK, NEW YORK, 1919-1928
(In thousands)

Purpose	1919	1920	1921	1922	1923	1924	1925	1926	1927	1928
Educational buildings.....	\$6,429	\$13,440	\$9,464	\$22,368	\$39,088	\$46,982	\$17,215	\$26,387 ^a	\$27,186 ^a	\$40,967 ^a
Hospitals and institutions...	3,239	7,199	8,266	14,647	6,516	10,790	13,711	17,049	16,838	19,434
Military and naval buildings	3,382	1,658	108	128	214	29	1,351	632	566	1,743
Public buildings.....	304	7,475	1,329	2,551	1,078	7,407	4,774	1,364	3,597	5,872
Waterfront developments...	3,205	839	4,535	1,216	1,641	1,000	323	950	2,515	955
Bridges.....	.....	2,227	24	434	23	75	5,908	13,637	27,082	3,646
Incinerators.....	102	232	.....	17	170	1,247	25	150	1,104	1,261
Lighting systems.....	131	1,730	1,150	2,371	1,736	715	1,207	10,330	1,426	1,308
Docks and piers.....	1,811	21,691	821	602	570	14	548	^b	^b	^b
Subways and tunnels.....	254	650	.....	21,524	4,309	.....	60,281	65,000 ^c	75,000 ^c	80,000 ^c
Sewage systems.....	7,300	5,468	297	1,057	142	35	850	5,000	8,066	5,212
Street paving and road construction.....	8,824	15,863	6,756	6,593	1,047	35	44	7,189	24,184	19,711
Water supply systems.....	491	886	93	744	178	529	60	833	2,424	45,393
Parks (public).....	42	162	70	.....	277	20	.....	100 ^d	399 ^d	374 ^d
Total public construction...	\$35,514	\$79,520	\$32,913	\$74,252	\$56,989	\$68,878	\$106,297	\$148,621	\$190,387	\$225,876
Total public construction (inclusive of private schools and exclusive of subways, tunnels, docks and piers).	\$34,412	\$58,033	\$34,987	\$57,450	\$55,593	\$82,713	\$53,769	\$83,621	\$115,387	\$145,876

Source: F. W. Dodge Corporation, Statistical Division.

^a Private schools, which were subtracted from the figures for educational buildings in earlier years, are included in these three years. In 1919 they amounted to \$963,000; in 1920 to \$854,000; in 1921 to \$2,895,000; in 1922 to \$5,324,000; in 1923 to \$3,483,200; in 1924 to \$13,849,000; and in 1925 to \$8,301,000.

^b Not reported in these three years.

^c Estimated on basis of Board of Transportation figures, and Dodge figures of subway, tunnel and railroad construction.

^d Estimated as one-half total parks.

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TABLE 14. — PUBLIC CONSTRUCTION CONTRACTS AWARDED IN PHILADELPHIA, PENNSYLVANIA, 1919-1928

(In thousands)

Purpose	1919	1920	1921	1922	1923	1924	1925	1926	1927	1928
Educational buildings.....	\$470	\$1,618	\$1,802	\$5,626	\$5,200	\$5,422	\$9,004	\$11,952 ^a	\$13,766 ^a	\$9,197 ^a
Hospitals and institutions.....	381	652	2,135	3,207	377	3,360	6,416	4,354	6,914	8,906
Military and naval buildings.....	1,018	1,849	75	284	260	14	216	128	141	123
Public buildings.....	509	25	279	320	400	315	1,038	2,692	1,664	243
Waterfront developments.....	1,121	197	221	897	525	2,884	472	242	412	1,879
Bridges.....	373	294	2,704	2,434	1,906	11,906	....	4,109	2,829	5,204
Incinerators.....	....	....	5	....	164	....	7	408	....	50
Lighting systems.....	10	172	207	211	55	330	5	100	2,140	1,520
Docks and piers.....	4,525	18	1,418	2,436	36	40	50	^b	^b	^b
Subways and tunnels.....	57	50	233	181	1,203	27,700	11	^c	^c	^c
¹⁹²⁸ Sewage systems.....	307	....	2,500	2,005	747	2,122	1,305	2,140	7,196	2,995
Street paving and road construction	1,312	3,619	5,724	1,981	1,431	1,847	723	3,025	6,508	7,734
Water supply systems.....	169	479	1,951	142	60	282	214	1,154	182	362
Parks (public).....	18	....	159	138	35	56	123	90 ^d	13 ^d	8 ^d
Total public construction.....	\$10,270	\$8,973	\$19,413	\$19,862	\$12,399	\$56,278	\$19,584	\$30,394	\$41,765	\$38,221
Total public construction (inclusive of private schools and exclusive of subways, tunnels, docks and piers).....	\$5,738	\$9,040	\$18,156	\$19,475	\$12,298	\$30,934	\$21,229	\$30,394	\$41,765	\$38,221

SOURCE: F. W. Dodge Corporation, Statistical Division.

^a Private schools, which were subtracted from the figures for educational buildings in earlier years, are included in these three years. In 1919 they amounted to \$50,000; in 1920 to \$135,000; in 1921 to \$394,000; in 1922 to \$2,230,800; in 1923 to \$1,138,200; in 1924 to \$2,396,500; and in 1925 to \$1,705,700.

^b Not reported in these three years.

^c Not reported in these three years. (Expenditures from loan funds for construction, improvement and equipment of subways, as reported in Comptroller's reports, amounted in 1919 to \$2,610,093; in 1920 to \$1,747,645; in 1921 to \$2,591,890; in 1922 to \$5,120,112; in 1923 to \$207,541; in 1924 to \$3,316,456; in 1925 to \$30,567,107; in 1926 to \$24,185,365; and in 1927 to \$18,966,420.)

^d Estimated as one-half total parks.

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TABLE 15. — PUBLIC CONSTRUCTION CONTRACTS AWARDED IN ROCHESTER, NEW YORK, 1919-1928
(In thousands)

Purpose	1919	1920	1921	1922	1923	1924	1925	1926	1927	1928
Educational buildings.....	\$1,239	\$1,332	\$836	\$3,040	\$272	\$644	\$216	\$1,736 *	\$2,301 *	\$3,051 *
Hospitals and institutions.....	167	1	255	145	1,934	2,030	500	13	1,189	2,292
Military and naval buildings.....	4	4	49	....	....	....	10	....	....	....
Public buildings.....	72	10	8	54	....	250	450	16	31	7
Waterfront developments.....	662	861	15	1,806	....	....	....	510	....	....
Bridges.....	5	500	65	10	....	5	....	....	....	....
Incinerators.....	....	....	....	....	....	10	....	....	....	....
Lighting systems.....	....	....	....	....	231	105	2,929	....	30	11
Docks and piers.....	....	....	....	24	....	....	....	^b	^b	^b
Subways and tunnels.....	....	16	....	....	2,000	....	1,938	^b	^b	^b
Sewage systems.....	239	....	97	202	82	43	35	215	387	162
Street paving and road construction	498	65	93	580	128	127	468	944	1,875	1,087
Water supply systems.....	....	....	....	....	2	....	....	....	1,000	....
Parks (public).....	....	....	....	....	....	....	....	....	....	....
Total public construction.....	\$2,886	\$2,789	\$1,418	\$5,861	\$4,649	\$3,214	\$6,546	\$3,434	\$6,813	\$6,610
Total public construction (inclusive of private schools and exclusive of subways, tunnels, docks and piers)	\$2,886	\$2,873	\$1,468	\$6,357	\$2,669	\$4,547	\$4,858	\$3,434	\$6,813	\$6,610

Sources: F. W. Dodge Corporation, Statistical Division.

* Private schools, which were subtracted from the figures for educational buildings in earlier years, are included in these three years. In 1919 they amounted to 0; in 1920 to \$100,000; in 1921 to \$50,000; in 1922 to \$520,000; in 1923 to \$20,000; in 1924 to \$1,333,000; and in 1925 to \$250,000.

^b Not reported in these three years.

APPENDIX A

TABLE 16.—PUBLIC CONSTRUCTION CONTRACTS AWARDED IN ST. LOUIS, MISSOURI, 1919-1928
(In thousands)

<i>Purpose</i>	1919	1920	1921	1922	1923	1924	1925	1926	1927	1928
Educational buildings.....	\$778	\$758	\$1,187	\$3,101	\$2,682	\$712	\$1,494	\$2,997 ^a	\$2,507 ^a	\$1,806 ^a
Hospitals and institutions.....	391	718	507	2,702	584	1,650	146	2,605	752	4,459
Military and naval buildings.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Public buildings.....	44	65	94	157	45	.....	314	1,375	5,260	209
Waterfront developments.....	.....	8	.....	.....	58	30	.....	1,232	.....	.....
Bridges.....	18	.....	23	.....	768	.....	105	341	153	1,256
Incinerators.....	.....	.....	.....	70	.....	.....	.....	.....	.....	15
Lighting systems.....	.....	.....	.....	35	15	530	103	1,900	948	2,731
Docks and piers.....	.....	.....	.....	.....	.....	.....	.....	^b	^b	^b
Subways and tunnels.....	.....	.....	.....	.....	.....	.....	.....	^b	^b	^b
Sewage systems.....	36	407	225	9	313	1,951	2,323	629	3,891	2,741
Street paving and road construction	443	1,242	888	1,964	2,447	1,577	2,078	4,113	3,524	4,820
Water supply systems.....	.....	9	14	440	.....	.....	.....	.....	470	.....
Parks (public).....	.....	.....	.....	.....	.....	.....	.....	75 ^c	.....	.....
Total public construction.....	\$1,710	\$3,207	\$2,938	\$3,478	\$6,912	\$6,450	\$6,563	\$15,267	\$17,505	\$18,037
Total public construction (inclusive of private schools and exclusive of subways, tunnels, docks and piers)	\$1,720	\$3,257	\$3,018	\$9,168	\$8,147	\$9,525	\$6,951	\$15,267	\$17,505	\$18,037

Source: F. W. Dodge Corporation, Statistical Division.

^a Private schools, which were subtracted from the figures for educational buildings in earlier years, are included in these three years. In 1919 they amounted to \$10,000; in 1920 to \$50,000; in 1921 to \$80,000; in 1922 to \$690,000; in 1923 to \$1,235,000; in 1924 to \$3,075,000; and in 1925 to \$388,000.

^b Not reported in these three years.

^c Estimated as one-half total parks.

APPENDIX A

TABLE 17.—PUBLIC CONSTRUCTION CONTRACTS AWARDED IN ST. PAUL, MINNESOTA, 1919-1928
(In thousands)

Purpose	1919	1920	1921	1922	1923	1924	1925	1926	1927	1928
Educational buildings.....	\$128	\$155	\$1,285	\$855	\$1,220	\$879	\$554	\$661 *	\$758 *	\$469 *
Hospitals and institutions.....	5	360	455	26	245	415	1,195	8	411	55
Military and naval buildings.....	....	....	50	....	....	....	....	....	30	....
Public buildings.....	40	19	9	2	....	92	66	....	98	12
Waterfront developments.....	....	....	....	....	....	....	46	....	....	....
Bridges.....	....	51	....	33	100	2,000	....	....	17	....
Incinerators.....	....	....	....	....	....	....	....	....	....	....
Lighting systems.....	7	84	45	18	9	....	....	....	....	12
Docks and piers.....	....	....	....	....	....	....	....	b	b	b
Subways and tunnels.....	....	....	5	....	....	....	....	b	b	b
Sewage systems.....	3	30	427	126	280	472	20	66	259	264
Street paving and road construction	5	16	626	189	780	434	127	314	355	613
Water supply systems.....	....	....	880	....	40	....	....	25	45	....
Parks (public).....	....	....	....	....	....	....	....	....	....	....
Total public construction.....	\$181	\$638	\$3,821	\$1,276	\$2,683	\$4,301	\$2,008	\$1,074	\$1,973	\$1,425
Total public construction (inclusive of private schools and exclusive of subways, tunnels, docks and piers)	\$221	\$703	\$3,908	\$1,501	\$3,278	\$4,526	\$2,287	\$1,074	\$1,973	\$1,425

Source: F. W. Dodge Corporation, Statistical Division.

* Private schools, which were subtracted from the figures for educational buildings in earlier years, are included in these three years. In 1919 they amounted to \$40,000; in 1920 to \$65,000; in 1921 to \$92,000; in 1922 to \$225,100; in 1923 to \$595,000; in 1924 to \$225,000; and in 1925 to \$279,000.

b Not reported in these three years.

APPENDIX B

NOTES ON TABLES 5-9, CHAPTER II, PP. 23-33

Departments Covered and Purpose of Expenditures in New York City

From Special Revenue Bond Fund:

Armory Board — Construction and reconstruction of Armories. (This is the only case in which Special Revenue Bonds are issued in the city for capital improvements, aside from certain street paving work in railroad areas.)

Presidents, Five Boroughs — Paving and repaving streets and avenues. (Now financed out of tax budget appropriations.)
(New Municipal Airport — 1929)

From Corporate Stock, Serial Bonds and Assessment Bond Fund; and Tax Note Fund:

Armory Board — Armories.

Department of Public Welfare — Hospitals, nurses' homes, clinics and nearby adjuncts.

County Court House, Manhattan.

Department of Plant and Structures — Construction of ferryboats; erection of ferry terminals, operating slips, etc., construction of waterfront and inland reclamation stations and of rubbish disposal plants; construction and paving, etc. of bridges.

Department of Public Markets — Terminal Markets.

Department of Correction — Jails, workhouses, reformatories, penitentiaries, houses of detention.

Board of Education — Schools, high, technical and trade schools, playgrounds and athletic fields.

City College — Commerce Building.

Board of Higher Education — Construction of new Hunter College Center.

Public Libraries and branch libraries — Construction of new Brooklyn Central Library.

Department of Parks — Five Boroughs — Improvement of parks, and construction, reconstruction, equipment, etc. of park buildings:

Manhattan: American Museum of Natural History; Boat Houses, Central Park; Metropolitan Museum; Paving and repaving drives in Central Park; Construction of new parks and playgrounds; Extensions of existing parks; Riverside Drive Park improvements; Improvement of Harlem River Driveway, etc.

Brooklyn: Greenhouses, shelter houses, comfort stations, etc. Picnic houses; Equipment of playgrounds; Repaving drives in parks, etc. Construction and extension of parks and beaches; Brooklyn Institute and Museum of Arts and Sciences, etc.

Bronx: Botanical Gardens buildings, etc. Golf courses, construction and improvement of parks and playgrounds. Comfort stations, bath houses and other structures in parks; paving and repaving in parks, etc.

Queens and
Richmond: Construction of walks and drives, of comfort stations and other buildings, etc. Construction and extension of parks, beaches and playgrounds, and golf courses.

- Westchester County Park Commission — Construction of Bronx River Parkway.
- Department of Health — New hospitals, additions and extensions to Bellevue and Allied Hospitals.
- Police Department — Station houses.
- Department of Street Cleaning — Dumps, buildings, garages, refuse disposal plants and floating equipment.
- Presidents, Five Boroughs — Erection of miscellaneous buildings, — court houses, municipal buildings, public bath houses, libraries, garages, asphalt plant, sewage disposal plants, comfort stations, etc. Repaving and improving streets and avenues a large part of the total.
- Board of Water Supply — Construction of new water supply system for New York City. Delivery tunnel from Hillview Reservoir to Bronx, Queens and Brooklyn; sewage disposal plants in watersheds.
- Department of Water Supply, Gas and Electricity — Construction and equipment of water supply systems; largely laying, relaying, extending and improving water mains, trunk main appurtenances, pumping stations, reconstruction of aqueducts. Gas and electricity construction work of minor importance.
- Department of Docks — Construction and improvement of docks; bay improvements; construction and equipment of piers, sheds, embankments, basins, bulkheads, etc.
- Fire Department — Fire alarm offices, engine houses, central offices; extension and modernizing of fire alarm systems, fire boats.
- Board of Transportation — Construction and equipment of subway lines, yards, sub-station power plants, etc. (Relatively small expenditures on Brooklyn-Richmond Tunnel also included in this group).
- Street Improvement Fund — Assessable Improvements — Road construction, regulating, grading and paving of streets, highways and roads, laying curbs, sidewalks, drainage systems, including trunk and lateral sewers; construction of public beaches and boardwalks; reconstruction of roads, express highways, new arterial streets.

From Special Accounts:

- Presidents, Five Boroughs — Construction of Library Building, City College. Restoring and repaving streets.

From Current Revenue:

- Restoring and Resurfacing Streets — These are properly not figures for expenditures, but budget appropriations. They are, however, a sufficiently accurate representation of the actual amounts spent for this purpose during these years. (They are amounts paid by private contractors, in some instances, and by city departments for the restoration of streets when opened to install or repair a subsurface structure).

APPENDIX C

NOTES TO CHAPTER II: FINANCIAL PROCEDURE IN NEW YORK CITY

The financial accounts of the city, which include, of course, the counties contained within the city, can be readily classified under the following headings:

1. — Tax Budget Fund Accounts
2. — General Fund Accounts
3. — Special Revenue Bond Fund Accounts
4. — Tax Note Accounts
5. — Corporate Stock and Serial Bond Fund Accounts
6. — Assessment Bond Fund Account
7. — Special Fund Accounts
8. — Trust Fund Accounts
9. — Sinking Fund Accounts

1 — TAX BUDGET FUND ACCOUNTS

The Budget of the City of New York is adopted by the Board of Estimate and Apportionment at the end of each October, and includes appropriations for the operation and maintenance of the city government, and the county governments within the city, including Debt Service charges and taxes imposed by the state upon the counties contained within the city. This budget is then submitted to the Board of Aldermen (often called in other cities the Common Council) for its consideration, and in considering it the Board of Alderman can only reduce or eliminate certain specific appropriations, subject, of course, to the veto power of the Mayor. After this action has been consummated, the appropriations become effective as of the first of the calendar year, which co-ordinates with our fiscal year, and soon thereafter these "A" vouchers make their appearance for payment.

As the tax rate is not fixed until the first Monday in March, and as the first half of the taxes are not collected until the first of May, it becomes necessary for the corporation to borrow money to meet its expenses in the interim. This it does through the medium of Revenue Bonds or Revenue Bills.

2 — GENERAL FUND ACCOUNTS

About February 15th the Comptroller submits to the Board of Aldermen his statement of the estimated amount of the General Fund for the Reduction of Taxation. This amount is deducted from the budget total and the balance is the theoretical amount to be collected in taxes. About the same time the Department of Taxes and Assessments submits a certified statement to the Board of Alderman, and also the tax rolls showing the assessed valuation of taxable real and personal property. With these three amounts available the tax rate can be easily figured and is carried out to eight decimal places on the dollar.

When the Comptroller submits his statement of the General Fund Revenues he also advises the Board of Alderman as to the amount of special assessments collectible for the current year from the city and boroughs, the borough and county lines being co-terminus.

3 — SPECIAL REVENUE BOND FUND ACCOUNTS

These appropriations are supplemental to the tax budget appropriations and they are issued under the subdivisions of Section 188 of the Charter and other special laws

which are too numerous to mention here. These bonds when issued are redeemed in the budget succeeding the year of their issue. In some instances the Comptroller, particularly in regard to mandatory charges, claims, etc., is empowered to sell these bonds without the approval of any other board or body. In other instances, however, he must receive the approval of the Board of Estimate and Apportionment, upon the recommendation of the Board of Aldermen, or the Board of Estimate and Apportionment only.

For the removal of snow, these bonds are issued under the provisions of Section 546 of the Charter which provides for their redemption. Section 229 of the Charter makes it a mandatory obligation upon the Board of Estimate and Apportionment to redeem all special revenue bonds.

Special Revenue bonds are not issued until the payments are required, and then usually in large blocks. The time, the rate and the amount is determined solely by the Comptroller, the issues being limited by the amounts of the authorizations.

4 — TAX NOTE ACCOUNTS

Near the end of Section 189 of the Greater New York Charter is that provision of law which lays down a pay-as-you-go policy upon the City of New York. That is to say, no long-term bonds can be issued, except in certain cases for any other than a revenue producing improvement. Therefore, the Board of Estimate and Apportionment from time to time authorizes non-revenue-producing public improvements under the provisions of Section 189 of the Charter. These funds are authorized only by the Board of Estimate and Apportionment. The issue of these notes follows exactly the same procedure as Special Revenue Bonds, and they are redeemed in the same way in the budget succeeding the year of their issue. As the vouchers are received for payment the Comptroller, without any further approval, sells blocks of these tax notes to the bankers at such rates of interest, in such amounts and at such times as he believes to be to the best interests of the city, limited, of course, to the total amount authorized.

Likewise, there is provided in the budget for each year a sum of money to pay the interest on these revenue bills, special revenue bonds and tax notes.

5 — CORPORATE STOCK AND SERIAL BOND FUND ACCOUNTS

These bonds, which are long-term bonds, are authorized by the Board of Estimate and Apportionment, in some instances alone, in others upon the recommendation of the Commissioners of the Sinking Fund and in others with the concurrence of the Board of Alderman. These bonds are authorized and issued under the provisions of Sections 47, 169, 189 (showing the manner in which they are issued), 176, 178 (Water) and 180 (Docks). Under the authority of special acts of the State Legislature, which are not included in the City Charter, the Board of Estimate and Apportionment may authorize the issuance of corporate stock for specific projects, such as rapid transit railroads, new water supply systems located outside the city as distinct from the extension of the water supply system within the city, and for other projects which need not be commented upon at this time.

As the vouchers chargeable to these authorizations are received, corporate stock notes are issued in blocks at such rates, in such amounts and for such periods as the Comptroller may determine to be in the best interests of the city. At a later period, when the money market is favorable, the Comptroller requests the Sinking Fund to fix the rate of interest on the long term bonds to be sold. This is usually done upon his recommendation both as to the rate of interest and the amount of the bonds to be sold. When the bonds have been sold to the public, or to the city's own sinking funds or pension funds, the corporate stock notes are taken up by the proceeds of the corporate stock. The premium on the bonds is diverted to the General Fund for the Reduc-

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tion of Taxation. For their ultimate redemption there is provided annually in the budget an amortization amount to the Sinking Fund on account of the outstanding corporate stock. The appropriation for the redemption of serial bonds is not made to the Sinking Funds, as their pro rata part must be redeemed each year. The respective amounts are definitely known and the total amount is carried in the budget in Code 3019. Corporate stock is redeemed through the sinking funds while serial bonds are redeemed, in a pro rata part, through a direct budgetary appropriation.

6 — ASSESSMENT BOND FUND ACCOUNT

For the purpose of showing the present layout of the city and the layout of the undeveloped sections in the future, there is an official City Map which can be altered only after a public hearing. When it is desired to acquire lands for a park, parkway, street or avenue, petition is made by the local board or boards of the Borough President to the Board of Estimate and Apportionment. After a public hearing the Corporation Counsel is directed to institute condemnation proceedings, and the Borough President submits a rule map showing the property to be acquired, and a damage map showing the individual parcels included in the rule map, which are forwarded to the Corporation Counsel as a basis of the condemnation proceedings. In the meantime a map showing the area of assessment is prepared by the Chief Engineer of the Board of Estimate and Apportionment and submitted to the Board of Estimate and Apportionment for its approval, showing the area to be assessed for the acquisition of the property in question. With these maps before it, the Court, after hearing both sides interested, makes tentative awards. After hearing objections final awards are made. To assist the Court in determining the award, the interest on the property from the date title vested, the total amount to be assessed, and finally the spreading of this amount as an assessment over the various parcels of property affected, there is assigned from the Corporation Counsel's office a staff of clerks, computers and engineers, which is called the Bureau of Street Openings.

After title to the land for streets, parkways and avenues has vested in the City, either through condemnation or dedication, request is made by the local board or boards of the Borough President to the Board of Estimate and Apportionment for the physical improvement thereof, whether it be a drainage system, trunk or lateral sewers, temporary or permanent pavement, regulating, grading, curbing or flagging. The Board of Estimate and Apportionment then gives preliminary authorization to the Borough President under whose control this work falls. He prepares his contract, plans and specifications for the work in question, and then advises the Board of its estimated cost. Approval is then granted and the work performed. The cost of the work, both preliminary and final, and the interest on the money outlaid, is certified to the Board of Assessors, which lays out an area of assessment and apportions the assessment on the various parcels of property benefited. As there are many of these proceedings, this Board of Assessors holds hearings on the area of assessment which differ from those for the acquisition of the property.

To finance these assessable improvements, the city occupies the dual capacity of Trustee and Banker, and as the Banker it has established two assessment funds called, respectively, the "Fund for Street and Park Openings" and the "Fund for Street Improvements." The acquisition of property is financed through the medium of the former assessment fund and the physical improvements through the latter fund. These two funds, which are revolving and are the main holding accounts, have likewise subsidiary accounts showing particular projects.

The awards for the acquisition of property, the payment of the salaries of the clerks and engineers in the Bureau of Street Openings and the engineering forces in the Borough President's office assigned to these projects, the payment to the contractors for the physical work and other incidental expenses are paid in advance out of these funds. Later these funds are recouped by the assessments paid to the Comptroller's

office, which receives, after the assessments have been confirmed by the Court in the acquisition proceedings and by the Board of Assessors in the street improvement proceedings, a duly certified assessment roll showing the amounts to be collected on the various parcels of property benefited.

In order to assist in the financing of these two accounts the Comptroller is authorized by the Board of Estimate and Apportionment, in accordance with the provisions of Sections 174, 181 and 184 of the Greater New York Charter, to issue ten-year assessment bonds whose redemption is to be effected through the medium of these two funds. However, assessments are cancelled, reduced and imposed upon city property, and to replenish these two funds for this share of the expense, the Board authorizes ten-year corporate stock which becomes a part of the city debt. These assessment bonds are also part of the city debt, as they are borrowed on the city's credit, but they have a contingent asset in the outstanding and unpaid assessments. These bonds are issued at such times and in such amounts as the Comptroller deems advisable, restricted, however, to the total amount of the authorization given by the Board of Estimate and Apportionment. Practically all of these bonds are bought by the city's own sinking funds.

Special assessments for local improvements spread over a borough or boroughs of the city are financed in the same manner as other improvements except that their collections are made with the annual tax rate. Sometimes they are collected in equal partial payments for various periods up to five years. This procedure is found in Section 247 of the Charter. These amounts are credited to the respective assessment funds.

7 — SPECIAL FUND ACCOUNTS

The law provides that all the revenues of the City of New York must go into the General Fund for the Reduction of Taxation, unless specifically provided by law to be diverted to the respective sinking funds or to be used for a specific purpose. It is to these last mentioned accounts that the special funds relate. They are revenues received for the use of armories, revenues derived from two of the large city bridges, tuition fees at certain colleges and schools, water revenues of a certain part of the water system and amounts received from plumbers and others for the opening of streets where pavements are restored by the Borough Presidents out of these funds and others which become self-evident by reference to the title of the account. No certificates of indebtedness are issued on account of these funds, payments being made out of the actual cash received.

8 — TRUST FUND ACCOUNTS

Trust Fund Accounts cover funds held by the city in trust for some individual or corporation, such as Unclaimed Salaries and Wages, Intestate Estates, etc. Payments are made out of these accounts by the Comptroller without the issuance of bonds, as payment can be made only from cash in hand.

9 — SINKING FUND ACCOUNTS

There are seven sinking funds, one of which while named a sinking fund, is not such in fact, as it merely accumulates funds for the payment of interest on the debt of the old City of New York. This is the "Sinking Fund for the Payment of Interest on the City Debt." Into these respective accounts flow the miscellaneous revenues pledged by law and, in addition, the annual amortization appropriations included in the tax budget of each year — see Codes 3014 and 3015 of the Annual Budget. This last mentioned account is provided for the ultimate redemption of corporate stock. Serial bonds, as already advised, do not require a sinking fund as they are redeemed pro rata directly through the budget.

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One of these sinking funds, that is, the "Sinking Fund for the Redemption of the City Debt," receives revenues directly from various sources and indirectly from the "Sinking Fund for the Payment of Interest on the City Debt" in a total sum far in excess of its actual requirements. As a medium to pass this surplus revenue to the General Fund for the Reduction of Taxation, the City of New York sells annually General Fund Bonds, under the provisions of Section 222 of the Charter, to the "Sinking Fund for the Redemption of the City Debt." All these bonds mature in 1930, when the Sinking Fund becomes extinct by the payment of its last public obligation, at which time these General Fund Bonds will be cancelled. In February of each year the Comptroller advises the Commissioners of the Sinking Fund as to the probable surplus in this sinking fund, and they authorize him to buy these bonds at 3%, and during the year these bonds are actually issued and held by the Sinking Fund in various amounts, depending upon the receipt of these revenues but not exceeding the total amount authorized to be bought. Interest is paid on these bonds. Later the Comptroller takes the amount of these General Fund Bonds into consideration when he certifies to the Board of Aldermen his estimate of the general fund for the year. While these bonds become a debt of the corporation, still they are an asset of the sinking funds. As the sinking funds are deducted from the total debt, it will be seen that one hand washes the other — while the gross debt increases, the assets increase in like amount.

APPENDIX D

ESTIMATED NUMBER OF OFFICIALS AND EMPLOYEES OF THE
GOVERNMENT OF NEW YORK CITY DURING THE
YEAR 1929*

<i>Department, Court or Office</i>	<i>Number of Employees</i>	<i>Department, Court or Office</i>	<i>Number of Employees</i>
Accounts, Commissioner of.....	109	Finance, Department of.....	1,037
Aldermen, Board of, and City Clerk.....	169	Fire Department.....	7,441
Ambulance Service, Board of.....	5	General Sessions, Court of.....	235
American Museum of Natural History....	265	Grant's Tomb.....	3
Aquarium.....	28	Health, Department of.....	3,667
Armory Board.....	11	Higher Education, Board of.....	5
Art Commission.....	11	Hunter College ⁴	1,292
Assessors, Board of.....	41	Hunter College Teacher's Retirement System.....	1
Banking Commission.....	....	Jurors, Commissioner of	
Bellevue and Allied Hospitals.....	2,797	Bronx County.....	11
Bronx, President of the Borough of.....	1,605	Kings County.....	25
Bronx County Law Library.....	1	New York County.....	40
Brooklyn, President of the Borough of... 2,638		Queens County.....	7
Brooklyn Institute of Arts and Sciences		Richmond County.....	3
Botanic Garden.....	63	Law Department.....	498
Central Museum.....	117	Licenses, Department of.....	94
Children's Museum.....	23	Manhattan, President of Borough of... 3,197	
Brooklyn Public Library.....	415	Mayoralty, The.....	28
Chief Medical Examiner.....	51	Metropolitan Museum of Art.....	450
Child Welfare Board.....	156	Municipal Assembly.....	4
Children's Court.....	152	Municipal Civil Service Commission... 114	
City Chamberlain.....	34	Municipal Court.....	408
City Court.....	170	National Guard and Naval Militia... 423	
City Employees' Retirement System... 92		New York Botanical Garden.....	120
City Magistrates' Court.....	623	New York Public Library.....	758
City Marshals.....	70	New York Public Library Building... 20	
City Record, Board of.....	39	New York Zoological Garden.....	137
College of the City of New York ³ ... 1,296		Parks, Department of —	
Correction, Department of.....	911	Bronx.....	614
County Clerk —		Brooklyn.....	799
Bronx County.....	45	Manhattan.....	1,033
Kings County.....	55	Park Board.....	8
New York County.....	111	Queens.....	288
Queens County.....	52	Richmond.....	136
Richmond County.....	42	Parole Commission.....	51
County Court —		Plant and Structures, Department of... 2,267	
Bronx County.....	34	Police Department.....	18,003
Kings County.....	127	Public Administrator —	
Queens County.....	18	Bronx County.....	1
Richmond County.....	16	Kings County.....	8
District Attorney —		New York County.....	18
Bronx County.....	43	Queens County.....	4
Kings County.....	74	Richmond County.....	1
New York County.....	226	Public Markets, Department of..... 265	
Queens County.....	45	Public Welfare, Department of ⁶ 6,091	
Richmond County.....	13	Purchase, Department of.....	106
Docks, Department of.....	548	Queens, President of Borough of... 4,923	
Education, Department of ⁶	42,000	Queens Borough Public Library..... 153	
Elections, Board of.....	102	Records, Commissioner of —	
Estimate and Appraisal, Clerk's Office... 5		Bronx County.....	17
Estimate and Apportionment, Board of.....	189	Kings County.....	42
Examining Board of City Surveyors..... 2		New York County.....	45
Examining Board of Plumbers.....	5	New York County, Surrogate's Court.. 31	

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ESTIMATED NUMBER OF OFFICIALS AND EMPLOYEES OF THE GOVERNMENT OF NEW YORK CITY DURING THE YEAR 1929^a—Continued

<i>Department, Court or Office</i>	<i>Number of Employees</i>	<i>Department, Court or Office</i>	<i>Number of Employees</i>
Register —		Supreme Court, 2nd Department, Appellate Division /	43
Bronx County	83	Supreme Court, 2nd Department, Appellate Term	7
Kings County	234	Supreme Court Library —	
New York County	142	Brooklyn, Borough of	4
Queens County	166	Queens County	2
Revision of Assessments, Board of	1,150	Richmond County	4
Richmond, President of Borough of	1,150	Surrogate's Courts —	
Sheriff —		Bronx County	28
Bronx County	101	Kings County	57
Kings County	63	New York County	96
New York County	124	Queens County	20
Queens County	33	Taxes and Assessments, Department of ..	378
Richmond County	40	Teachers' Retirement System	51
Sinking Fund, Commissioners of .....	..	Tenement House Department	497
Special Sessions, Court of	100	Transit Commission	274
Standards and Appeals, Board of	23	Transportation, Board of	2,819
Staten Island Institute of Arts and Sciences	7	United States Volunteer Life Saving Corps	3
Street Cleaning, Department of	9,665	Water Supply, Board of	350
Supreme Court, First Department	439	Water Supply, Gas and Electricity, Department of	2,885
Supreme Court, First Department —		Weights and Measures, Bureau of	34
Maintenance of Appellate Division Court House	22		
Supreme Court, Second Department —		Total	131,667
Kings County	129		
Queens County	21		
Richmond County	7		

Source: City of New York Official Directory, 1929.

^a The figures do not include the large numbers employed for purely temporary or emergency periods, such as election inspectors, substitute teachers, temporary clerks for preparation of tax bills and for collection of taxes, monitors at civil service examinations, snow-removal employees and employees required for vacation relief or to help out during short rush periods in the various departments.

^b Represents the number of positions rather than incumbents; employees in the evening sessions are, in a large number of instances, also on the college staff in the day time, resulting in some duplication.

^c Estimated. Represents the number of positions rather than incumbents; employees in the evening schools are, in a large number of instances, also in the day schools.

^d Represents the number of positions rather than incumbents; employees in the evening and summer sessions are in a large number of instances, also on the college staff in the day time.

^e Census of paid employees, October, 1928.

^f The Appellate Division, Second Department, embraces the Counties of Kings, Queens, Richmond, Nassau, Suffolk, Westchester, Putnam, Dutchess, Orange and Rockland. Employees and expenses are paid directly by the State. A part of the total sum required is assumed by the State, and the remainder apportioned against each county by the State Comptroller, and the City is assessed the sums so apportioned to Kings, Queens and Richmond.

APPENDIX E

BRIEF CHRONOLOGY OF THE CATSKILL MOUNTAIN WATER SUPPLY

Report of Special Committee to Manufacturers' Association: sources west of the Hudson River considered for Brooklyn.....	March 15, 1897
John R. Freeman's report submitted to Comptroller Bird S. Coler...	March 23, 1900
Burr-Hering-Freeman Commission's report rendered to Commissioner of Water Supply Robert Grier Monroe.....	Nov. 30, 1903
Constitutional amendment passed exempting water-supply bonds from debt limit.....	Nov. 8, 1904
Chapter 724 of the Laws of 1905, creating the Board of Water Supply and defining its duties and powers, signed by Governor Frank W. Higgins.....	June 3, 1905
Board of Water Supply Commissioners appointed by Mayor George B. McClellan.....	June 9, 1905
Chief Engineer J. Waldo Smith began his duties.....	Aug. 1, 1905
Report of Board of Water Supply to Board of Estimate and Apportionment, recommending development of the Catskill Mountain watersheds submitted.....	Oct. 9, 1905
Plan for this development adopted by Board of Estimate and Apportionment.....	Oct. 27, 1905
Plan filed with State authorities for approval.....	Nov. 3, 1905
Development of watersheds of the Esopus, Rondout, and Catskill creeks approved by State authorities.....	May 14, 1906
Experimental shaft, new west shaft, of the Hudson pressure tunnel, begun.....	Feb. 23, 1907
Contract 2, the first for aqueduct construction, embracing 11 miles between Cold Spring and Hunters Brook, awarded.....	March 27, 1907
First sod turned, with appropriate ceremonies, by Mayor McClellan, near Garrison.....	June 20, 1907
Contract 3, for the main dams of the Ashokan reservoir, awarded...	Aug. 26, 1907
Police Bureau established.....	Feb. 28, 1908
First concrete placed for the aqueduct structure, near Peekskill....	April 28, 1908
First masonry laid for the Olive Bridge dam of the Ashokan reservoir	Sept. 19, 1908
Contract 30, for the Hill View reservoir, awarded.....	Dec. 10, 1909
Contract 9, for the Kensico reservoir, awarded.....	Dec. 24, 1909
Contracts 63, 65, 66 and 67 for City Tunnel No. 1, awarded.....	{ May 26, 1911 June 5, 1911
Maximum contractors' forces, 17,243 men, at active field work.....	Aug. 23, 1911
Maximum contractors' earnings, \$2,214,000 for month.....	Nov., 1911
Headings of the Hudson pressure tunnel met, and "holing through" shot fired by Mayor William J. Gaynor.....	Jan. 30, 1912
Bureau of Claims established.....	July 9, 1912
Brooklyn water delivered to Queens Borough through 48-inch main laid by the Board of Water Supply.....	May 16, 1913
Contract 89, for the Silver Lake reservoir, awarded.....	Aug. 19, 1913

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Storage of water in the Ashokan reservoir begun	Sept. 9, 1913
Last heading in City Tunnel No. 1, between shafts 8 and 9 "holed through" by Mayor John Purroy Mitchell	Jan 12, 1914
Authority to develop the Schoharie watershed obtained from State authorities	Oct. 21, 1914
Began filling the Kensico reservoir with Catskill water	Nov. 22, 1915
Began filling the Hill View reservoir with Catskill water	Nov. 30, 1915
Board of Water Supply approved amended plan for development of the Schoharie watershed	Dec. 22, 1915
First delivery of Catskill water into the distribution pipes of New York City; Bronx Borough supplied with Catskill water for the first time *	Dec. 27, 1915
Hill View reservoir filled to full flow line for the first time	Dec. 29, 1915
Board of Estimate and Apportionment adopted amended plan to develop the Schoharie watershed	Jan. 31, 1916
Amended Schoharie plan filed with the State authorities for approval	Feb. 29, 1916
Kensico reservoir filled to full flow line for the first time	May 23, 1916
State Conservation Commission approved amended Schoharie plan . .	June 6, 1916
Manhattan Borough supplied with Catskill water for the first time . .	Nov. 29, 1916
Water from the Ashokan reservoir passed over the spillway for the first time	Dec. 12, 1916
Brooklyn and Queens Boroughs supplied with Catskill water for the first time	Jan. 22, 1917
Richmond Borough supplied with Catskill water for the first time; began filling the Silver Lake reservoir with Catskill water	Jan. 27, 1917
Silver Lake reservoir filled to full flow line for the first time	Feb. 20, 1917
Maintenance of the Esopus watershed and operation of completed reservoir and aqueduct structures transferred to Department of Water Supply, Gas and Electricity	Aug. 1, 1917
Civic Celebration of the introduction of Catskill water into New York City	{ Oct. 12, 13 and 14, 1917
Contract 200, for the Shandaken tunnel, the first contract for the Schoharie development, awarded	Nov. 9, 1917
Contract 203, for the Gilboa dam, awarded	June 20, 1919
Board of Estimate and Apportionment adopted resolution requesting the Board of Water Supply to undertake studies for an additional supply of water for New York City	June 17, 1921
Contracts 209, 210 and 211, for additional siphon pipes at fourteen locations along the Catskill aqueduct, awarded	Nov. 23, 1921
Board of Estimate and Apportionment approved plan of new conduits for the Boroughs of Brooklyn and Richmond	Oct. 20, 1922
Contracts 196, 197, 198 and 199, for new conduits in the Boroughs of Brooklyn and Richmond, awarded	{ Jan. 16, 1923 Mar. 26, 1923 Jan. 29, 1924
Last heading in the Shandaken tunnel, between Shafts 2 and 3, "holed through"	Feb. 13, 1923
Schoharie Creek water delivered through the Shandaken tunnel for the first time	Feb. 9, 1924
Board of Estimate and Apportionment approved plan of the Williamsburg conduit, in the Boroughs of Brooklyn and Queens	May 2, 1924

* Small quantities mixed with Bronx River water had been supplied to the Williamsburg district through the Bronx conduit during the last week of November, 1915.

Plan for City Tunnel No. 2 submitted to Board of Estimate and Apportionment for approval	Dec. 30, 1924
Full capacity of the Catskill aqueduct made available for the first time by placing in operation the last pipe-line at the steel-pipe siphons	Jan. 7, 1925
Contracts 218 and 219, for the Williamsburg conduit, awarded	{ Feb. 3, 1925 Feb. 4, 1925
Water delivered to Richmond Borough through the new conduits in Brooklyn Borough and Narrows Siphon No. 2 for the first time . .	Feb. 16, 1925
Storage of water in the Schoharie reservoir begun	July 24, 1926
Board of Estimate and Apportionment approved policy of Board of Water Supply with respect to sewage disposal in villages on the Schoharie watershed	Dec. 9, 1926
Williamsburg conduit placed in service	Jan. 22, 1927
Plan for City Tunnel No. 2 adopted by Board of Estimate and Apportionment	Mar. 10, 1927
Plan for City Tunnel No. 2 filed with State authorities for approval . .	May 18, 1927
Plan for City Tunnel No. 2 approved by State authorities	June 15, 1927
Maintenance and operation of the Shandaken tunnel transferred to Department of Water Supply, Gas and Electricity	July 1, 1927
Plan for development of the Rondout creek and tributaries of the Delaware River submitted to Board of Estimate and Apportionment for approval	July 27, 1927
Authority to develop water supply from the Catskill creek and its tributaries and Kaaterskill creek, with aqueduct from the Catskill creek to the Ashokan reservoir, rescinded by Water Power and Control Commission	Sept. 26, 1927
Schoharie reservoir filled to full flow line for the first time	Oct. 19, 1927
Maintenance and operation of the Schoharie reservoir transferred to Department of Water Supply, Gas and Electricity	Jan. 1, 1928
Plan for development of the Rondout creek and tributaries of the Delaware River adopted and approved by Board of Estimate and Apportionment	Jan. 12, 1928
Plan for development of the Rondout creek and tributaries of the Delaware River filed with Water Power and Control Commission for approval	Jan. 19, 1928
Contracts 224, 225, 226 and 227, for City Tunnel No. 2, awarded . .	Oct. 5, 1928

Source: Board of Water Supply, *Annual Report*, 1928.

APPENDIX F

NOTES TO TABLE 17, CHAPTER III, P. 58

<i>Class</i>	<i>Departments Covered and Purpose of Expenditures</i>
1. BUILDINGS.....	<p><i>From Tax Receipts:</i></p> <p>Executive: Armories and a few institutions administered by the Division of Standards.</p> <p>Correction and Penal: Prisons, reformatories, penitentiaries, etc.</p> <p>Education: Normal schools and a few schools of agriculture, etc.</p> <p>Health: Division of Laboratories and Institute for Study of Malignant Diseases.</p> <p>Mental Hygiene, Curative and Charitable: Hospitals for the insane, institutions for mental defectives, etc.</p> <p>Defensive: Armories and some camps.</p> <p>Public Works: Administration, Division of Public Buildings, maintenance and repairs.</p> <p>Special Funds: "Other Funds, — Construction."</p> <p><i>From Bond Issues:</i></p> <p>State Institutions Building Fund: Hospitals, prisons, offices, etc.</p> <p>State Improvement Fund: Predominantly hospitals, prisons, offices, etc.</p>
2. HIGHWAYS AND BRIDGES.....	<p><i>From Tax Receipts:</i></p> <p>Public Works Department: Division of Highways; maintenance of highways — General and Special; miscellaneous repairs, highways, Indian Reservations; all fixed charges; outlays, Highway Division.</p> <p>Port of New York Authority: Bridge construction.</p> <p>Lake Champlain Bridge: Bridge construction.</p> <p>Westchester County Park Commission: Bronx Parkway.</p> <p>Special Funds: Federal Post Roads Revolving Fund.</p> <p><i>From Bond Issues:</i></p> <p>Highway Improvement Fund.</p>

<i>Class</i>	<i>Departments Covered and Purpose of Expenditures</i>
3. CANALS AND WATERWAYS	<p><i>From Bond Issues:</i></p> <p>Maintenance and Repairs. Public Works Department: Canal Division. Special Funds: Black River Regulating District; Hudson River Regulating District; Canal Fund maintenance and repairs. General Fund: Canal maintenance. Canal Construction. Special Funds: Barge canal construction.</p>
4. PUBLIC WORKS DEPARTMENT . . .	<p><i>Miscellaneous Outlays from General Fund:</i></p> <p>This is the item "Public Works Department — outlays from General Fund" (other than Public Works Department outlays — Highway Division). It covers a variety of construction expenditures, largely on bridges and waterways, which can not be distributed between other major classes.</p>
5. PARKS AND RESERVATIONS	<p><i>From Tax Receipts.</i></p> <p>Conservation and Protective: Parks, reservations, memorials, etc.</p> <p><i>From Bond Issues:</i></p> <p>Special Funds: State Park System.</p>
6. HOLLAND TUNNEL	<p><i>From Tax Receipts:</i></p> <p>New York Bridge and Tunnel Commission: General Fund. Special Funds: New York-New Jersey Tunnel Fund.</p>
7. GRADE CROSSING ELIMINATIONS.	<p><i>From Tax Receipts:</i></p> <p>General Fund: Grade Crossing eliminations.</p> <p><i>From Bond Issues:</i></p> <p>Special Funds: Grade Crossing Elimination Fund.</p>

APPENDIX G

TABLE 1.—TOTAL FEDERAL EXPENDITURES FOR NEW CONSTRUCTION BY CONTROLLING ORGANIZATIONS, 1919-1929^a

(In thousands)

Department, Bureau or Office	1919	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929
<i>Building and Ground Improvement</i>											
<i>Department of Commerce</i>											
Coast and Geodetic Survey.....		°	\$8	°	\$2	....	\$4	\$3	\$7	\$3	\$2
Bureau of Fisheries.....	\$64	\$113	99	\$10	6	....	29	6	18	21	48
Bureau of Lighthouses											
Engineering Construction Division.....	760	776	574	406	503	\$479	429	492	561	781	710
Bureau of Mines.....									100	3	180
Bureau of Standards.....	62	9	9	9	9	9	10	9	259	8	31
<i>Department of the Interior</i>											
Freedman's Hospital.....					60	....	....	50	....	10	220
Howard University.....	4			201	16	....	197	370	....	....	....
St. Elizabeth's Hospital.....	186	25	15	....	104	28	46	15	7	210	....
National Park Service.....	56	26	99	163	92	178	112	99	124	149	268
<i>Department of Justice</i>											
Superintendent of Prisons.....	727	351	221	198	179	356	349	1,223	1,425	341	177
<i>Department of Labor</i>											
Bureau of Immigration.....	41	....	48	78	38	5	....	5	....	....	....
<i>Navy Department^b</i>	84,416	82,288	41,183	31,557	18,686	16,774	16,777	8,372	7,768	7,658	9,383
<i>Department of the Treasury</i>											
Supervising Architect.....	8,860	6,431	7,883	10,053	9,187	5,185	3,952	3,343	2,619	6,551	10,921
<i>War Department</i>											
Quartermaster Corps.....	143,367	4,052	5,118	1,807	1,134	660	529	1,205	7,803	5,513	12,259
Veterans' Bureau.....							2,903	4,268	6,117	6,412	4,495
Architect of the Capitol.....	216	170	....	....	....	....	....	93	745	....	387
D. C. Engineering Department.....	120	458	173	2,400	2,025	1,046	1,024	1,526	2,360	1,551	4,639
Public Buildings and Public Parks.....	409	346	162	545	234	113	144	206	353	835	225
Panama Canal and Railroad.....	1,986	1,933	757	35	35	197	423	338	1,235	1,584	1,592
Total.....	\$241,274	\$96,978	\$56,849	\$47,462	\$32,290	\$25,030	\$26,928	\$21,623	\$31,501	\$31,630	\$45,537

^a The figures are for fiscal years ending June 30th.
^b Including all types of construction at shore stations.
^c Less than \$500.

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APPENDIX G

TABLE 1. — TOTAL FEDERAL EXPENDITURES FOR NEW CONSTRUCTION BY CONTROLLING ORGANIZATIONS, 1919-1929— *Continued*
(In thousands)

Department, Bureau or Office	1919	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929
<i>Roads</i>											
<i>Department of Agriculture</i>											
Bureau of Public Roads.....	\$3,753	\$23,539	\$60,943	\$93,075	\$79,448	\$100,787	\$102,053	\$89,194	\$90,002	\$89,869	\$91,505
<i>Department of the Interior</i>											
National Park Service.....	145	104	64	251	213	376	1,212	1,299	1,250	3,011	3,601
<i>War Department</i>											
Quartermaster Corps.....	16,052	392	93	....	42	145	48	....	•	374	283
D. C. Engineering Department.....	735	1,115	1,190	820	825	1,162	2,241	2,724	1,775	2,312	2,812
Public Buildings and Public Parks.....	....	....	....	25	10	15	6	384	1,456	2,264	2,375
Board of Road Commissioners for Alaska.....	95	68	227	148	238	382	496	640	517	296	434
Panama Canal and Railroads.....	951	124	19	10	38	13	18	20	58	118	203
Total.....	\$21,731	\$25,342	\$62,536	\$94,329	\$80,810	\$102,880	\$106,069	\$94,261	\$95,058	\$97,744	\$101,213
<i>Drainage, Irrigation, Power, Water, Dams, etc.</i>											
<i>Department of the Interior</i>											
National Park Service.....	\$31	\$8	\$112	\$74	\$79	\$119	\$135	\$110	\$57	\$47	\$150
Bureau of Reclamation.....	5,928	4,040	6,351	6,467	8,399	8,826	7,902	6,653	5,324	7,025	7,940
<i>War Department</i>											
Corps of Engineers.....	5,438	12,677	17,413	7,965	11,226	17,748	19,264	13,236	10,472	9,351	19,396
Quartermaster Corps.....	43,227	1,613	438	369	192	113	246	87	130	712	210
D. C. Engineering Department.....	612	443	680	695	825	1,061	1,428	1,779	1,614	1,896	1,909
Public Buildings and Public Parks.....	10	....	....	....	....	....	....	....	....	....	....
Panama Canal and Railroad.....	1,450	325	440	34	90	70	146	1,027	1,080	231	121
Total.....	\$56,696	\$19,106	\$25,434	\$15,604	\$20,811	\$27,937	\$29,121	\$22,892	\$18,677	\$19,262	\$29,726
<i>Floating Equipment</i>											
<i>Department of Commerce</i>											
Coast and Geodetic Survey.....	\$43	....	....	....	....	....	....	....	....	....	\$411
Bureau of Fisheries.....	....	....	....	....	....	....	....	....	\$40	\$60	46
Bureau of Lighthouses											
Marine Engineering Division.....	3,356	\$258	\$777	\$438	\$1,000	\$128	....	\$244	669	....	....
Navy Department.....	374,333	181,692	168,379	98,101	45,852	47,728	\$36,554	34,962	37,677	34,097	49,712
Panama Canal and Railroad.....	....	....	1,217	....	....	59	208	261	382	695	52
Total.....	\$377,732	\$181,950	\$170,373	\$98,539	\$46,852	\$47,915	\$36,762	\$35,467	\$38,768	\$34,852	\$50,221

* The figures are for fiscal years ending June 30th.
• Less than \$500.

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APPENDIX G

TABLE 1. — TOTAL FEDERAL EXPENDITURES FOR NEW CONSTRUCTION BY CONTROLLING ORGANIZATIONS, 1919-1929 * — *Continued.*
(In thousands)

Department, Bureau or Office	1919	1920	1921	1922	1923 *	1924	1925	1926	1927	1928	1929
<i>Waterways and Water Front Improvements</i>											
<i>Department of Labor</i>											
Bureau of Immigration.....	\$120	\$167	\$10	....	....	....	....	....	....	....	....
<i>War Department</i>											
Corps of Engineers.....	13,796 ^b	22,856	27,325	\$16,715	\$21,569	\$33,685	\$36,401	\$29,866	\$25,804	\$31,039	\$31,257
Quartermaster Corps.....	333	39	28	20	2	....	67	....	2	35	37
<i>Panama Canal and Railroad</i>	1,597	342	1,107	277	5	118	170	66	88	82	....
Total	\$15,946	\$23,404	\$28,470	\$17,012	\$21,576	\$33,803	\$36,638	\$29,932	\$25,894	\$31,156	\$31,294
<i>Miscellaneous</i>											
<i>Department of Commerce</i>											
Bureau of Aeronautics.....	....	....	....	....	....	....	....	....	\$300	\$1,800	\$1,740
Coast and Geodetic Survey.....	....	....	....	....	....	....	....	....	....	....	4
Bureau of Fisheries.....	....	....	....	....	....	....	....	....	....	....	....
<i>Department of Labor</i>											
Bureau of Immigration.....	....	....	\$12	....	....	....	....	....	....	....	....
<i>War Department</i>											
Corps of Engineers.....	\$2,640	\$2,836	3,443	\$3,504	\$1,662	\$2,357	\$2,611	\$2,160	2,661	5,587	6,101
Quartermaster Corps.....	528	....	....	....	....	....	....	....	....	....	....
D. C. Engineering Department.....	84	84	86	95	113	120	153	201	271	300	313
Total	\$3,252	\$2,920	\$3,541	\$3,599	\$1,775	\$2,477	\$2,764	\$2,361	\$3,232	\$7,687	\$8,158

* The figures are for fiscal years ending June 30th

^b Less than \$500.

APPENDIX G

TABLE 1. — TOTAL FEDERAL EXPENDITURES FOR NEW CONSTRUCTION BY CONTROLLING ORGANIZATIONS, 1919-1929* — *Continued*
(In thousands)

Department, Bureau or Office	1919	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929
<i>Total—All Types of Construction</i>											
<i>Department of Agriculture</i>											
Bureau of Public Roads.....	\$3,753	\$23,539	\$60,943	\$93,075	\$79,448	\$100,786	\$102,053	\$ 89,195	\$90,002	\$89,369	\$91,505
<i>Department of Commerce</i>											
Bureau of Aeronautics.....	.....	.....	.....	.....	.....	.....	.....	.....	300	1,800	1,740
Coast and Geodetic Survey.....	43	.....	8	.....	2	.....	4	3	7	3	413
Bureau of Fisheries.....	64	113	99	10	6	.....	29	6	58	81	98
Bureau of Lighthouses											
Engineering Construction Division.....	760	776	574	496	503	479	429	492	561	781	710
Marine Engineering Division.....	3,356	258	777	437	1,000	123	.....	245	699	.....	.....
Bureau of Mines.....	.....	.....	.....	.....	.....	.....	.....	.....	100	3	180
Bureau of Standards.....	62	9	9	9	9	9	10	8	259	8	81
<i>Department of the Interior</i>											
Freedman's Hospital.....	.....	.....	.....	.....	60	.....	.....	50	.....	10	220
Howard University.....	4	.....	.....	201	16	.....	197	370	.....	.....	.....
St. Elizabeth's Hospital.....	186	25	15	.....	104	28	46	15	7	210	.....
National Park Service.....	232	138	275	488	384	673	1,459	1,508	1,431	3,207	4,019
Bureau of Reclamation.....	5,928	4,039	6,351	6,467	8,399	8,526	7,902	6,653	5,324	7,025	79,40
<i>Department of Justice</i>											
Superintendent of Prisons.....	727	351	221	198	179	356	349	1,223	1,425	341	177
<i>Department of Labor</i>											
Bureau of Immigration.....	161	167	69	78	38	5	.....	5	.....	.....	.....
Navy Department.....	458,749	263,980	209,563	129,658	64,539	64,501	53,331	43,334	45,445	41,755	59,095
<i>Department of the Treasury</i>											
Supervising Architect.....	8,860	6,431	7,884	10,058	9,167	5,185	3,952	3,343	2,619	6,551	10,922
<i>War Department</i>											
Corps of Engineers.....	21,374	38,370	43,181	28,184	34,456	53,790	58,275	45,261	38,937	45,976	56,754
Quartermaster Corps.....	203,508	6,095	5,677	2,195	1,370	919	890	1,292	7,935	6,634	12,787
<i>Veterans' Bureau</i>.....	.....	.....	.....	.....	.....	.....	2,903	4,268	6,117	6,412	4,495
<i>Architect of the Capitol</i>	216	170	.....	.....	.....	.....	.....	93	745	.....	287
<i>D. C. Engineering Department</i>	1,551	2,100	2,129	4,010	3,758	3,389	4,946	6,231	6,020	6,061	9,673
<i>Public Buildings and Public Parks</i>	419	346	162	570	244	128	150	590	1,809	3,089	2,500
<i>Board of Road Commissioners for Alaska</i>	95	68	227	148	236	382	496	640	517	296	434
<i>Panama Canal and Railroad</i>	5,984	2,725	3,540	358	166	457	961	1,712	2,843	2,709	1,969
Total.....	\$716,532	\$349,700	\$346,704	\$276,545	\$204,114	\$240,041	\$238,282	\$206,537	\$213,130	\$222,331	\$266,149

* The figures are for fiscal years ending June 30th.
 † Less than \$500.

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APPENDIX G

TABLE 2. — TOTAL FEDERAL CONSTRUCTION EXPENDITURES FOR REPAIRS AND MAINTENANCE BY CONTROLLING ORGANIZATION, 1919-1929 ^a

Contract or Special Force

(In thousands)

<i>Department, Bureau or Office</i>	1919	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929
<i>Department of Commerce</i>											
Bureau of Aeronautics.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Coast and Geodetic Survey.....	^b	^b	^b	^b	^b	^b	\$1	\$1	\$2	\$3	\$1
Bureau of Fisheries.....	\$3	\$19	\$6	\$8	\$3	.....	.....	^b \$1	1	5	83
Bureau of Lighthouses											
Engineering Construction Division.....	412	578	554	559	625	\$666	678	760	725	813	840
Marine Engineering Division.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Bureau of Mines.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Bureau of Standards.....	13	14	14	14	13	15	14	13	14	13	14
<i>Department of the Interior</i>											
Freedman's Hospital.....	3	4	4	9	12	7	4	9	6	6	3
Howard University.....	.....	6	8	7	8	7	7	8	9	11	12
St. Elizabeth's Hospital.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
National Park Service.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Bureau of Reclamation.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
<i>Department of Labor</i>											
Bureau of Immigration.....	59	12	113	84	117	420	105	120	60	59	274
<i>Navy Department</i>											
<i>Department of the Treasury</i>											
Supervising Architect.....	939	900	917	856	813	773	713	859	939	1,025	1,037
<i>War Department</i>											
Corps of Engineers.....	12,850	15,194	17,527	16,901	17,580	20,578	22,889	22,986	26,555	25,170	24,778
Quartermaster Corps.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	831	658
U. S. Shipping Board.....	.....	.....	.....	.....	.....	480	199	356	178	99	45
Veterans Bureau.....	.....	.....	.....	.....	.....	.....	4,438	1,060	1,182	1,094	769
D. C. Engineering Department.....	442	450	550	503	496	567	582	768	780	1,111	1,006
Public Buildings and Public Parks.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Board of Road Commissioners for Alaska.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Total.....	\$14,721	\$17,177	\$19,693	\$18,941	\$19,677	\$23,513	\$29,630	\$26,970	\$30,451	\$30,240	\$29,520

^a This includes all types of construction. The figures are for fiscal years ending June 30th.

^b Less than \$500.

APPENDIX G

TABLE 2. — TOTAL FEDERAL CONSTRUCTION EXPENDITURES FOR REPAIRS AND MAINTENANCE BY CONTROLLING ORGANIZATION, 1919-1929^a— *Continued*

		<i>Regular Force</i> (In thousands)										
<i>Department, Bureau or Office</i>		1919	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929
<i>Department of Commerce</i>												
Bureau of Aeronautics.....		....	....	....	....	....	....	....	....	....	....	....
Coast and Geodetic Survey.....		....	....	....	....	....	....	....	....	....	....	....
Bureau of Fisheries.....		....	....	....	....	....	....	....	....	....	....	....
Bureau of Lighthouses												
Engineering Construction Division.....		....	....	....	....	....	....	....	....	....	....	....
Marine Engineering Division.....		....	....	....	....	....	....	....	....	....	....	....
Bureau of Mines.....		....	....	....	....	....	....	....	....	....	....	....
Bureau of Standards.....		\$5	\$4	\$4	\$4	\$5	\$3	\$4	\$5	\$4	\$5	\$4
<i>Department of the Interior</i>												
219	Freedman's Hospital.....	3	3	4	4	4	4	6	5	7	7	10
	Howard University.....	....	51	68	62	73	64	59	68	78	97	110
	St. Elizabeth's Hospital.....	55	60	80	100	100	100	108	108	120	125	285
	National Park Service.....	300	309	393	432	426	514	691	552	557	690	779
	Bureau of Reclamation.....	1,833	2,144	2,978	2,104	2,115	2,521	2,553	2,402	1,815	1,757	1,779
<i>Department of Labor</i>												
Bureau of Immigration.....		....	....	....	....	....	....	....	....	....	....	....
<i>Navy Department</i>												
<i>Department of the Treasury</i>												
Supervising Architect.....		....	....	....	....	....	....	....	....	....	....	....
<i>War Department</i>												
Corps of Engineers.....		....	....	....	....	....	....	....	....	....	....	....
Quartermaster Corps.....		....	....	....	....	....	....	....	....	....	5,068	5,647
U. S. Shipping Board.....		....	....	....	....	....	10	237	52	128	45	105
Veterans Bureau.....		....	....	....	....	....	....	890	947	1,155	1,221	1,444
D. C. Engineering Department.....		1,127	1,191	1,334	1,396	1,869	1,575	1,678	1,902	2,083	2,478	2,183
Public Buildings and Public Parks.....		....	....	....	....	....	....	....	....	....	....	....
Board of Road Commissioners for Alaska.....		....	....	....	....	....	....	....	....	....	....	....
Total.....		\$3,323	\$3,762	\$4,861	\$4,102	\$4,092	\$4,791	\$6,124	\$6,039	\$5,947	\$11,493	\$12,346

^a This includes all types of construction. The figures are for fiscal years ending June 30th.

APPENDIX G

TABLE 2.—TOTAL FEDERAL CONSTRUCTION EXPENDITURES FOR REPAIRS AND MAINTENANCE BY CONTROLLING ORGANIZATION, 1919-1929 *—Continued

Special or Regular Force (Not Specified)
(In thousands)

Department, Bureau or Office	1919	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929
<i>Department of Commerce</i>											
Bureau of Aeronautics .....	....	....	....	....	....	....	....	....	\$200	\$200	\$200
Coast and Geodetic Survey	\$34	\$73	\$60	\$87	\$70	\$69	\$75	\$72	79	78	79
Bureau of Fisheries .....	....	....	....	....	....	....	....	....	....	....	....
Bureau of Lighthouse Engineering Construction Division.....	....	....	....	....	....	....	....	....	....	....	....
Marine Engineering Division.....	506	756	628	510	603	576	567	466	626	642	512
Bureau of Mines	11	11	11	11	11	11	11	11	11	11	11
Bureau of Standards .....	....	....	....	....	....	....	....	....	....	....	....
<i>Department of the Interior</i>											
Freedman's Hospital .....	....	....	....	....	....	....	....	....	....	....	....
Howard University .....	....	....	....	....	....	....	....	....	....	....	....
St. Elizabeth's Hospital .....	....	....	....	....	....	....	....	....	....	....	....
National Park Service .....	....	....	....	....	....	....	....	....	....	....	....
Bureau of Reclamation .....	....	....	....	....	....	....	....	....	....	....	....
<i>Department of Labor</i>											
Bureau of Immigration .....	....	....	....	....	....	....	....	....	....	....	....
Navy Department	51,203	48,482	47,042	23,673	17,261	16,870	19,746	20,976	22,279	20,394	24,073
<i>Department of the Treasury</i>											
Supervising Architect .....	....	....	....	....	....	....	....	....	....	....	....
<i>War Department</i>											
Corps of Engineers .....	....	....	....	....	....	....	....	....	....	....	....
Quartermaster Corps .....	....	....	....	....	....	....	....	....	....	....	....
U. S. Shipping Board .....	....	....	....	....	....	22,616	12,877	11,190	14,774	15,900	16,972
Veterans Bureau .....	....	....	....	....	....	....	....	....	....	....	....
<i>D. C. Engineering Department</i>											
Public Buildings and Public Parks	1,547	1,821	1,474	1,280	1,397	1,607	1,728	1,827	1,829	1,815	2,011
Board of Road Commissioners for Alaska	152	64	123	279	820	348	279	374	873	564	563
Total	\$53,553	\$51,207	\$49,338	\$25,820	\$19,662	\$42,097	\$35,083	\$34,916	\$40,171	\$39,604	\$44,421

* This includes all types of construction The figures are for fiscal years ending June 30th.

APPENDIX G

TABLE 2.—TOTAL FEDERAL CONSTRUCTION EXPENDITURES FOR REPAIRS AND MAINTENANCE BY CONTROLLING ORGANIZATION, 1919-1929—Continued

Total (Special, Regular and Not Specified Forces)
(In thousands)

Department, Bureau or Office	1919	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929
<i>Department of Commerce</i>											
Bureau of Aeronautics.....	....	....	....	....	....	....	....	....	\$200	\$200	\$200
Coast and Geodetic Survey.....	\$34	\$74	\$60	\$68	\$71	\$69	\$76	\$73	81	81	80
Bureau of Fisheries.....	3	20	6	8	3	....	....	....	1	5	83
<i>Bureau of Lighthouses</i>											
Engineering Construction Division.....	412	578	554	559	625	666	679	760	724	818	840
Marine Engineering Division.....	505	756	628	510	603	578	567	466	626	642	512
Bureau of Mines.....	11	11	11	11	11	11	11	11	11	11	11
Bureau of Standards.....	18	18	18	18	18	18	18	18	18	18	18
<i>Department of the Interior</i>											
Freedman's Hospital.....	6	7	8	13	15	11	10	14	14	13	12
Howard University.....	..	56	76	69	81	71	66	76	86	107	122
St. Elisabeth's Hospital.....	55	60	80	100	100	100	106	106	120	125	285
National Park Service.....	300	309	393	433	426	514	591	553	557	690	779
Bureau of Reclamation.....	1,833	2,143	2,978	2,104	2,115	2,522	2,552	2,402	1,815	1,757	1,779
<i>Department of Labor</i>											
Bureau of Immigration.....	59	12	118	84	117	420	105	120	60	59	274
Navy Department.....	51,303	48,482	47,042	23,673	17,261	16,870	19,746	20,976	22,279	20,394	24,073
<i>Department of the Treasury</i>											
Supervising Architect.....	939	900	917	856	813	772	713	889	939	1,025	1,037
<i>War Department</i>											
Corps of Engineers.....	12,850	15,194	17,527	16,901	17,590	20,578	22,889	22,986	26,555	25,170	24,778
Quartermaster Corps.....	....	....	....	....	....	....	....	....	....	5,900	6,306
U. S. Shipping Board.....	....	....	....	....	....	23,106	13,113	11,598	15,080	16,044	17,121
Veterans Bureau.....	....	....	....	....	....	....	5,328	2,007	2,337	2,315	2,214
D. C. Engineering Department.....	1,569	1,641	1,894	1,899	1,865	2,142	2,261	2,670	2,893	3,589	3,189
Public Buildings and Public Parks.....	1,547	1,821	1,474	1,279	1,397	1,607	1,728	1,826	1,829	1,815	2,011
Board of Road Commissioners for Alaska.....	152	64	123	279	320	348	279	374	373	564	563
Total.....	\$71,597	\$72,146	\$73,892	\$48,864	\$43,431	\$70,401	\$70,838	\$67,925	\$76,568	\$81,337	\$86,287

* This includes all types of construction. The figures are for fiscal years ending June 30th.
 † Less than \$500.

APPENDIX G

TABLE 3. — TOTAL FEDERAL EXPENDITURES FOR NEW CONSTRUCTION BY GEOGRAPHICAL DIVISIONS, 1919-1929^a

(In thousands)

<i>Division</i>	1919	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929
New England.....	\$24,229	\$24,044	\$15,902	\$11,109	\$11,176	\$11,019	\$18,604	\$13,320	\$14,044	\$10,884	\$8,434
Middle Atlantic.....	79,725	52,821	38,867	28,291	17,318	22,944	28,477	21,352	27,038	27,784	27,959
East North Central.....	44,399	11,572	17,649	22,404	20,671	21,839	23,522	19,703	20,797	26,115	30,394
West North Central.....	6,801	4,382	13,003	18,940	14,742	22,371	20,941	22,154	25,409	21,668	22,806
South Atlantic.....	137,356	59,430	48,465	41,476	26,206	26,273	29,451	35,123	39,355	30,662	39,047
East South Central.....	27,436	11,961	17,258	13,583	16,183	27,573	26,093	18,569	15,542	16,163	16,437
West South Central.....	30,098	12,682	15,748	18,568	18,577	19,493	19,633	16,668	13,386	13,190	25,287
Mountain.....	6,336	7,496	16,137	17,424	18,366	21,878	21,204	17,095	17,685	21,568	22,547
Pacific.....	29,567	27,569	34,131	23,254	24,361	25,427	25,221	24,467	17,728	23,394	31,471
Total United States.....	\$385,947	\$211,757	\$217,160	\$195,049	\$167,600	\$198,817	\$213,146	\$188,451	\$190,984	\$191,426	\$224,382
Alaska.....	148	380	769	530	1,010	1,137	1,030	1,245	1,148	869	1,113
Hawaii.....	1,544	2,059	1,827	1,728	3,964	7,534	2,112	2,289	2,206	3,050	5,077
Porto Rico.....	24	297	352	271	264	201	175	143	261	248	21
Panama.....	6,268	2,744	3,786	587	187	515	1,416	1,761	2,941	3,034	2,274
Undistributed.....	322,601	132,463	123,010	78,382	81,089	81,837	20,403	12,648	15,590	23,704	33,282
Grand Total.....	\$716,532	\$349,700	\$346,704	\$276,545	\$204,114	\$240,041	\$238,282	\$206,537	\$213,130	\$222,331	\$266,149

^a This includes all types of construction. The years are fiscal years ending June 30th.

APPENDIX H

TABLE 1.—PUBLIC CONSTRUCTION CONTRACTS AWARDED IN CHICAGO DISTRICT (THE CENTRAL WEST), 1919-1929*

(In thousands)

Purpose	1919	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929
Educational buildings	\$41,718 *	\$48,958	\$79,239	\$82,265	\$61,512	\$75,471	\$90,529	\$116,209 ^b	\$95,626 ^b	\$106,944 ^b	\$100,991 ^b
Hospitals and institutions	11,709	16,669	21,836	27,290	15,822	22,619	28,850	29,825	40,911	35,042	38,676
Military and naval buildings	771	1,070	3,493	1,021	484	1,027	1,151	816	1,750	2,702	2,026
Public buildings	2,982	7,321	10,833	17,061	6,839	3,900	8,870	14,679	24,838	13,258	18,061
Waterfront developments	17,705	7,855	6,316	7,911	13,609	17,699	7,025	11,957	11,838	22,802	21,191
Bridges	16,458	15,924	12,722	15,182	22,124	20,098	20,914	28,036	42,552	44,847	35,408
Incinerators	43	20	38	130	509	377	270	326	1,464	412	272
Lighting systems	1,773	44,020	2,311	4,160	4,358	3,498	11,033	8,489	8,786	9,735	9,452
Docks and piers	444	1,286	3,137	651	290	1,113	4,057	"	"	"	"
Subways and tunnels	1,050	3,820	130	3,094	235	1,325	580	"	"	"	"
Sewage systems	22,362	17,762	24,805	22,457	24,441	16,634	58,448	35,436	52,746	55,425	45,911
Street paving and road construction	82,647	95,494	97,672	141,372	125,444	105,840	133,589	147,572	170,973	207,532	188,921
Water supply systems	5,817	16,638	14,890	12,363	16,494	20,931	17,174	32,966	32,901	15,725	22,249
Parks (public)	825	455	155	604	78	119	101	1,286 ^d	2,951 ^d	944 ^d	376 ^d
Total public construction	\$206,804	\$277,082	\$278,577	\$336,341	\$290,749	\$290,649	\$377,591	\$427,496	\$487,336	\$515,368	\$483,534
Total public construction (in- clusive of private schools and exclusive of subways, tunnels, docks and piers	\$209,235	\$277,988	\$281,389	\$348,715	\$305,343	\$305,270	\$416,869	\$427,496	\$487,336	\$515,368	\$483,534

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Sources: F. W. Dodge Corporation, Statistical Division.

* Covers Illinois, Indiana, Iowa, Wisconsin, South Michigan, Missouri, Kansas, Oklahoma, Nebraska.

^b Private schools, which were subtracted from the figures for educational buildings in earlier years, are included in these four years. In 1919 they amounted to \$3,923,921; in 1920 to \$5,812,700; in 1921 to \$6,079,000; in 1922 to \$16,319,600; in 1923 to \$15,119,300; in 1924 to \$17,058,400; and in 1925 to \$43,914,800.

^c Not reported in these four years.

^d Estimated as one-half total parks.

APPENDIX H

TABLE 2. — PUBLIC CONSTRUCTION CONTRACTS AWARDED IN NEW YORK DISTRICT (NEW YORK STATE AND NORTHERN NEW JERSEY), 1919-1929

(In thousands)

Purpose	1919	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929
Educational buildings.....	\$21,842	\$33,617	\$28,498	\$58,377	\$75,703	\$87,445	\$53,301	\$68,998 ^a	\$77,329 ^a	\$101,967 ^a	\$98,233 ^a
Hospitals and institutions.....	13,369	12,794	13,908	26,444	20,756	38,683	23,425	47,688	53,291	54,191	44,711
Military and naval buildings.....	7,939	3,170	330	308	408	74	2,406	750	1,878	4,735	2,982
Public buildings.....	1,756	10,576	3,393	5,987	3,953	13,412	11,025	12,179	12,575	19,086	30,968
Waterfront developments.....	9,336	3,472	6,324	4,551	4,944	3,952	3,794	4,911	9,248	5,265	9,920
Bridges.....	3,164	10,452	2,827	3,913	5,152	3,250	13,116	27,438	43,040	15,158	14,833
Incinerators.....	339	312	76	37	250	1,538	611	916	2,952	2,065	687
Lighting systems.....	257	12,722	1,457	3,708	5,758	6,137	12,800	12,507	4,672	2,819	4,276
Docks and piers.....	5,776	35,373	1,089	2,872	732	399	8,905	b	b	b	b
Subways and tunnels.....	266	666	68	23,654	6,590	2,581	64,405	70,000 ^b	80,000 ^b	85,000 ^b	95,000 ^b
Sewage systems.....	17,400	7,785	2,711	5,757	6,412	5,943	4,581	16,336	24,220	17,416	21,383
Street paving and road construction.	42,049	40,841	29,597	30,069	25,714	25,524	17,475	52,045	107,333	106,471	117,933
Water supply systems.....	1,744	10,370	1,146	8,013	2,390	11,434	969	4,438	8,591	57,034	8,587
Parks (public).....	83	221	70	70	683	197	200	202 ^d	650 ^d	476 ^d	1,150 ^d
Total public construction.....	\$125,320	\$182,371	\$91,494	\$173,740	\$159,445	\$200,569	\$216,813	\$318,408	\$425,779	\$471,683	\$450,643
Total public construction (in- clusive of private schools and exclusive of subways, tunnels, docks and piers).....	\$120,994	\$148,765	\$98,016	\$157,462	\$159,845	\$220,078	\$161,006	\$248,408	\$345,779	\$386,683	\$355,643

Source: F. W. Dodge Corporation, Statistical Division.

^a Private schools, which were subtracted from the figures for educational buildings in earlier years, are included in these four years. In 1919 they amounted to \$1,715,800; in 1920 to \$2,433,000; in 1921 to \$7,679,000; in 1922 to \$10,248,500; in 1923 to \$7,721,700; in 1924 to \$22,489,100; and in 1925 to \$17,501,900.

^b Not reported in these four years.

^c Not reported in these four years. These figures represent mainly estimates of subway construction in New York City.

^d Estimated as one-half total parks.

APPENDIX H

TABLE 3. — PUBLIC CONSTRUCTION CONTRACTS AWARDED IN PITTSBURGH DISTRICT, 1919-1929*

(In thousands)

Purpose	1919	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929
Educational buildings.....	\$16,110	\$29,808	\$44,027	\$41,361	\$41,650	\$29,535	\$54,436	\$43,963 ^b	\$51,672 ^b	\$45,098 ^b	\$42,899 ^b
Hospitals and institutions.....	3,339	9,029	10,927	5,507	9,142	16,083	15,587	13,119	17,869	24,640	23,412
Military and naval buildings.....	265	954	384	468	410	321	532	4,562	913	893	208
Public buildings.....	2,494	4,823	2,976	3,880	3,103	3,682	3,769	6,229	5,368	4,071	9,170
Waterfront developments.....	6,504	4,948	2,755	5,992	7,609	4,544	5,255	6,161	5,649	5,737	4,884
Bridges.....	7,825	9,915	15,027	7,849	9,720	3,969	22,014	20,672	31,397	27,552	21,088
Incinerators.....	86	16	165	205	1,349	234	195	490	577	299	431
Lighting systems.....	516	1,817	602	1,737	4,738	1,264	5,486	862	3,332	4,648	9,131
Docks and piers.....	1,870	80	22	693	1,022	820	1,843	"	"	"	"
Subways and tunnels.....	4,738	500	65	158	443	250	1,766	"	"	"	"
Sewage systems.....	9,172	3,308	10,741	12,297	12,275	15,259	17,430	20,213	28,397	16,021	16,838
Street paving and road construction	69,494	52,613	77,688	76,218	91,242	91,351	96,419	102,122	105,457	108,450	108,422
Water supply systems.....	6,676	9,813	7,644	5,675	11,027	9,822	13,614	9,435	5,411	6,932	6,811
Parks (public).....	8	10	31	2	214	43	28	146 ^d	940 ^d	202 ^d	163 ^d
Total public construction.....	\$129,092	\$132,632	\$173,054	\$165,042	\$193,944	\$182,177	\$238,374	\$227,974	\$256,982	\$244,543	\$241,457
Total public construction (in- clusive of private schools and exclusive of subways, tunnels, docks and piers).....	\$123,656	\$133,446	\$176,688	\$169,632	\$196,811	\$189,170	\$241,881	\$227,974	\$256,982	\$244,543	\$241,457

Sources: F. W. Dodge Corporation, Statistical Division.

* Covers Western Pennsylvania, West Virginia, Ohio, Kentucky.

^b Private schools, which were subtracted from the figures for educational buildings in earlier years, are included in these four years, in 1919 they amounted to \$1,173,300; in 1920 to \$1,394,000; in 1921 to \$3,720,000; in 1922 to \$5,441,000; in 1923 to \$4,332,000; in 1924 to \$8,063,000; and in 1925 to \$7,115,800.

^c Not reported in these four years.

^d Estimated as one-half total parks.

APPENDIX H

TABLE 4. — PUBLIC CONSTRUCTION CONTRACTS AWARDED IN ATLANTA DISTRICT
(SOUTHEASTERN STATES), 1923-1929^a

(In thousands)

Purpose	1923	1924	1925	1926	1927	1928	1929
Educational buildings	\$39,064	\$44,206	\$34,742	\$45,934 ^b	\$45,024 ^b	\$39,323 ^b	\$26,789 ^b
Hospitals and institutions	16,090	14,154	10,868	9,809	9,807	8,309	8,248
Military and naval buildings	561	89	953	1,151	942	1,623	1,309
Public buildings	4,116	7,214	11,436	10,515	9,279	6,629	8,269
Waterfront developments	5,441	15,158	11,601	11,400	11,642	8,032	34,127
Bridges	13,785	12,502	16,991	23,021	20,954	37,270	18,508
Incinerators	272	379	504	419	749	702	286
Lighting systems	1,197	2,990	6,741	3,165	2,964	1,373	7,601
Docks and piers	4,617	3,120	2,748	.	.	.	.
Subways and tunnels	85	80	83	.	.	.	.
Sewage systems	3,331	4,657	9,816	9,217	11,580	5,953	5,870
Street paving and road construction	58,104	73,283	114,284	121,654	105,588	91,690	68,534
Water supply systems	6,467	9,864	8,910	10,987	7,553	6,455	3,743
Parks (public)	130	249	656	154 ^d	107 ^d	323 ^d	167 ^d
Total public construction	\$153,260	\$187,925	\$230,333	\$247,426	\$226,189	\$207,692	\$183,451
Total public construction (inclusive of private schools and exclusive of subways, tunnels, docks and piers) . . .	\$157,501	\$190,810	\$236,473	\$247,426	\$226,189	\$207,692	\$183,451

Source: F. W. Dodge Corporation, Statistical Division.

^a Covers North Carolina, South Carolina, Georgia, Florida, Tennessee, Alabama, Mississippi, Arkansas, Louisiana.

^b Private schools, which were subtracted from the figures for educational buildings in earlier years, are included in these four years. In 1923 they amounted to \$8,943,400; in 1924 to \$6,085,300; and in 1925 to \$8,971,500.

^c Not reported in these four years.

^d Estimated as one-half total parks.

APPENDIX H

TABLE 5. — PUBLIC CONSTRUCTION CONTRACTS AWARDED IN PHILADELPHIA DISTRICT
(MIDDLE ATLANTIC STATES), 1919-1929^a

(In thousands)

Purpose	1919	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929
Educational buildings.....	\$11,333	\$12,127	\$29,675	\$37,948	\$20,292	\$20,203	\$30,685	\$47,143 ^b	\$46,329 ^b	\$52,033 ^b	\$52,368 ^b
Hospitals and institutions.....	4,453	5,795	11,548	12,643	3,894	10,414	15,522	15,200	20,028	22,656	17,413
Military and naval buildings.....	5,769	5,853	882	1,034	735	205	822	673	2,419	2,817	1,398
Public buildings.....	1,919	1,193	3,388	3,157	1,239	2,945	4,040	5,830	5,316	5,851	31,313
Waterfront developments.....	6,587	2,597	1,536	3,667	2,772	4,874	1,695	3,152	3,100	4,959	4,811
Bridges.....	8,343	7,532	10,178	7,593	5,726	19,759	12,872	14,872	27,786	29,524	23,696
Incinerators.....	24	129	88	223	194	212	117	650	553	110	639
Lighting systems.....	167	1,260	1,789	987	773	1,759	826	918	3,739	3,085	1,253
Docks and piers.....	6,954	601	3,117	9,902	5,766	2,270	222	"	"	"	"
Subways and tunnels.....	112	100	160	215	1,221	28,016	11	"	"	"	"
Sewage systems.....	2,741	1,830	7,593	5,517	3,997	8,494	9,042	8,287	15,106	16,577	8,936
Street paving and road construction.....	35,545	28,154	55,531	55,709	21,183	28,227	33,132	40,340	47,365	55,469	47,141
Water supply systems.....	1,310	3,203	5,907	5,279	3,444	3,249	4,900	4,539	4,623	2,976	3,676
Parks (public).....	258	90	159	453	96	116	237	123 ^c	58 ^c	61 ^c	91 ^c
Total public construction.....	\$85,515	\$70,464	\$131,551	\$144,305	\$71,332	\$130,743	\$114,123	\$141,727	\$176,932	\$190,118	\$192,535
Total public construction (in- clusive of private schools and exclusive of subways, tunnels, docks and piers).....	\$80,130	\$71,638	\$131,226	\$141,134	\$67,929	\$108,030	\$123,061	\$141,727	\$176,932	\$190,118	\$192,535

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Source: F. W. Dodge Corporation, Statistical Division.

^a Covers Eastern Pennsylvania, Southern New Jersey, Maryland, Delaware, District of Columbia, Virginia.

^b Private schools, which were subtracted from the figures for educational buildings in earlier years, are included in these four years. In 1919 they amounted to \$1,680,680; in 1920 to \$1,874,200; in 1921 to \$2,951,600; in 1922 to \$6,945,800; in 1923 to \$3,584,200; in 1924 to \$7,573,000; and in 1925 to \$9,170,700.

^c Not reported in these four years.

^d Not reported in these four years. (Expenditures from loan funds for construction, improvement and equipment of Philadelphia subways, as reported in Comptroller's reports, amounted in 1919 to \$2,610,093; in 1920 to \$1,747,645; in 1921 to \$2,591,890; in 1922 to \$5,120,112; in 1923 to \$207,541; in 1924 to \$3,316,456; in 1925 to \$30,567,107; in 1926 to \$24,185,365; and in 1927 to \$18,966,420.)

^e Estimated as one-half total parks.

APPENDIX H

TABLE 6. — PUBLIC CONSTRUCTION CONTRACTS AWARDED IN BOSTON DISTRICT
(NEW ENGLAND STATES), 1919-1929^a

(In thousands)

Purpose	1919	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929
Educational buildings.....	\$11,019	\$17,683	\$21,304	\$20,541	\$22,010	\$28,670	\$38,233	\$35,708 ^b	\$45,549 ^b	\$43,710 ^b	\$42,308 ^b
Hospitals and institutions.....	3,663	4,324	8,105	10,133	7,225	8,267	11,068	10,319	14,331	13,847	14,374
Military and naval buildings.....	1,522	1,801	715	374	873	439	208	630	820	1,451	1,061
Public buildings.....	2,233	1,866	2,598	1,807	2,622	3,573	5,758	4,094	5,936	7,684	6,745
Waterfront developments.....	1,849	1,543	614	2,342	1,644	640	927	1,030	1,478	1,778	1,437
Bridges.....	2,097	8,614	2,563	4,789	5,927	5,387	3,608	7,647	7,986	9,269	5,159
Incinerators.....	35	.....	7	17	30	111	220	100	425	202	59
Lighting systems.....	446	1,960	406	2,137	2,645	2,246	1,825	3,125	3,354	2,186	2,666
Docks and piers.....	631	248	135	518	2,020	526	283	.....	.....	.....	.....
Subways and tunnels.....	482	16	1,725	111	.....	200	15	.....	.....	.....	.....
Sewage systems.....	3,958	2,366	952	4,076	3,144	3,694	3,846	3,637	3,924	3,860	4,214
Street paving and road construction.	15,394	13,422	9,192	12,958	15,922	10,394	13,954	19,150	20,856	28,876	27,216
Water supply systems.....	2,276	5,815	2,537	1,643	1,245	2,153	3,406	6,759	5,596	12,498	2,913
Parks (public).....	35	807	18	871	253	130	124	58 ^d	122 ^d	151 ^d	332 ^d
Total public construction.....	\$45,680	\$60,465	\$50,871	\$62,317	\$65,560	\$66,430	\$83,475	\$92,255	\$110,377	\$125,512	\$108,484
Total public construction (in- clusive of private schools and exclusive of subways, tunnels, docks and piers).....	\$45,999	\$62,370	\$51,000	\$71,444	\$68,958	\$75,874	\$99,862	\$92,255	\$110,377	\$125,512	\$108,484

SOURCE: F. W. Dodge Corporation, Statistical Division.

^a Covers Maine, New Hampshire, Rhode Island, Massachusetts, Vermont, Connecticut.

^b Private schools, which were subtracted from the figures for educational buildings in earlier years, are included in these four years. In 1919 they amounted to \$1,432,467; in 1920 to \$2,169,500; in 1921 to \$1,989,200; in 1922 to \$9,756,100; in 1923 to \$5,417,900; in 1924 to \$10,170,000; and in 1925 to \$16,485,000.

^c Not reported in these four years.

^d Estimated as one-half total parks.

APPENDIX H

TABLE 7. — PUBLIC CONSTRUCTION CONTRACTS AWARDED IN TEXAS DISTRICT, 1925-1929
(In thousands)

<i>Purpose</i>	<i>1925</i>	<i>1926</i>	<i>1927</i>	<i>1928</i>	<i>1929</i>
Educational buildings*	\$13,182	\$14,019	\$10,992	\$14,407	\$12,381
Hospitals and institutions.....	2,548	2,458	3,687	2,694	3,174
Military and naval buildings.....	175	105	620	648	300
Public buildings.....	2,241	4,091	3,895	3,758	3,615
Waterfront developments.....	4,157	1,110	949	3,259	12,329
Bridges.....	1,026	919	1,517	1,270	2,784
Incinerators.....	56	148	14	77	267
Lighting systems.....	138	156	6,155	486	956
Docks and piers.....	1,558	b	b	b	b
Subways and tunnels.....	.....	b	b	b	b
Sewage systems.....	1,053	6,336	3,510	4,025	2,129
Street paving and road construction.....	3,263	10,551	22,728	25,632	31,058
Water supply systems.....	4,022	2,836	6,198	4,232	2,255
Parks (public).....	.....	23 ^a	547 ^a	11 ^a	560 ^a
Total public construction.....	\$33,419	\$42,752	\$60,812	\$60,499	\$71,808

Source: F. W. Dodge Corporation, Statistical Division.

- * Includes private schools.
- ^b Not reported in these four years.
- ^a Estimated as one-half total parks.

APPENDIX H

TABLE 8. — PUBLIC CONSTRUCTION CONTRACTS AWARDED IN MINNEAPOLIS DISTRICT
(THE NORTHWEST), 1919-1929^a

(In thousands)

Purpose	1919	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929
Educational buildings.....	\$6,880	\$14,848	\$14,696	\$12,342	\$13,032	\$9,113	\$6,779	\$9,107 ^b	\$7,275 ^b	\$6,159 ^b	\$6,039 ^b
Hospitals and institutions.....	2,659	1,941	3,771	1,612	5,128	1,975	3,181	4,683	2,540	3,347	2,195
Military and naval buildings.....	125	149	569	389	58	46	93	31	133	303	58
Public buildings.....	1,038	868	3,374	559	1,912	588	1,041	986	2,287	733	3,396
Waterfront developments.....	982	3,327	2,739	1,293	4,398	387	358	348	144	5,746	1,740
Bridges.....	1,664	4,204	1,529	1,127	3,094	4,892	2,535	1,413	1,341	3,016	3,475
Incinerators.....	12	.....	97	.....	.....	68	16	.....	.....	.....	8
Lighting systems.....	246	115	213	156	455	210	474	468	347	646	347
Docks and piers.....	115	5	250	4,000	1,171	2,114	100	.....	.....	.....	.....
Subways and tunnels.....	35	3	4	.....	.....	.....	.....	.....	.....	.....	.....
Sewage systems.....	2,080	3,896	1,969	804	1,089	1,053	1,069	1,732	1,094	1,241	2,676
Street paving and road construction.....	7,390	8,751	14,359	7,850	14,620	11,876	8,275	13,870	13,883	12,073	21,246
Water supply systems.....	794	1,235	1,891	526	2,194	622	825	1,539	485	618	870
Parks (public).....	6	1	.....	.....	.....	.....	10	.....	2 ^d	.....	7 ^d
Total public construction.....	\$24,026	\$39,343	\$45,461	\$30,658	\$47,151	\$32,934	\$24,756	\$34,177	\$29,531	\$33,882	\$42,057
Total public construction (in- clusive of private schools and exclusive of subways, tunnels, docks and piers).....	\$24,562	\$40,909	\$46,059	\$27,394	\$46,885	\$32,166	\$25,995	\$34,177	\$29,531	\$33,882	\$42,057

SOURCE: F. W. Dodge Corporation, Statistical Division.

^a Covers Minnesota, North Dakota, South Dakota, North Michigan.

^b Private schools which were subtracted from the figures for educational buildings in earlier years, are included in these four years. In 1919 they amounted to \$686,435; in 1920 to \$1,574,000; in 1921 to \$852,000; in 1922 to \$735,900; in 1923 to \$905,000; in 1924 to \$1,346,500; and in 1925 to \$1,339,000.

^c Not reported in these four years.

^d Estimated as one-half total parks.

APPENDIX I

TABLE 1. — MUNICIPAL BOND YIELDS, 1900-1929

STANDARD STATISTICS INDEX YIELDS OF 15 MUNICIPAL BONDS AND BASIS AT WHICH NEW YORK CITY LONG TERM BONDS WERE ISSUED

Year	January Per Cent	February Per Cent	March Per Cent	April Per Cent	May Per Cent	June Per Cent	July Per Cent	August Per Cent	September Per Cent	October Per Cent	November Per Cent	December Per Cent
1900												
Standard Statistics Index Yields of 15 Municipal Bonds.....	3.12	3.13	3.12	3.11	3.11	3.11	3.13	3.13	3.13	3.13	3.12	3.08
Basis at which New York City Long Term Bonds were issued.....	3.09	...	3.03	...	...	3.03	...	...	...	3.07	3.02	3.98
	3.09										3.02	
											3.96	
											3.01	
1901												
Standard Statistics Index Yields of 15 Municipal Bonds.....	3.09	3.08	3.09	3.09	3.10	3.10	3.15	3.17	3.19	3.19	3.17	3.17
Basis at which New York City Long Term Bonds were issued.....	2.94	...	3.08	...	3.29	3.22	...	...	3.37	3.18	...	3.29
1902												
Standard Statistics Index Yields of 15 Municipal Bonds.....	3.17	3.18	3.19	3.15	3.15	3.19	3.21	3.20	3.21	3.21	3.25	3.26
Basis at which New York City Long Term Bonds were issued.....	...	...	...	...	3.24	3.27	...	...	...	...	3.20	...
					3.23	3.30					3.25	
					3.24	3.29						
1903												
Standard Statistics Index Yields of 15 Municipal Bonds.....	3.26	3.26	3.29	3.30	3.31	3.36	3.40	3.47	3.49	3.49	3.49	3.48
Basis at which New York City Long Term Bonds were issued.....	3.31	...	3.32	3.36	3.32	...	3.42	...	...	...	3.46	...
1904												
Standard Statistics Index Yields of 15 Municipal Bonds.....	3.48	3.49	3.52	3.51	3.49	3.48	3.42	3.40	3.40	3.39	3.39	3.38
Basis at which New York City Long Term Bonds were issued.....	3.49	...	3.50	...	3.48	...	...	...	...	...	3.40	...
					3.46							
1905												
Standard Statistics Index Yields of 15 Municipal Bonds.....	3.38	3.38	3.37	3.37	3.38	3.41	3.41	3.41	3.40	3.41	3.43	3.44
Basis at which New York City Long Term Bonds were issued.....	...	...	...	...	3.49	...	...	...	...	...	3.50	...
					3.47							

APPENDIX I

TABLE 1. — MUNICIPAL BOND YIELDS, 1900-1929—Continued

Year	January Per Cent	February Per Cent	March Per Cent	April Per Cent	May Per Cent	June Per Cent	July Per Cent	August Per Cent	September Per Cent	October Per Cent	November Per Cent	December Per Cent
1906												
Standard Statistics Index Yields of												
15 Municipal Bonds.....	3.44	3.45	3.48	3.47	3.51	3.54	3.57	3.64	3.70	3.69	3.67	3.67
Basis at which New York City Long												
Term Bonds were issued.....	...	3.65	...	...	...	...	...	...	...	...	3.91	3.94
												3.98
												3.99
1907												
Standard Statistics Index Yields of												
15 Municipal Bonds.....	3.68	3.70	3.73	3.72	3.76	3.80	3.80	3.86	3.93	4.00	4.11	4.17
Basis at which New York City Long												
Term Bonds were issued.....	...	3.98	...	...	...	...	3.99	4.00	4.46	...	...	...
		4.00					4.00	4.00	4.39			
		3.98										
1908												
Standard Statistics Index Yields of												
15 Municipal Bonds.....	4.17	4.00	3.97	3.98	3.95	3.90	3.93	3.91	3.89	3.86	3.82	3.79
Basis at which New York City Long												
Term Bonds were issued.....	...	4.29	...	...	...	...	...	...	...	...	3.89	...
		4.38									3.82	
1909												
Standard Statistics Index Yields of												
15 Municipal Bonds.....	3.75	3.73	3.72	3.74	3.75	3.77	3.78	3.80	3.79	3.82	3.83	3.85
Basis at which New York City Long												
Term Bonds were issued.....	...	...	...	...	3.93	3.96	...	...	...	...	...	3.98
						3.98						
1910												
Standard Statistics Index Yields of												
15 Municipal Bonds.....	3.87	3.88	3.91	3.93	3.97	3.99	4.04	4.03	4.02	4.00	3.97	4.01
Basis at which New York City Long												
Term Bonds were issued.....	...	...	4.16	...	...	...	...	...	...	...	...	...
1911												
Standard Statistics Index Yields of												
15 Municipal Bonds.....	3.99	3.99	3.98	3.97	3.96	3.96	3.97	3.97	4.00	4.00	4.01	4.00
Basis at which New York City Long												
Term Bonds were issued.....	4.21	...	...	...	...	...	...	...	...	...	...	...
1912												
Standard Statistics Index Yields of												
15 Municipal Bonds.....	4.00	3.99	4.00	4.01	4.01	4.02	4.01	4.01	4.03	4.04	4.08	4.09
Basis at which New York City Long												
Term Bonds were issued.....	...	...	...	...	4.21	...	...	...	...	...	...	...

APPENDIX I

TABLE 1. — MUNICIPAL BOND YIELDS, 1900-1929—Continued

Year	January Per Cent	February Per Cent	March Per Cent	April Per Cent	May Per Cent	June Per Cent	July Per Cent	August Per Cent	September Per Cent	October Per Cent	November Per Cent	December Per Cent
1913												
Standard Statistics Index Yields of 15 Municipal Bonds.....	4.09	4.08	4.12	4.16	4.20	4.25	4.35	4.32	4.36	4.30	4.21	4.23
Basis at which New York City Long Term Bonds were issued.....	...	...	...	...	4.49	...	...	...	...	...	...	...
1914												
Standard Statistics Index Yields of 15 Municipal Bonds.....	4.17	4.17	4.11	4.10	4.10	4.09	4.10	*	*	*	*	*
Basis at which New York City Long Term Bonds were issued.....	...	...	...	4.18	...	...	...	...	...	...	...	...
1915												
Standard Statistics Index Yields of 15 Municipal Bonds.....	4.15	4.14	4.13	4.14	4.23	4.21	4.23	4.23	4.19	4.18	4.08	4.03
Basis at which New York City Long Term Bonds were issued.....	...	...	...	...	...	4.44	...	...	...	...	...	...
						4.30						
1916												
Standard Statistics Index Yields of 15 Municipal Bonds.....	3.99	3.98	3.95	3.96	3.97	3.97	3.97	3.96	3.95	3.90	3.85	3.84
Basis at which New York City Long Term Bonds were issued.....	...	...	...	4.13	...	...	...	...	...	...	...	...
				4.03								
1917												
Standard Statistics Index Yields of 15 Municipal Bonds.....	3.82	3.90	3.94	4.08	4.15	4.26	4.29	4.32	4.38	4.35	4.44	4.51
Basis at which New York City Long Term Bonds were issued.....	...	...	...	...	...	...	4.46	...	...	...	...	...
							4.39					
1918												
Standard Statistics Index Yields of 15 Municipal Bonds.....	4.52	4.48	4.54	4.59	4.58	4.52	4.47	4.51	4.53	4.53	4.37	4.36
Basis at which New York City Long Term Bonds were issued.....	...	...	...	...	...	...	...	...	...	...	...	...
1919												
Standard Statistics Index Yields of 15 Municipal Bonds.....	4.43	4.46	4.53	4.52	4.47	4.44	4.44	4.45	4.44	4.45	4.45	4.47
Basis at which New York City Long Term Bonds were issued.....

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* Stock Exchange closed.

APPENDIX I

TABLE 1. — MUNICIPAL BOND YIELDS, 1900-1929—Continued

Year	January Per Cent	February Per Cent	March Per Cent	April Per Cent	May Per Cent	June Per Cent	July Per Cent	August Per Cent	September Per Cent	October Per Cent	November Per Cent	December Per Cent
1920												
Standard Statistics Index Yields of 15 Municipal Bonds.....	4.53	4.62	4.62	4.83	5.03	5.23	5.25	5.28	5.22	5.06	5.02	5.10
Basis at which New York City Long Term Bonds were issued.....	...	...	...	...	...	...	...	...	...	...	...	...
1921												
Standard Statistics Index Yields of 15 Municipal Bonds.....	5.05	5.12	5.11	5.12	5.12	5.27	5.34	5.25	5.14	5.07	4.98	4.52
Basis at which New York City Long Term Bonds were issued.....	...	...	...	...	...	...	...	...	...	...	...	4.33
1922												
Standard Statistics Index Yields of 15 Municipal Bonds.....	4.43	4.43	4.37	4.20	4.17	4.18	4.21	4.18	4.11	4.14	4.20	4.15
Basis at which New York City Long Term Bonds were issued.....	...	...	...	4.12	...	...	...	...	...	...	...	...
1923												
Standard Statistics Index Yields of 15 Municipal Bonds.....	4.13	4.12	4.15	4.18	4.20	4.21	4.31	4.33	4.36	4.34	4.32	4.35
Basis at which New York City Long Term Bonds were issued.....	...	...	...	...	...	...	...	...	...	...	...	...
1924												
Standard Statistics Index Yields of 15 Municipal Bonds.....	4.31	4.31	4.31	4.30	4.23	4.19	4.16	4.15	4.08	4.10	4.09	4.12
Basis at which New York City Long Term Bonds were issued.....	...	...	...	...	...	4.19 3.99	...	...	...	...	...	...
1925												
Standard Statistics Index Yields of 15 Municipal Bonds.....	4.10	4.08	4.07	4.05	4.02	4.01	4.06	4.03	4.12	4.15	4.22	4.13
Basis at which New York City Long Term Bonds were issued.....	...	...	...	...	4.04	...	...	...	...	...	...	...
1926												
Standard Statistics Index Yields of 15 Municipal Bonds.....	4.10	4.09	4.09	4.07	4.06	4.06	4.06	4.04	4.08	4.09	4.09	4.07
Basis at which New York City Long Term Bonds were issued.....	...	4.18	...	...	...	...	...	...	...	...	...	...

APPENDIX I

TABLE 1. — MUNICIPAL BOND YIELDS, 1900-1929—Continued

Year	January Per Cent	February Per Cent	March Per Cent	April Per Cent	May Per Cent	June Per Cent	July Per Cent	August Per Cent	September Per Cent	October Per Cent	November Per Cent	December Per Cent
1927												
Standard Statistics Index Yields of 15 Municipal Bonds.....	4.04	4.04	4.00	3.96	3.94	4.00	4.02	4.00	3.96	3.93	3.93	3.90
Basis at which New York City Long Term Bonds were issued.....	4.12	...	...	...	3.94	...	...	...	...	...	...	...
1928												
Standard Statistics Index Yields of 15 Municipal Bonds.....	3.89	3.89	3.89	3.93	4.02	4.09	4.13	4.16	4.17	4.17	4.15	4.15
Basis at which New York City Long Term Bonds were issued.....	...	3.86	...	...	...	...	...	...	...	...	4.20	...
1929												
Standard Statistics Index Yields of 15 Municipal Bonds.....	4.16	4.25	4.32	4.29	4.23	4.26	4.28	4.31	4.32	4.29	4.25	...
Basis at which New York City Long Term Bonds were issued.....	4.81

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Source: *Standard Statistics Bulletin*, base book 1929-1930, page 59, and card files of the Bond Buyer.

APPENDIX I

TABLE 2. — AMOUNT OF LONG AND SHORT TERM BONDS ISSUED BY CITIES IN THE UNITED STATES, 1905-1929*
(In millions)

Bonds		January	February	March	April	May	June	July	August	September	October	November	December
1905	Long Term Bonds.....	...	...	...	...	...	...	\$16.5	\$17.2	\$18.5	\$19.1	\$16.5	\$16.6
	Short Term Bonds.....	...	...	...	...	...	...	16.8	16.1	16.0	15.5	16.3	13.9
1906	Long Term Bonds.....	\$18.0	\$22.1	\$22.7	\$23.3	\$23.5	\$22.9	25.1	24.4	25.4	24.0	25.1	25.0
	Short Term Bonds.....	14.8	15.9	15.0	14.9	14.5	11.1	10.4	13.7	13.6	13.2	14.4	14.2
1907	Long Term Bonds.....	23.9	20.6	20.6	23.1	23.2	25.0	25.1	25.2	26.9	27.5	28.1	28.8
	Short Term Bonds.....	13.1	12.8	14.4	12.9	12.6	14.0	14.0	10.6	13.2	13.2	11.3	14.4
1908	Long Term Bonds.....	29.7	30.2	29.2	28.2	28.5	27.7	29.6	31.5	28.1	29.3	29.4	29.9
	Short Term Bonds.....	15.0	14.6	13.1	13.6	14.9	15.1	14.6	14.4	13.5	13.2	13.4	11.8
1909	Long Term Bonds.....	32.4	32.0	33.1	31.2	31.3	30.7	29.0	27.3	26.9	29.8	29.1	27.7
	Short Term Bonds.....	11.4	11.5	11.5	11.2	10.2	9.9	9.9	9.7	8.0	8.2	8.9	9.2
1910	Long Term Bonds.....	24.0	26.1	26.0	25.7	26.4	26.2	27.0	33.1	33.4	30.2	30.7	32.4
	Short Term Bonds.....	9.5	13.6	13.9	14.1	14.9	16.6	16.4	18.3	19.8	20.4	21.3	19.6
1911	Long Term Bonds.....	37.5	37.5	37.8	38.6	38.5	38.7	37.7	32.8	33.6	32.8	34.0	39.4
	Short Term Bonds.....	20.0	17.2	17.8	17.5	16.2	13.6	14.0	14.2	15.0	14.2	14.2	16.3
1912	Long Term Bonds.....	36.6	35.9	35.3	34.5	34.4	33.5	33.3	34.6	33.8	33.6	31.6	31.4
	Short Term Bonds.....	15.4	14.0	13.0	13.5	15.5	16.4	16.0	15.2	16.1	18.6	18.7	20.8
1913	Long Term Bonds.....	29.8	29.0	29.2	30.1	31.0	32.6	34.0	37.5	37.9	40.2	46.4	40.9
	Short Term Bonds.....	23.8	25.6	27.9	27.9	26.0	29.0	40.3	42.7	39.0	42.1	40.3	37.2
1914	Long Term Bonds.....	42.0	42.4	41.6	40.4	38.5	37.0	37.2	32.8	33.8	35.9	30.3	31.7
	Short Term Bonds.....	34.7	33.0	31.6	40.0	40.0	35.8	23.8	20.4	21.9	18.1	18.5	18.7
1915	Long Term Bonds.....	37.0	36.8	37.8	39.2	40.6	42.6	41.0	42.7	42.4	39.5	44.5	43.2
	Short Term Bonds.....	19.1	19.2	18.3	11.6	11.8	12.6	12.9	15.1	16.6	18.9	20.6	20.3
1916	Long Term Bonds.....	\$38.4	\$39.5	\$40.2	\$39.4	\$41.9	\$41.2	\$41.4	\$40.4	\$39.5	\$39.7	\$37.6	\$37.0
	Short Term Bonds.....	19.9	20.6	22.8	22.1	23.8	23.5	24.4	26.0	25.2	24.7	25.9	27.9

SOURCE: Municipal Bond Sales Annual Edition. The Bond Buyer, New York City

APPENDIX I

TABLE 2.—AMOUNT OF LONG AND SHORT TERM BONDS ISSUED BY CITIES IN THE UNITED STATES—Continued
(In millions)

	Bonds	January	February	March	April	May	June	July	August	September	October	November	December
1917													
	Long Term Bonds.....	35.6	39.6	39.4	40.6	37.8	36.7	37.1	35.3	35.2	34.4	30.4	41.1
	Short Term Bonds.....	30.2	29.5	31.2	31.2	31.5	31.8	32.7	30.9	32.5	32.6	31.5	32.0
1918													
	Long Term Bonds.....	30.3	24.7	25.0	23.8	22.7	22.9	21.9	22.4	22.2	24.8	29.0	30.6
	Short Term Bonds.....	32.3	36.4	34.2	35.9	35.1	39.1	39.4	40.4	41.6	42.6	44.6	41.4
1919													
	Long Term Bonds.....	36.5	41.0	43.4	47.8	56.7	58.9	64.2	69.3	70.8	71.9	71.8	71.5
	Short Term Bonds.....	41.6	38.1	38.2	38.6	38.5	36.1	37.5	42.5	40.6	46.3	47.2	48.2
1920													
	Long Term Bonds.....	67.5	67.9	68.3	68.1	63.6	65.1	64.5	63.4	66.3	65.8	68.4	71.0
	Short Term Bonds.....	47.6	46.8	47.8	48.6	53.5	55.1	55.3	51.9	51.8	50.3	55.3	59.5
1921													
	Long Term Bonds.....	77.7	80.2	83.5	86.0	91.2	95.9	115.3	115.5	116.9	122.0	126.5	130.5
	Short Term Bonds.....	60.8	63.6	64.2	65.7	64.2	64.1	63.5	59.5	60.1	56.8	46.8	42.2
1922													
	Long Term Bonds.....	134.1	135.0	133.3	134.8	130.6	128.3	106.6	108.4	107.5	103.4	98.5	96.7
	Short Term Bonds.....	40.0	38.5	36.7	34.2	34.2	32.9	33.0	35.9	34.9	32.4	37.0	37.9
1923													
	Long Term Bonds.....	96.8	92.4	90.6	85.5	87.7	90.9	94.6	93.4	95.5	97.7	101.4	102.8
	Short Term Bonds.....	40.0	42.8	44.6	44.3	39.7	44.3	42.9	43.0	45.1	49.0	50.6	55.2
1924													
	Long Term Bonds.....	112.4	116.2	121.1	124.0	123.5	123.5	120.6	123.7	121.5	122.2	120.0	125.6
	Short Term Bonds.....	56.1	57.5	60.1	67.5	77.6	80.8	81.5	81.8	81.5	82.2	83.7	80.2
1925													
	Long Term Bonds.....	113.8	114.7	111.9	114.3	113.4	109.3	117.1	113.2	118.9	119.5	120.4	116.4
	Short Term Bonds.....	84.0	80.3	78.1	73.7	70.9	63.4	72.2	74.4	71.6	74.2	72.2	71.9
1926													
	Long Term Bonds.....	116.5	113.8	112.2	113.4	115.1	115.1	113.5	121.8	115.7	113.5	114.1	119.9
	Short Term Bonds.....	68.6	70.1	69.5	67.7	63.4	61.1	55.1	51.0	59.1	54.6	54.1	52.7
1927													
	Long Term Bonds.....	121.4	121.1	122.7	121.2	122.8	125.6	123.2	117.2	122.2	125.6	126.0	120.3
	Short Term Bonds.....	50.0	47.3	49.2	50.7	53.0	54.2	52.1	55.6	54.9	55.6	56.5	55.2
1928													
	Long Term Bonds.....	118.0	117.2	116.3	112.4	110.2	116.0	115.8	113.3	109.7	107.7	104.1	108.2
	Short Term Bonds.....	57.7	60.9	61.1	61.2	62.2	61.2	59.7	63.2	59.7	58.0	60.3	64.1
1929													
	Long Term Bonds.....	110.3	111.2	111.3	113.9	115.9	111.4	...	...	...	...	...	...
	Short Term Bonds.....	64.4	64.5	66.4	68.3	69.7	70.2	...	...	...	...	...	...

* The figures given are a twelve month moving average centered at the first of the seventh month.

APPENDIX I

TABLE 3A. — TAX RECEIPTS AND NEW ISSUES OF LONG TERM BONDS IN SELECTED CITIES, 1900-1929*
(In thousands)

YEAR	BALTIMORE, MD. ^b		BIRMINGHAM, ALA. ^c		BOSTON, MASS. ^f		CHICAGO, ILL. ^a		DETROIT, MICH. ^d		LOS ANGELES, CAL. ^e		MINNEAPOLIS, MINN. ^g	
	Tax Receipts	Bond Issues	Tax Receipts ^d	Bond Issues ^e	Tax Receipts	Bond Issues ^g	Tax Receipts	Bond Issues	Tax Receipts ^d	Bond Issues ^e	Tax Receipts ^m	Bond Issues ⁿ	Tax Receipts ^o	Bond Issues ^p
1900	\$5,581	\$5,982	\$152	\$549	\$24,672	\$3,164	\$12,243	\$500	\$3,802	\$332	....	....	•	....
1901	5,599	210	....	43	32,757	5,971	16,562	1,065	3,876	250	....	\$2,000	•	\$186
1902	6,277	1,190	186	88	25,236	9,368	14,299	....	3,808	336	\$1,583	....	\$2,386	470
1903	6,196	115	193	82	25,874	6,617	14,789	250	4,128	140	1,787	2,180	2,489	850
1904	6,711	340	203	239	26,614	7,190	15,960	8,250	4,248	181	897	538	2,884	695
1905	6,895	3,365	272	16	28,405	7,447	16,846	2,000	4,122	450	1,798	1,500	3,030	253
1906	6,890	1,152	252	86	29,649	5,922	17,434	1,400	4,090	672	....	288	3,135	220
1907	7,241	2,292	267	33	28,618	5,250	22,606	....	4,333	262	....	....	3,382	1,165
1908	7,546	5,233	....	173	30,822	4,499	22,667	4,850	4,986	599	3,328	1,034	3,791	1,847
1909	8,272	4,595	342	391	32,427	3,650	24,078	1,700	5,208	900	3,374	6,936	3,966	1,751
1910	8,529	5,063	441	500	33,219	4,616	25,130	4,375	6,320	365	4,162	5,236	4,924	565
1911	8,723	2,948	646	1,540	34,136	3,526	27,312	375	6,760	455	4,666	4,556	5,263	3,449
1912	8,555	6,700	361	316	34,788	4,775	24,734	2,855	7,211	273	5,023	11,754	5,719	2,080
1913	9,506	8,125	402	182	37,292	8,228	30,739	996	8,820	1,751	6,117	1,020	•	2,615
1914	9,557	8,550	852	341	37,356	7,146	31,872	5,232	10,081	5,148	6,669	1,593	•	2,633
1915	9,825	9,325	934	1,486	39,499	7,173	36,661	7,046	10,245	1,718	7,584	2,207	7,711	3,625
1916	11,056	1,775	921	36	40,345	5,766	38,653	5,673	13,062	2,385	6,818	4,185	6,184	2,531
1917	11,197	2,069	981	100	39,743	4,289	39,346	3,179	13,485	2,326	6,968	492	7,187	2,606
1918	12,116	664	1,010	398	46,650	2,220	35,030	4,676	16,186	1,661	8,069	348	7,453	235
1919	13,542	775	729	25	55,086	3,078	55,593	14,655	22,010	3,690	8,892	35	9,380	5,576
1920	18,363	1,088	748	1,997	57,922	2,845	59,698	12,099	25,501	2,702	8,905	1,186	•	7,456
1921	20,594	11,488	1,279	1,666	58,294	5,280	84,029	18,379	35,593	27,914	10,504	1,424	12,856	3,331
1922	22,037	11,811	1,421	788	60,026	8,095	83,120	8,906	37,820	30,037	11,521	17,602	15,940	5,836
1923	24,824	9,099	1,435	1,422	61,861	7,190	93,009	221	43,763	16,988	11,272	7,677	16,769	7,747
1924	29,302	11,496	1,472	150	62,397	6,795	96,903	4,554	48,405	18,380	17,085	26,542	18,562	4,378
1925	27,299	8,978	1,797	3,843	64,782	11,120	103,858	16,935	52,547	19,555	24,267	36,650	18,798	4,635
1926	28,080	18,822	....	3,167 ^o	78,474	10,817	105,884	7,148	56,256	24,038	24,528	18,550	19,671	9,507
1927	28,837	11,847	....	3,215 ^o	76,169	8,718	123,178	14,931	71,318 ^r	11,505	25,014	16,534	20,415	8,523
1928	....	14,860 ^o	....	2,567 ^o	77,793	10,204	....	55,005 ^o	76,031 ^r	27,512	29,564	7,443	20,874 ^m	4,831
1929	....	12,622 ^o	....	3,592 ^o	....	6,664 ^o	....	92,046 ^o	76,571 ^r	16,460	....	13,171 ^o	....	2,877 ^e

- * Long term bonds are any bonds having a maturity of more than one year. Unless otherwise indicated, the date covers the annual year ending December 31st.
- † Figures taken from Baltimore, Comptroller's Annual Reports, and Commissioners of Finance, Annual Reports. Bonds issued are for city stock issued during the year.
- * The years 1907 through 1910 are for the fiscal year ending June 30th; 1911 covers the period from July 1, 1910, to September 30, 1911; and the years 1919 through 1929 are for years ending September 30th.
- * Figures taken from Birmingham, Auditor's Annual Report, 1900, 1908-1910; City Tax Collector's Annual Reports 1902-1907; Annual Financial Reports 1910-1925. They cover real and personal taxes, interest and discount, merchants' tax, excess bids tax sale, 1900-1907; real and personal property tax 1907-1925.
- * Figures taken from Birmingham City Officers' Annual Reports 1900-1907; Auditor's Annual Reports 1908-1910; Annual Financial Reports 1910-1925. The figures cover the sum of public improvement bonds and general city bonds.
- † Figures taken from Boston, Treasury Department Annual Reports. They cover fiscal years ending January 31st, 1901-1925 (i.e. year 1900 is year ending January 31, 1901), and 11 months period ending December 31, 1925.
- * Cover city loans for permanent improvements 1900-1928.
- † Figures taken from Chicago, Comptroller's Annual Reports.
- † Figures taken from Detroit, Comptroller's Annual Reports, 1900-1918, 1923-1927, and other figures from the present City Comptroller through the courtesy of the Detroit Bureau of Governmental Research, Inc. The figures cover years ending June 30th.
- † Figures are total receipts from general tax levies.
- * Figures cover receipts from sale of bonds exclusive of bonds issued by the Water Commission or for street railways.
- † Figures taken from Los Angeles, Auditor's Annual Reports 1902-1922; Comptroller's Annual Reports of Financial Transactions of Municipalities, California, 1911-1928. Figures cover fiscal year ending November 30th, 1902 through 1908, and fiscal year ending June 30th, 1909-1928.
 - * The figures cover collection of current and delinquent taxes except for the years 1902 through 1905 and 1908 when they cover only collection of current taxes.
 - * The figures cover the amount of bond sales, principal plus premiums and accrued interest, except for the years 1901 through 1911 when they cover only the principal.
- * Figures taken from U. S. Bureau of Census, Financial Statistics of Cities, and cover general property tax receipts.
- * Figures taken from Minneapolis, Municipal Statistics, 1917; Budget Facts and Financial Statistics, 1924; and Report of Board of Estimate and Taxation, 1924-1928 (official), and cover total bond issues.
- * Sum of bond issues as reported by Bond Buyer.
- * Tax levy.
- * No data published.
- † This figure is not comparable with the rest of the series, and is therefore omitted.
- * Estimated from total revenue receipts, which were \$28,246,867. Property taxes represented 73.9 per cent of the total revenues for 1928.

APPENDIX I

TABLE 3B. — TAX RECEIPTS AND NEW ISSUES OF LONG TERM BONDS IN SELECTED CITIES, 1900-1929*
(In thousands)

YEAR	NEWARK, N. J.		NEW YORK, N. Y.		PHILADELPHIA, Pa.		PITTSBURGH, Pa. ^a		ROCHESTER, N. Y.		St. LOUIS, Mo.		SEATTLE, WASH.	
	Tax Receipts ^b	Bond Issues ^c	Tax Receipts ^d	Bond Issues ^e	Tax Receipts ^f	Bond Issues ^g	Tax Receipts ^h	Bond Issues ⁱ	Tax Receipts ^j	Bond Issues ^k	Tax Receipts	Bond Issues	Tax Receipts	Bond Issues
1900	\$3,193	\$2,107	\$72,295	\$33,745	\$18,252	\$5,800	\$4,569	\$7,000	....	....	\$4,759	....	\$ 374	....
1901	3,327	1,145	75,959	38,371	18,304	9,025	4,501	....	....	\$ 34	4,861	....	\$ 348	....
1902	3,697	1,497	78,622	29,602	18,052	6,415	....	....	\$2,679	116	4,874	....	460	\$ 100
1903	3,848	202	72,513	43,023	18,519	42	4,645	....	2,701	3,000	5,390	\$5,000	616	400
1904	3,916	900	77,611	86,826,	19,157	16,005	4,763	1,086	2,299	1,420	6,192	....	733	190
1905	4,278	3,530	86,322	41,211	19,371	....	5,107	2,000	2,475	410	6,406	1,000	853	423
1906	4,794	715	83,694	57,052	20,065	....	6,680	1,500	2,684	75	6,531	....	1,101	....
1907	4,981	1,166	86,679	79,100	20,586	6,200	9,818	1,066	2,794	75	6,434	....	1,648	2,350
1908	4,887	2,155	103,628	73,341	21,412	19,375	9,680	4,051	2,926	1,075	6,797	1,917	2,367	400
1909	5,928	1,590	117,369	72,566	21,988	8,740	11,483	4,178	3,132	175	7,139	5,509	2,547	1,000
1910	6,192	1,805	133,590	63,023	22,733	5,000	10,799	5,600	3,287	....	7,367	4,700	2,726	3,046
1911	7,722	2,545	135,024	86,086	23,917	13,450	10,732	1,528	3,421	....	7,550	....	3,633	2,186
1912	6,955	1,163	149,491	153,578	17,368	4,925	7,382	2,846	3,778	1,525	7,793	1,699	2,957	3,630
1913	7,818	1,550	148,557	252,681	17,584	6,375	7,079	4,600	3,968	6,174	7,869	....	3,189	1,275
1914	8,267	8,885	142,994	222,047	18,846	2,625	6,957	1,134	4,360	1,022	8,063	....	4,111	375
1915	9,590	2,220	157,899	118,041	18,992	5,000	7,704	4,650	4,575	2,000	9,011	2,750	3,835	1,279
1916	10,499	1,724	175,174	174,796	19,473	20,369	9,072	1,170	5,124	1,270	9,400	....	4,725	....
1917	11,206	2,365	171,315	192,490	24,843	20,050	8,335	264	6,356	1,875	9,665	....	4,417	575
1918	12,688	3,018	191,982	107,280	32,999	12,500	10,304	910	6,087	2,241	10,140	....	5,815	710
1919	16,572	1,133	201,792	148,674	34,726	8,000	10,979	5,644	7,057	1,715	9,488	....	6,138	245
1920	18,377	1,305	209,928	210,373	43,498	12,714	13,173	5,694	7,076	....	11,506	45	7,112	270
1921	19,236	6,625	262,000	343,803	47,967	24,576	14,136	5,826	8,239	4,225	11,864	1,500	6,957	....
1922	21,871	3,710	298,905	154,811	41,899	30,497	13,780	4,260	10,790	6,891	13,037	1,530	6,382	....
1923	22,120	5,700	288,969	198,668	42,749	12,000	15,131	1,213	10,989	4,805	13,848	763	6,208	110
1924	24,569	6,250	303,211	449,877	48,755	15,000	15,321	1,056	11,684	2,975	14,347	10,000	6,704	2,100
1925	25,274	4,900	319,189	461,396	50,773	32,410	14,772	1,916	13,719	4,800	14,528	4,500	7,613	1,230
1926	26,854	5,300	350,290	253,383	54,886	65,124	16,874	9,073	13,205	4,150	15,877	4,139	8,631	540
1927	30,872	13,100	383,592	300,363	57,471	25,000	17,519	13,974	14,699	4,616	16,428	11,500	8,549	1,520
1928	32,742	....	419,683	408,002	....	35,500 ^m	....	6,481 ^m	16,668	5,710 ^l	19,436	7,861	9,242	3,325
1929	....	9,250 ^m	....	....	....	34,329 ^m	....	2,800 ^m	....	4,720 ^m	....	10,000 ^m	....	7,191 ^m

* The long term bonds are any bonds having a maturity of more than one year. Unless otherwise indicated, the years cover the fiscal year ending ~~1914~~ 1914, and the figures are taken from each city's Comptroller's Annual Reports.

† Figures taken from Newark, Auditor of Accounts Reports, 1900-1928, and include tax receipts from real and personal property taxes, franchise, trolley, jitney, gross receipts and poll taxes.

‡ Figures taken from Newark, Comptroller's Annual Reports 1900-1915; Auditor of Accounts Reports 1916-1928.

§ Covers tax receipts on real estate, special franchise, real estate of corporations, personal property.

¶ Total bonds issued for public improvements.

/ Total amount received by Receiver of Taxes.

‡ Long term loans issued.

‡ Figures cover fiscal years ending January 31, 1900-1913 (i.e. year 1900 is fiscal year ending January 31, 1901), and 11 months period ending December 31, 1914.

‡ Includes taxes of current year, delinquent taxes and special taxes.

‡ Covers proceeds from the sale of bonds.

‡ Covers revenue from taxes, including general city tax, interest and penalties on taxes, water frontage and bank taxes.

‡ Covers par value of bonds sold.

= Sum of bonds issued as reported by the Bond Buyer.

APPENDIX J

SUMMARY OF LAWS AS TO ALLOWABLE BOND ISSUES

STATE	TABULAR SUMMARY OF AVAILABLE LAWS AS TO ALLOWABLE BOND ISSUES, IN PER CENT OF TAXABLE BASES, AND ISSUANCE OF WATER WORKS BONDS IN EXCESS THEREOF ^a
ALABAMA	Towns under 6,000, 5 per cent. Three per cent additional for waterworks, sewerage, gas, electric lighting plants, and street improvements. Towns of 6,000 or more, also Gadsden, Ensley, Decatur and Albany, 7 per cent. Per cent unlimited for school-houses, waterworks, sewers, and street improvements, where cost of same, in whole or in part, is to be assessed against abutting properties. Cities of Sheffield and Tusculmbia excepted.
CALIFORNIA	Fifteen per cent for all purposes.
COLORADO	For incorporated municipalities, 3 per cent. Water works bonds, unlimited.
CONNECTICUT	Towns and municipalities, 5 per cent for all purposes. For water works, a special act of the General Assembly is required for bond issues in excess of 5 per cent.
DELAWARE	No general law limiting bonding. Each issue must be authorized by enabling act; 6 per cent of assessed valuation is assumed as maximum limit.
FLORIDA	Permissible indebtedness of each city or town is controlled by its charter and ordinances.
IDAHO	Water works bonds may be issued in excess of the legal limits for other bonded indebtedness.
ILLINOIS	Limit for all purposes 5 per cent of assessed valuation.
INDIANA	Municipalities, including water works, limited to 2 per cent of assessed valuation. For the purchase of water works, bonds may be issued against the utility. Such mortgage bonds bear no relation to 2 per cent limit.
IOWA	Towns of less than 10,000, 1½ per cent of actual value of taxable property. Cities of 10,000 or over, by a majority vote, may issue bonds for water works, including existing indebtedness, to the amount of 5 per cent of assessed valuation.

^a This record is the best available, but needs to be further checked, especially with reference to effect of charters of cities of different classes.

- KANSAS**.....General bond limit, 15 per cent of assessed valuation. Towns of less than 15,000, additional 2 per cent for water works. Cities of over 15,000, limited only by vote of electors.
- KENTUCKY**.....Cities exceeding 15,000, 10 per cent of assessed valuation. Cities of less than 15,000, fourth class, 5 per cent; fifth and sixth classes, 3 per cent. In case of an emergency, water bonds may be issued in excess of above limits.
- LOUISIANA**.....General limit of 10 per cent of assessed valuation. Bonds for any municipal improvements, running for a period not exceeding 10 years, unlimited.
- MAINE**.....For all purposes, 5 per cent of assessed valuation.
- MARYLAND**.....No general limit. Each municipal bond issue requires authorization by the General Assembly. Bonds in amount of 2 per cent of taxable basis, in addition to any other indebtedness limitation, may be issued by counties or municipalities for water or sewerage construction, upon order of State Board of Health.
- MASSACHUSETTS**....For water works, not in excess of 10 per cent of assessed valuation.
- MICHIGAN**.....For water works, not in excess of 5 per cent of assessed valuation. Mortgage bonds against a utility may be issued beyond the 5 per cent limit. Detroit has a total debt limit of 15¼ per cent of assessed value. Two per cent is the limit for water works.
- MINNESOTA**.....In general 10 per cent of assessed valuation. Many special acts for public utilities exist. Water works bonds in excess of 10 per cent of assessed valuation require special authorization.
- MISSISSIPPI**.....Legal limit of bonded indebtedness of any municipality for all purposes, 15 per cent of assessed valuation.
- MISSOURI**.....General limit, 5 per cent of assessed valuation. For water works and certain other public utilities, towns under 30,000, not to exceed 10 per cent of assessed valuation. By affirmative vote of 4/7 of voters, cities of 75,000 and over may issue water works bonds to the extent of 20 per cent of taxable property.
- MONTANA**.....General limit, 3 per cent of taxable valuation. Water and sewerage bonds, apparently unlimited.
- NEW MEXICO**.....General limit, 1 1/3 per cent of actual value of taxable property. Water and sewerage bonds, 4 per cent of assessed valuation.
- NEW YORK**.....General limit, 10 per cent of assessed valuation. Water works bonds unrestricted.
- NORTH CAROLINA**...Total indebtedness limited to 8 per cent of assessed valuation. Water works and electric light improvements not counted in arriving at net indebtedness.

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- NORTH DAKOTA** Five per cent of assessed valuation for all purposes, except that incorporated cities, by a three-fourth vote of resident property holders, may increase indebtedness to 8 per cent of assessed valuation.
- OHIO** Two and one-half per cent total property value, without a referendum. Total net indebtedness that can be incurred with and without a vote of the electors is limited to 5 per cent of the assessed valuation. A favorable vote of two-thirds of those voting is required. Three per cent additional can be authorized by an order of the State Board of Health. When income from water works is sufficient to pay interest and retire bonds, water works bonds may exceed these requirements.
- OKLAHOMA** Five per cent of assessed valuation for general purposes. When authorized by a majority vote, public utility bond issues are unlimited.
- OREGON** Two per cent of assessed valuation without a referendum. A total of 10 per cent of assessed valuation with a referendum. Water works bonds included in 10 per cent.
- PENNSYLVANIA** General, 2 per cent of assessed valuation without a referendum. Seven per cent of assessed valuation with a referendum. Philadelphia may issue bonds to 10 per cent of assessed valuation. All other municipalities 10 per cent, if assented to by three-fifths of the electors voting. Water works bonds in excess of general limit allowed by a few municipalities.
- SOUTH CAROLINA** Water works and sewerage bond issues only are unlimited.
- SOUTH DAKOTA** For general purposes, 5 per cent of assessed valuation. For water and sewerage, 10 per cent of assessed valuation.
- TENNESSEE** There are legal limits placed upon bond issues for sewers, paving, etc. Water works bond issues are unlimited by law.
- TEXAS** Towns under 5,000 are limited to 1½ per cent of assessed valuation for all purposes. Cities and towns of over 5,000 fix their own legal limit for various purposes, but cannot exceed a 2½ per cent of assessed valuation for all purposes.
- UTAH** Cities of 5,000 or over, 8 per cent of assessed valuation for all purposes. Towns under 5,000, 12 per cent of assessed valuation for all purposes.
- VERMONT** General provisions: Total indebtedness of a municipality cannot exceed ten times the amount of the last grand list of such municipality. This provision does not apply when the charter of a municipality limits its indebtedness.
- VIRGINIA** General limit, 18 per cent of assessed valuation. Exception: By a majority vote the general limit may be exceeded for water works or other revenue producing projects.

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- WASHINGTON**.....For general purposes, $1\frac{1}{2}$ per cent of assessed valuation. With the consent of three-fifths of the voters, 5 per cent of assessed valuation. For water, light and sewers, with the consent of three-fifths of the voters, 10 per cent of assessed valuation. For the purification of water, or any improvement to a water system designed to protect the public health, no limit.
- West VIRGINIA**.....For water supply and sewerage, limited to 5 per cent of assessed valuation. Two and a half per cent of assessed valuation is maximum for water works bonds.
- WISCONSIN**.....General limit for all purposes, 5 per cent of assessed valuation. Mortgage certificates on the utility itself may be issued in excess of the general limit, for the purchase or construction of a new utility, but not for improvements to a system already owned by a municipality.

SOURCE: *Water Works Practice*: Manual of the American Water Works Association, Baltimore, 1925 pp. 549-552.

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