
**DEVELOPMENT OF RESOURCES AND
STABILIZATION OF EMPLOYMENT IN THE
UNITED STATES**

**PART I. THE FEDERAL PROGRAM FOR
NATIONAL DEVELOPMENT**

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**JANUARY 1941
NATIONAL RESOURCES PLANNING BOARD**

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EXECUTIVE OFFICE OF THE PRESIDENT
NATIONAL RESOURCES PLANNING BOARD
WASHINGTON, D. C.

December 31, 1940.

The PRESIDENT,

The White House.

MY DEAR MR. PRESIDENT: We have the honor to transmit herewith a report of the National Resources Planning Board on "Development of Resources and Stabilization of Employment in the United States."

In accordance with your instructions and the requirements of the Federal Employment Stabilization Act of 1931, the report reviews "the trend of employment and business activity * * * in the United States," discusses the possibilities of and limitations on the use of public works both for national development and to combat unemployment, and presents a recommended Six-Year Program of Federal Public Works. Supporting this statement by the Board we are also presenting three other parts of the report, so that the whole document consists of:

Part I—The Federal Program for National Development.

Part II—Regional Development Plans.

Part III—Functional Development Policies.

The Six-Year Program provides a reservoir of long-range projects originated by Federal construction agencies from which the Congress and the Administration can select activities in amounts and kinds appropriate to the times and the needs of the Nation. It suggests alternative lines of policy for land, water, energy and transportation and of regional development as a basis for improved plans and programs in future years. The Six-Year Program is a concrete and practical application of planning which will change from year to year with the development of our national resources.

Respectfully submitted.

FREDERIC A. DELANO, *Chairman,*
CHARLES E. MERRIAM.
GEORGE F. YANTIS.

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DEVELOPMENT OF RESOURCES AND STABILIZATION OF EMPLOYMENT IN THE UNITED STATES

PART I: THE FEDERAL PROGRAM FOR NATIONAL DEVELOPMENT

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RECOMMENDATIONS

In order to provide a "shelf" or "reservoir" of public construction projects of tested value, the Board recommends:

1. Continued and invigorated efforts to secure the preparation of *six-year programs or capital budgets* by Federal agencies, State governments, local governments, and other agencies, public and private, anticipating a large volume of construction activity.

2. *Development of alternative lists of projects* included in six-year programs according to size of the project, types and locations of skilled and unskilled labor involved, materials needed, rapidity of beginning, and flexibility of termination—all in relation to employment stabilization.

3. *Immediate inauguration of surveys, investigations, and preparation of engineering plans and specifications* for selected projects through allocation of aids to Federal and non-Federal agencies from a revolving fund to be administered by the President through his Executive Office; and reimbursed to the revolving fund as part of the cost of construction of the project.

To permit rapid inauguration of work on projects in times of need:

4. *Advance authorization by the Congress* of procedures for grants, loans, guaranties of loans, leasing arrangements, or other devices for aids to State and local governments for non-Federal projects for employment stabilization effective upon appropriation of funds by the Congress.

5. *Advance authorization by the Congress* of construction of Federal projects in six-year program of "A" priorities. Such authorization should be effective upon appropriation of funds by the Congress, and not in itself involve any commitment for the immediate construction of the project.

6. *Appropriation for advance purchase of sites* of projects by appropriate governmental agencies.

7. *Development of method of financing public works* projects and studies of related problems of investment, taxation, and the Federal, State, and local shares of responsibility for costs of various types of public works and related activities.

8. *Coordination of public works* construction at all levels of government, with other public policies which affect the level of business activity and employment, such as fiscal policy, social security policy, and policies of aid to private enterprise.

A. INTRODUCTION—OBJECTIVES AND ECONOMIC CONSIDERATIONS

The basic objective of a public works program is to provide public facilities required for the maintenance and progressive development of the standard of living of the American people.

No economic system is an end in itself; rather, it is merely a means employed to satisfy human wants. These wants must be translated into terms of facilities, goods, and services needed for the standard of life to which we aspire. The relative spheres of public and private activity in the provision of these facilities, goods, and services are not sharply defined. We recognize that our economic system is one of joint private and public activity, and with proper historical perspective, we can see that this economic system has always been a joint one. The distinction between our current economic organization and that of a century or more ago is not one of kind, but rather one of degree. Public functions have of necessity increased, but public functions supporting and supplementary to private activity have their roots in the traditions, laws, and practices of organized society. We rely mainly on a system of private enterprise to provide needed facilities, goods, and services, but with the growing complexity of an urban and industrial society, we have had to turn more and more to government as an adjusting factor. This we have done as experience has demonstrated the need of public action supplementary to the functioning of our private enterprise system. When we have become convinced that the organization of a segment of the economy was such as not to yield the desired facilities, goods, and services, we have not hesitated long in the adoption of appropriate governmental measures, such as tariffs, subsidies, and monopoly controls.

We have always recognized that the provision of certain basic facilities is an appropriate public function. The important point, however, is that, with the increasing complexity of our society and with our increasing dependence on continuity of economic activity, we have correspondingly extended the scope of these public activities. In doing so, we have had two social objectives in mind:

In the first place, there has been a growing realization of the importance of planning for the conservation and fuller utilization of our resources. For example, we have, rather belatedly, come to recognize the profligacy in the dissipation of many of our irreplaceable natural resources, such as our soils and our petroleum; the folly of our failure to protect our replaceable natural resources, such as our forests; the social distortion in our neglect of

the natural beauty of our landscapes; and the lack of vision in our failure to secure harmonious functional planning of our cities.

In the second place, there has developed growing recognition of the concern of government for the welfare of its citizens under changing conditions. An increasingly large proportion of our population has become completely dependent on the continuity of a pay roll relationship. When large segments of our population in times of economic stress have been separated from their customary private pay rolls, then government has had to fill the breach through relief payments, through unemployment benefits or social insurance, through work-relief pay rolls, or through direct employment. Only in this way could all members of our society have minimum access to the store of consumption goods.

Under this growing public responsibility, a new concept of public works planning has developed, namely, one that combines the objective of providing desirable public facilities with the new objective or social compulsion of providing useful work for those who can find no other outlet for their productive energies and skills and who lack means of access to essential consumption goods, as well as with the objective of seeking through such work to stabilize employment and economic activity. As a Nation, we are, therefore, confronted today with the problem of planning for the conservation and better utilization of our resources, planning for the provision of needed public facilities, and planning also for the productive employment of our resources in human skills and energies, including the related aim of employment stabilization.

Inspection of the national estate reveals the enormous need for a wide variety of useful public works—works that will increase the productive efficiency of the national estate and works that will yield dividends in national enjoyment. In planning a long-range program of public works, we may profitably view the problem as that of an intelligent manager of an estate who wishes to plan over the years for the doing of those things that are necessary to put his estate in good order for efficient production and for constructive enjoyment. We have a vast national estate, and intelligent husbandry requires that it be kept in good order. We cannot do in any one year all the desirable things that ought to be done, but with our intelligence and our skills, we can program over the years the things that we know now ought to be done

With our natural resources, our technical equipment, and our skills, we have the material basis for making the things that are desirable in providing any reasonable standard of living to which the American people may aspire. Ours, fortunately, is an expanding and developing economy, and we have at our command a sufficient quantity and variety of resources, a well developed industrial technique, and an intelligent, energetic, and skilled population. These are the primary essentials for providing those public works and those goods and services which we may desire. Essential too, of course, is an effective economic organization, since in a complex society economic organization must perforce act as a bridge between man as producer and man as consumer. Without effective economic organization, then, the primary essentials of resources, techniques, skills, and energies are merely potential avenues to welfare, as we have seen all too clearly in the decade of the 1930's.

It scarcely needs to be said that the richness of our domain does not free us from the responsibility of devoting our time and our energies to making right things, lest we waste our substance in making wrong things. Thus, we have the resources for using all our unemployed workers in the construction of pyramids, but we would scarcely call the decision to do so one of social intelligence.

The barrier that stands between us and the attainment of what we have looked on as the American standard of living is in part a psychological barrier. It is the notion that only through a vast national abstinence can we provide needed capital improvements or public works; that if we wish to provide these things we shall have to "tighten our belts," i. e., reduce our standard of living. We have too long burdened our thinking with these false analogies drawn from a simple economy of scarcity. In such an economy, capital improvements might have to rest on abstinence or on a serious diversion of national effort from consumption goods to production goods. But in our present economy, public works or capital goods are not, in the main, an alternative to consumption goods. In our modern economic flow, a sizeable increase in production goods can scarcely be brought about without at the same time effecting an increase in large categories of consumption goods. Additional machines and additional plants cannot be produced without giving employment to additional men, who will themselves require more consumption goods and who will in the process of their employment become armed with purchasing power to command these goods. Thus, it may not be said that we shall have more because we have consumed less. Rather, we shall have more because we have produced more, and producing more, we shall have consumed more.

If we can develop the requisite ingenuity and inventiveness, if we can bring about the requisite institutional adjustments and organization of the will-to-do, then we can provide here and now those things to which the American people aspire, subject only to the physical limitations of time and effort. As a current and dramatic example, the decision by the Congress and the Executive to do the things required in our defense program has set in motion a connected series of forces which will in time go far toward attaining the goal of full employment. Given our resources, equipment, techniques, and skills, only that decision—only that courageous implementation of the will-to-do—was required to release the log jam of idle plants and idle men. True, many of those "logs" will be long in reaching the mills, will require time in reaching their final stage of finished products, but the jam has been broken. It is an instructive commentary on our times that only under the threat of external aggression could we as a people summon the courage to implement this will-to-do. Let us, however, see to it that the lessons of this experience are not forgotten in the years ahead when post-emergency adjustments will call for like imagination and like courage. Let us remember also the sheer limits of time and effort; let us remember that in the catalog of physical limitations under which we operate our complex social and economic organization, large space must be devoted to the physical limitation of inertia. Let us, then, remember these things lest we wait too long in developing our plans for the next stage ahead.

However large our potentialities, we must see that good husbandry calls for putting first things first. Even in terms of the physical limitations of time and effort,

We must avoid wasting our national resources.

We must avoid spreading our activities too thinly.

We must concentrate on the more urgent undertakings.

To put first things first requires the exercise of value judgments. It requires the weighing of desirable things in many fields. These value judgments must, in our democratic society, reflect the will of the people on matters of national policy, as expressed through the appropriate agencies of government. Needless to say, these judgments must involve compromise.

Today, the Nation is confronted with a critical emergency of national defense, and in any such period we give ratings of high priority to any public undertakings that promise direct aid in defense preparations. This pressure is now being felt by the agencies of the Federal Government, and these agencies are re-orienting their programs in order to emphasize those

functions related to national defense. Such reorientation is both necessary and desirable, since on the successful outcome of our preparations may depend our future welfare.

Let it be noted, however, that the development of a strong, vigorous, and healthy national economy represents an essential phase of preparation for total national defense. Total war of our time has reverted to the ancient forms of tribal war and siege in which whole populations were involved, with all their resources affected and at stake. Military defense under these conditions becomes in reality economic and social defense as well as armed defense in the traditional sense. Thus, the defense techniques of total war far transcend military lines and must include within their scope such elements as industrial organization for ab-

normal production, both in amounts and in types; determination of priorities in output and in consumption; payments to military dependents; constructive use of the energies and skills of those whose normal activities are disrupted; provision of decent housing and adequate health protection; defense of morale; and many other activities essential to a healthy national life.

In giving high priorities to defense undertakings, therefore, we must not lose sight of those governmental activities that are vital to our long-term safety, such as the protection of our soil, the safeguarding of national health, the protection of morale, and the preparation for post emergency adjustments. In a broader sense, these too are measures of national defense.

B. TRENDS OF EMPLOYMENT

The Employment Stabilization Act requires estimates from time to time of the extent of unemployment and business activity that succeeding months may bring. Techniques for making such estimates reasonably reliable are being developed rapidly, and figures are being prepared by different methods, but the results are as yet only tentative. At the moment, then, we must be content with general rather than specific statements and short rather than long forecasts.

There will certainly be unemployment at the end of the fiscal year 1941 and of the calendar year 1941, and

in sufficient amount to demand the continuance of remedial action. Defense activity will make the total amount of unemployment a diminishing figure, and may even disclose shortages in certain special skills and in some localities. Yet the betterment in the sum total will not make easier the lot of those still out of work or their claim upon remedial measures less. For the next period of 12 months, therefore—and most probably the next 18 months—ample machinery and funds for the mitigation of unemployment must be maintained and provided.

EMPLOYMENT AND UNEMPLOYMENT IN THE UNITED STATES IN THE THIRD QUARTER OF SELECTED YEARS, 1929 - 1940

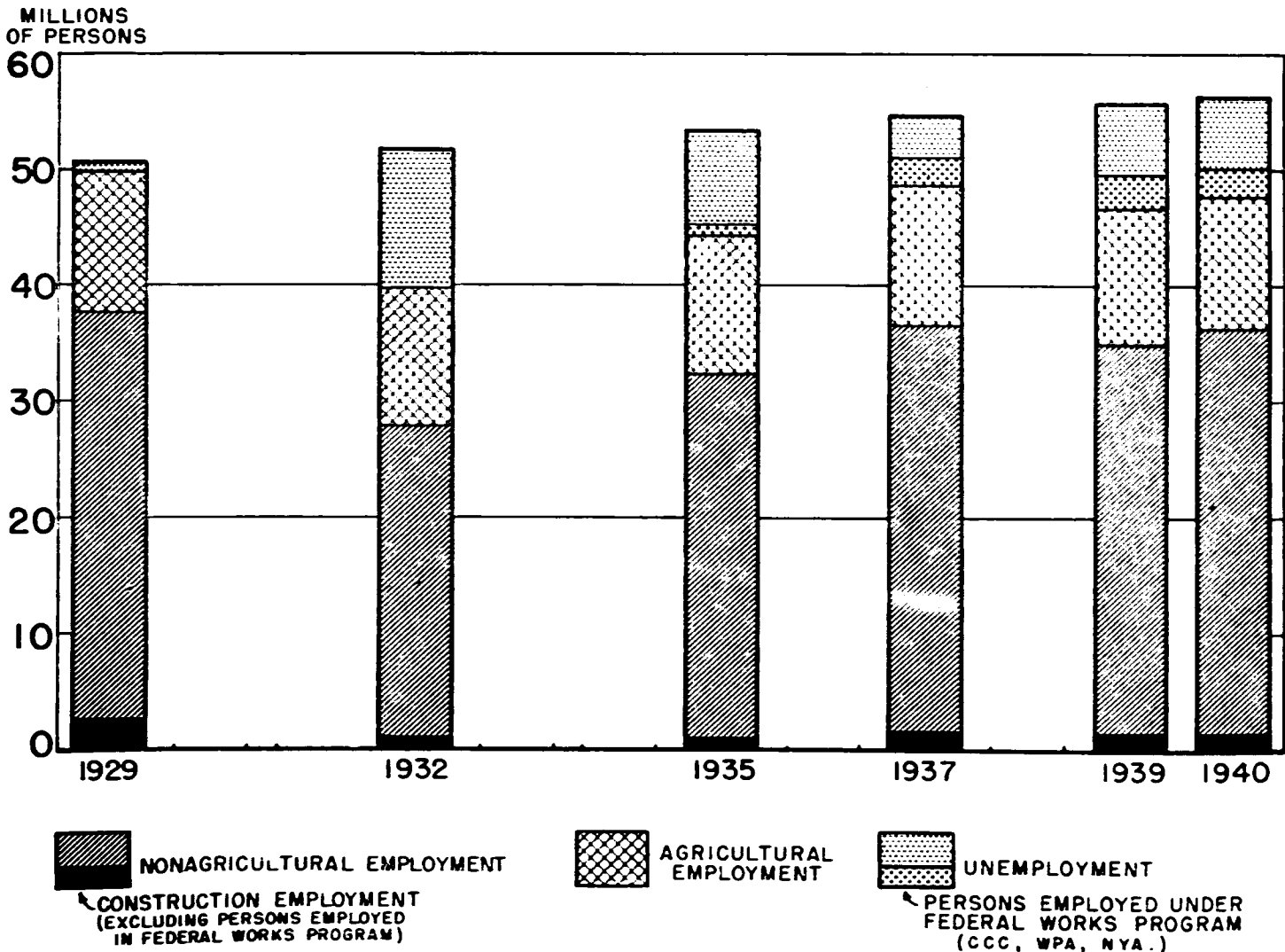


Chart 1

The problem of estimating unemployment is associated mainly with determining the probable number of nonagricultural workers associated with business and industrial operations. The number of workers associated with agriculture is fairly steady. There is little cyclical movement. The seasonality of the curve is quite regular, and the trend movement is almost a straight line. (Chart 1 and table 1.)

There is, however, a decided cyclical movement in the curve of non-agricultural employment. The number of workers is determined largely by the fluctuations of industrial production. The seasonality of total employment seems to be dominated largely by the seasonality of agricultural and construction employment, both of which are high in the summer and low in the winter. This is true even though the total of agricultural and of construction employment is less than one-third of the total number of workers in all industry. (Chart 2 and table 2.)

Another important factor in determining the amount of unemployment is involved in estimating the total number of gainful workers. The increase in this num-

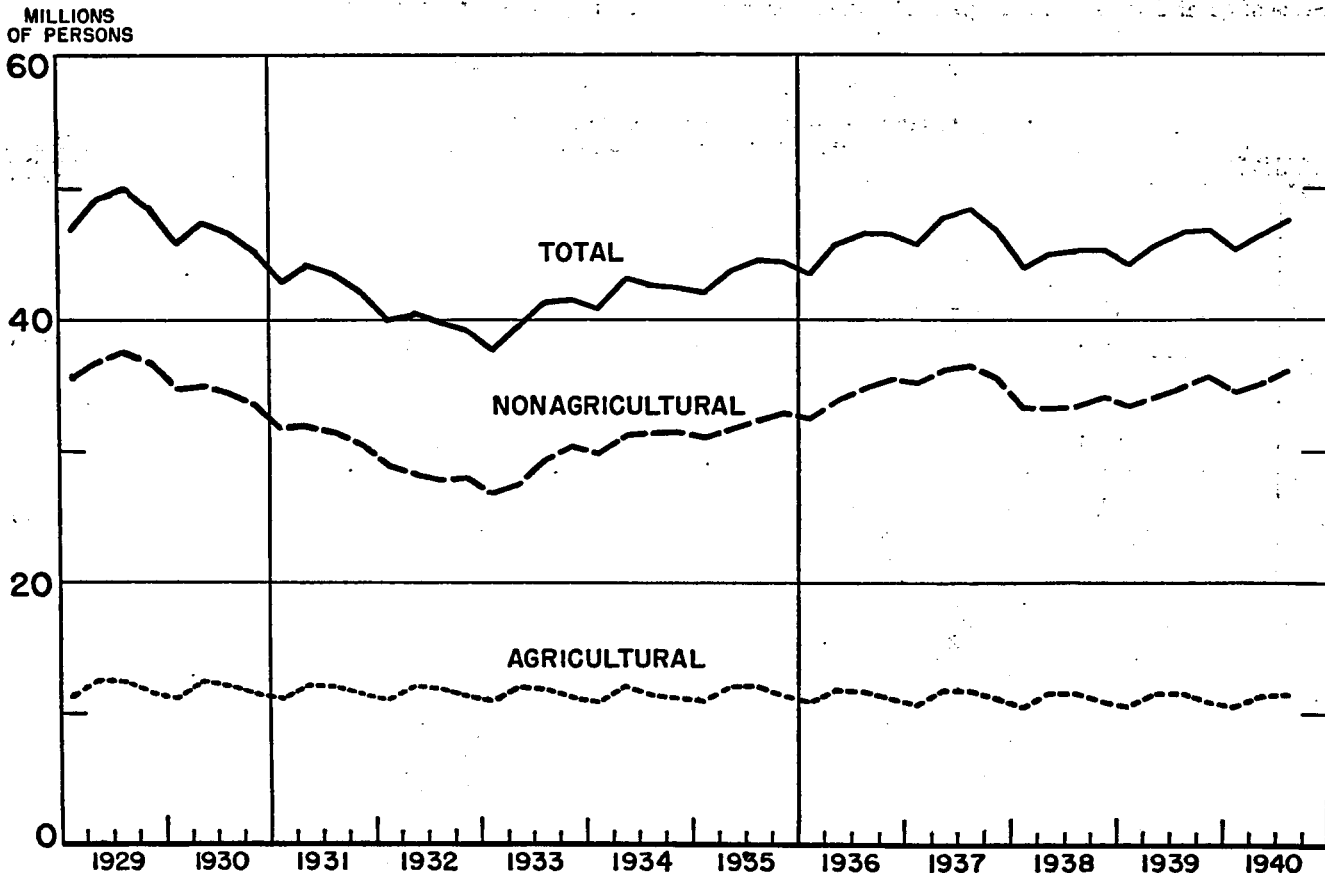
TABLE 1.—Employment in the United States by quarters 1929-1940

[Based on averages of monthly data. Millions of persons]

Period	Total	Nonagricultural ¹	Agricultural ²
1929—1st quarter.....	46.8	35.6	11.2
2d quarter.....	49.2	36.8	12.4
3d quarter.....	49.9	37.6	12.3
4th quarter.....	48.5	36.9	11.6
1930—1st quarter.....	45.9	34.8	11.1
2d quarter.....	47.4	35.0	12.4
3d quarter.....	46.5	34.5	12.0
4th quarter.....	45.0	33.5	11.5
1931—1st quarter.....	42.9	31.8	11.1
2d quarter.....	44.1	32.0	12.1
3d quarter.....	43.6	31.6	12.0
4th quarter.....	42.1	30.6	11.5
1932—1st quarter.....	40.0	29.0	11.0
2d quarter.....	40.3	28.3	12.0
3d quarter.....	39.8	27.9	11.9
4th quarter.....	39.3	28.0	11.3
1933—1st quarter.....	37.8	26.8	11.0
2d quarter.....	39.5	27.5	12.0
3d quarter.....	41.3	29.4	11.9
4th quarter.....	41.5	30.2	11.3
1934—1st quarter.....	40.9	29.9	11.0
2d quarter.....	43.1	31.1	12.0
3d quarter.....	42.7	31.2	11.5
4th quarter.....	42.5	31.3	11.2
1935—1st quarter.....	42.1	31.1	11.0
2d quarter.....	43.9	31.8	12.1
3d quarter.....	44.5	32.4	12.1
4th quarter.....	44.4	33.0	11.4
1936—1st quarter.....	43.5	32.6	10.9
2d quarter.....	45.8	33.9	11.9
3d quarter.....	46.6	34.8	11.8
4th quarter.....	46.6	35.4	11.2

See footnotes at end of table.

EMPLOYMENT IN THE UNITED STATES, BY QUARTERS, 1929-1940



Source: Nonagricultural Employment, Bureau of Labor Statistics, Dept. of Labor Agricultural Employment, Based on Data Published by Dept. of Agriculture

Chart 2

TABLE 1.—Employment in the United States, by quarters, 1929-1940—Continued

[Based on averages of monthly data. Millions of persons]

Period	Total	Nonagricultural ¹	Agricultural ²
1937—1st quarter.....	45.9	35.1	10.8
2d quarter.....	47.9	36.1	11.8
3d quarter.....	48.4	36.6	11.8
4th quarter.....	46.9	35.7	11.2
1938—1st quarter.....	44.0	33.4	10.6
2d quarter.....	45.0	33.3	11.7
3d quarter.....	45.2	33.5	11.7
4th quarter.....	45.2	34.2	11.0
1939—1st quarter.....	44.2	33.6	10.6
2d quarter.....	45.8	34.2	11.6
3d quarter.....	46.6	35.0	11.6
4th quarter.....	46.8	35.8	11.0
1940—1st quarter.....	45.2	34.7	10.6
2d quarter.....	46.5	35.2	11.3
3d quarter.....	47.5	36.1	11.4

¹ Nonagricultural employment based on monthly data of Bureau of Labor Statistics, Department of Labor.
² Agricultural employment based on adjustments made to the data published by the Department of Agriculture on monthly estimates of agricultural employment.

ber each year is estimated as slightly over 500,000. Most of the differences in estimates of unemployment are associated with different assumptions in regard to this total number of possible gainful workers. The Census of Unemployment in 1937 showed that the number of gainful workers was larger than had been expected, in view of estimates previously made of the increase of gainful workers in the period. One interpreta-

TABLE 2.—Employment and unemployment in the United States in the third quarter of selected years, 1929-40*

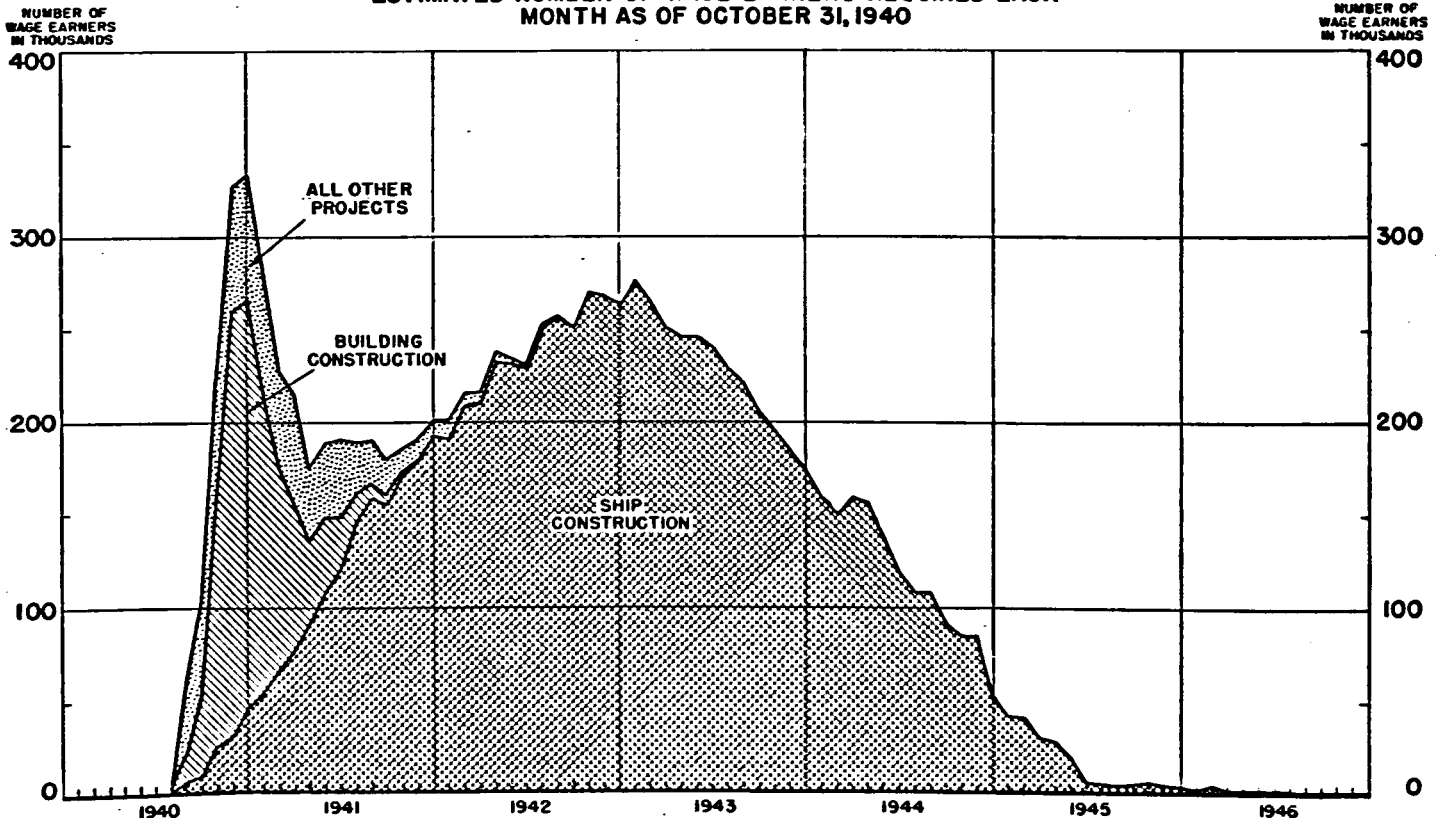
[In millions of persons]

Year	Total employment	Nonagricultural employment			Agricultural employment ²	Estimated labor supply ⁴	Unemployment		
		Total ¹	Construction ³	Other			Total	Employed in Federal works program ⁵	Other
1929.....	49.9	37.6	2.7	34.9	12.3	50.6	0.7	.....	.....
1932.....	39.8	27.9	1.1	26.8	11.9	52.0	12.2	.....	.....
1935.....	44.5	32.4	1.1	31.3	12.1	53.4	8.9	1.1	7.8
1937.....	48.4	36.6	1.7	34.9	11.8	54.6	6.2	2.5	3.7
1939.....	46.6	35.0	1.6	33.4	11.6	55.8	9.2	2.0	6.2
1940.....	47.5	36.1	1.6	34.5	11.4	56.2	* 8.3	2.6	5.6

¹ From Bureau of Labor Statistics, Department of Labor.
² Based on estimates made by the Work Projects Administration of the Federal Works Agency; excludes emergency construction employment (Federal and non-Federal), I. C., WPA, PWA, NIRA, and ERAA but includes PWA construction.
³ Based on estimates of the Department of Agriculture.
⁴ Based on estimates made by National Research Project of Work Projects Administration.
⁵ Based on data compiled by the Social Security Board.
⁶ Excludes 0.5 million persons in the labor supply who were absorbed in the Army and Navy.
^{*} Estimated with data available Dec. 1, 1940.

tion of this difference is that the unemployment of a principal breadwinner tended to bring other members of the family into the labor market who would not ordinarily apply for work. Hence, in approaching full employment, employers would add fewer persons to their payrolls than the number listed as unemployed.

NATIONAL DEFENSE CONSTRUCTION PROJECTS
 STARTED AFTER JUNE 1, 1940
 ESTIMATED NUMBER OF WAGE EARNERS REQUIRED EACH
 MONTH AS OF OCTOBER 31, 1940



Source: Bureau of Labor Statistics, Dept. of Labor

Chart 3

Yet this group of people not normally seeking work constitutes an important labor reserve under emergency conditions.

Another difficulty in estimating the number of available workers at the present time grows out of the emergency demands for special types of workers. Thus, older mechanics, who would not ordinarily be gainful workers, are induced to apply for jobs because of the defense program. In other words, the emergency itself may have some influence on the number of gainful workers. It can, therefore, be readily seen that no estimates can be better than approximations.

Estimates of unused manpower (or unemployment) are made by subtracting from the estimated number of gainful workers the number at work in private employment or normal governmental work.

The average numbers of actual unemployed are thus overstated, unless allowance is made for workers employed by work-relief agencies of government. During the calendar year, this number of persons has averaged about 2,500,000. During the first quarter of 1941, it may still be about 2,250,000, and during the second quarter about 2,000,000. For the remainder of the year, the amount of unemployment will decline still further if our estimates of a continued though unsteady rise of activity are justified. By some time in 1942, it would appear that we may be pushing at our reserves of manpower.

In estimating employment in the first two quarters of 1941, it has been possible to use the estimates of the rate and volume of expenditures under existing defense and other government contracts as a guide to total activity. While new contracts are continually being let, these data do give a rough guide as to what may be expected. (See chart 3 and tables 3 and 4.) One important characteristic of the construction contracts let up to October 1940 is the extent to which they are dominated by ship construction, both naval and merchant, which will dominate the employment requirements of government contracts as far ahead as the fall and winter of 1942-43.

From the standpoint of employment stabilization, the volume of public construction undertaken by the Federal Government has a special interest. Consequently, estimates in regard to employment and unemployment in the construction field are presented. Employment in the construction field is determined by first estimating construction expenditures with reference to construction contracts and, secondly, by relating construction employment to construction expenditures. The construction expenditures data were taken mainly from the previously unpublished estimates of the Work Projects Administration. (See tables 5 and 6.) They should be regarded as rough approximations, since no

TABLE 3.—National defense construction projects started after June 1, 1940. Estimated number of wage earners required each month on all national defense construction projects

(As of Oct. 31, 1940)

Month and year	All projects	Building construction	Ship construction	All other projects
1940:				
July.....	27,200	3,500	1,600	22,100
August.....	59,000	16,600	6,900	35,500
September.....	103,800	44,800	9,100	49,900
October.....	221,600	132,200	26,100	63,300
November.....	327,500	228,400	32,100	67,000
December.....	334,800	220,300	46,900	67,600
1941:				
January.....	281,400	160,900	54,500	66,000
February.....	229,000	108,800	67,000	53,200
March.....	216,400	77,300	77,900	61,200
April.....	176,100	48,900	87,200	40,000
May.....	169,800	41,600	108,200	39,600
June.....	181,800	26,800	122,600	32,400
July.....	189,800	16,200	147,500	27,100
August.....	190,400	8,200	159,300	22,900
September.....	180,500	5,600	154,100	18,800
October.....	186,800	1,700	172,300	12,800
November.....	192,420	20	180,000	12,400
December.....	202,800	.....	193,000	9,800
1942:				
January.....	201,200	.....	192,800	8,400
February.....	217,200	.....	200,500	7,700
March.....	216,300	.....	210,800	5,500
April.....	238,600	.....	233,700	4,900
May.....	235,800	.....	232,400	3,400
June.....	232,100	.....	229,800	2,300
July.....	253,200	.....	252,200	1,000
August.....	258,200	.....	257,800	400
September.....	251,600	.....	251,500	.....
October.....	271,500	.....	271,500	.....
November.....	268,200	.....	268,200	.....
December.....	294,500	.....	294,500	.....
1943:				
January.....	276,600	.....	276,600	.....
February.....	266,200	.....	266,200	.....
March.....	251,500	.....	251,500	.....
April.....	247,900	.....	247,900	.....
May.....	247,200	.....	247,200	.....
June.....	241,900	.....	241,900	.....
July.....	229,600	.....	229,600	.....
August.....	222,300	.....	222,300	.....
September.....	205,900	.....	205,900	.....
October.....	196,500	.....	196,500	.....
November.....	185,300	.....	185,300	.....
December.....	174,300	.....	174,300	.....
1944:				
January.....	169,100	.....	169,100	.....
February.....	150,600	.....	150,600	.....
March.....	160,800	.....	160,800	.....
April.....	167,700	.....	167,700	.....
May.....	138,300	.....	138,300	.....
June.....	118,700	.....	118,700	.....
July.....	108,000	.....	108,000	.....
August.....	108,600	.....	108,600	.....
September.....	92,900	.....	92,900	.....
October.....	85,200	.....	85,200	.....
November.....	85,200	.....	85,200	.....
December.....	63,600	.....	63,600	.....
1945:				
January.....	43,000	.....	43,000	.....
February.....	42,800	.....	42,800	.....
March.....	30,700	.....	30,700	.....
April.....	29,600	.....	29,600	.....
May.....	20,000	.....	20,000	.....
June.....	6,400	.....	6,400	.....
July.....	5,200	.....	5,200	.....
August.....	5,900	.....	5,900	.....
September.....	6,700	.....	6,700	.....
October.....	7,000	.....	7,000	.....
November.....	5,300	.....	5,300	.....
December.....	4,600	.....	4,600	.....
1946:				
January.....	3,300	.....	3,300	.....
February.....	5,300	.....	5,300	.....
March.....	3,700	.....	3,700	.....
April.....	3,000	.....	3,000	.....
May.....	3,000	.....	3,000	.....
June.....	3,400	.....	3,400	.....
July.....	2,400	.....	2,400	.....
August.....	2,000	.....	2,000	.....
September.....	2,000	.....	2,000	.....
October.....	2,000	.....	2,000	.....
November.....	2,000	.....	2,000	.....
December.....	2,000	.....	2,000	.....

very accurate relationship can be established between contracts awarded and payments under the contracts. Furthermore, the number of workers attached to the construction industry fluctuates as workers are unem-

TABLE 4.—Construction expenditures in the United States, by quarters, 1940-41

[Millions of dollars]

Period	Public					Private ¹	Total	
	Federal, exclusive of defense ¹	State and local government ²	National defense, exclusive of naval vessels ³	WPA ⁴	Total		Including WPA	Excluding WPA
1940:								
1st quarter	125	517	40	257	939	900	1,839	1,582
2d quarter	150	682	60	255	1,147	920	2,067	1,812
3d quarter	135	722	74	210	1,141	1,210	2,351	2,141
4th quarter	165	524	201	234	1,124	1,460	2,584	2,350
1941:								
1st quarter	140	550	250	234	1,174	1,020	2,194	1,960
2d quarter	160	730	275	180	1,345	1,500	2,845	2,665
Calendar 1939	590	2,320	140	1,043	4,093	3,690	7,783	6,740
Calendar 1940	575	2,445	375	956	4,351	4,490	8,841	7,885
Fiscal 1941	600	2,526	800	858	4,784	5,190	9,974	9,116

¹ Includes construction from regular Federal appropriations and from emergency appropriations (NIRA and ERAA funds), but excludes national defense expenditures. Estimate for fiscal year 1941 is preliminary and subject to revision. The yearly figure was allocated by quarters according to the 1939 monthly employment pattern in regular and emergency Federal construction shown in *Construction Expenditures and Employment, 1936-39*, WPA. The estimates for the first 2 quarters of 1940 were based on fiscal year 1940, exclusive of defense expenditures, and allocated quarterly by the WPA monthly employment pattern of 1939.

² Includes construction from State and local funds, Federal loans and grants, excluding WPA but including Federal-aid highways. Total for calendar year 1940 estimated by Work Projects Administration with the use of Bureau of Labor Statistics data for the first 9 months of the year; quarterly figures derived by using the 1939 employment pattern for State and local government construction as shown in WPA publication cited in footnote (1) above. Estimates for first 2 quarters of 1941 are estimated at a slightly higher value than the previous 2 quarters on basis of incomplete information on appropriations.

³ Includes expenditures from regular appropriations and from supplementary appropriations since June 1940. First 2 quarters of 1940 based on fiscal year 1940 estimates; other quarters based on estimates of monthly defense expenditures on pay rolls and materials made by the Construction and Employment Division of Bureau of Labor Statistics.

⁴ Estimates of WPA based on monthly schedule of employment supplied in connection with the 1940-41 Relief Bill; first and second quarters, 1940, are actual employment reported by WPA; for other quarters estimated employment was converted to expenditures by multiplying by average per man cost per quarter of \$180.

⁵ Includes new residential, other building construction, and utilities construction. The data for the quarters of 1940 were based on F. W. Dodge estimates of value of contracts; the first and second quarters were estimated from a relationship between national income produced by quarters and private construction expenditures by quarters (adjusted for seasonal variation) from 1925-39. The estimates were obtained from the relationship for a national income of 79 billions of dollars (annual rate) for first quarter of 1941 and for 82 billions of dollars for second quarter.

employed or shift to other occupations. Both the direct and indirect employment resulting from such activity must be taken into account, since direct, on-the-site employment is only about half the total employment resulting from given contracts.

But the chief interest in the data relates to the probable status of construction employment in the second half of the fiscal year 1941. Since a large fraction of the total employment on construction work is common labor, it is necessary to estimate the amount of skilled and semi-skilled construction labor involved before determining whether there will be a shortage of labor supply in the construction field. (See table 7.)

It appears from this analysis that there are likely to be about 365,000 skilled and semiskilled workers still available in the construction field by the end of the fiscal year 1941, and 1,443,000 of such workers employed. Even if this estimate is accurate, there may still be a scarcity among certain types of skilled and semiskilled construction workers in various localities.

TABLE 5.—Construction employment in the United States, by quarters, 1940-41

[Average number of persons, in thousands]

Period	Public					Private ¹	Total	
	Federal, exclusive of defense ¹	State and local government ²	National defense, exclusive of naval vessels ³	WPA ⁴	Total		Including WPA	Excluding WPA
1940:								
1st quarter	153	414	32	1,610	2,209	900	3,109	1,499
2d quarter	173	546	48	1,300	2,067	920	2,987	1,687
3d quarter	161	578	49	1,166	1,964	1,125	3,089	1,923
4th quarter	198	419	161	1,300	2,078	1,358	3,436	2,136
1941:								
1st quarter	151	423	167	1,300	2,041	927	2,968	1,668
2d quarter	177	487	183	1,000	1,847	1,364	3,211	2,211
Calendar 1939	186	397	28	1,750	2,361	905	3,266	1,516
Calendar 1940	171	489	75	1,344	2,079	1,076	3,155	1,811
Fiscal 1941	172	477	142	1,300	1,991	1,193	3,184	1,984

¹ Based on average man-year cost for regular Federal construction and for emergency Federal construction in 1939. The expenditures between these two categories were derived by applying the ratio of 0.316 of total for the emergency Federal expenditures (based on 1939 experience). The man-year cost used for regular Federal construction was \$5,190 and for emergency Federal, \$1,950; for the first 2 quarters of 1941 the man-year costs were increased by 10 percent to account for expected higher building costs.

² Employment derived from man-year cost experience of 1939; for 1941 the man-year cost was increased by 10 percent.

³ Derived from man-year cost of regular Federal construction; for 1941 the man-year cost was increased by 10 percent. This procedure gives estimates which agree closely with those derived by a more elaborate process by the Construction and Employment Division of the Bureau of Labor Statistics.

⁴ For the first 3 quarters of 1940, data are actual as reported by WPA; for the other quarters employment is derived by assuming an average man-quarter cost of \$180.

⁵ Based on man-year cost of 1939; for the fourth quarter the man-year cost was increased by 5 percent, based on increase in construction costs shown by the *Engineering News Record* between October 1939 and October 1940; for 1941 the man-year cost was increased by 10 percent.

TABLE 6.—Construction employment—skilled and semiskilled workers, by quarters, 1940-41¹

[Average number of persons, in thousands]

Period	Public					Private	Total	
	Federal, exclusive of defense	State and local government	National defense, excluding naval vessels	WPA	Total		Including WPA	Excluding WPA
1940:								
1st quarter	72	310	24	402	808	675	1,483	1,061
2d quarter	83	410	36	325	854	690	1,544	1,219
3d quarter	76	434	44	262	846	844	1,690	1,398
4th quarter	95	314	121	325	855	1,018	1,873	1,648
1941:								
1st quarter	72	317	125	325	839	695	1,534	1,209
2d quarter	93	365	137	250	845	1,023	1,868	1,618
Calendar 1939	81	298	21	438	838	679	1,517	1,079
Calendar 1940	82	367	56	336	841	807	1,648	1,312
Fiscal 1941	84	358	106	300	848	895	1,743	1,443

¹ Based on table Construction employment in the United States, by quarters, 1940-41. For all regular Government construction employment and private construction employment, it was assumed that 75 percent of all employed consists of skilled and semiskilled workers (based on figures furnished by Bureau of Labor Statistics). For WPA and Federal Emergency employment it was assumed that 25 percent of employed consists of skilled and semiskilled workers (based on estimate made by WPA).

In the estimate, the number of skilled and semiskilled workers attached to the industry has been taken as constant for the period, while the total number at the beginning of the period was based upon the Census of Unemployment in 1937. It should be noted, however, that the estimated increase in the employment of skilled and semiskilled workers in the second quarter of 1941 over the first quarter will be about 400,000, or

TABLE 7.—Construction labor force and unemployment of skilled and semiskilled workers, by quarters, 1940-41

Period	Labor force attached to construction, including emergency workers ¹	Construction employment, excluding WPA workers ²	Indicated unemployment of construction workers, including WPA workers ³
1940:			
1st quarter.....	1,983	1,081	902
2d quarter.....	1,983	1,219	764
3d quarter.....	1,983	1,398	585
4th quarter.....	1,983	1,548	435
1941:			
1st quarter.....	1,983	1,209	774
2d quarter.....	1,983	1,618	365
Calendar 1939.....	1,983	1,079	904
Calendar 1940.....	1,983	1,312	671
Fiscal 1941.....	1,983	1,443	540

¹ Based on Census of Unemployment, 1937.
² From table on construction employment—skilled and semiskilled, by quarters, 1940-41.
³ Difference between labor force and employment.

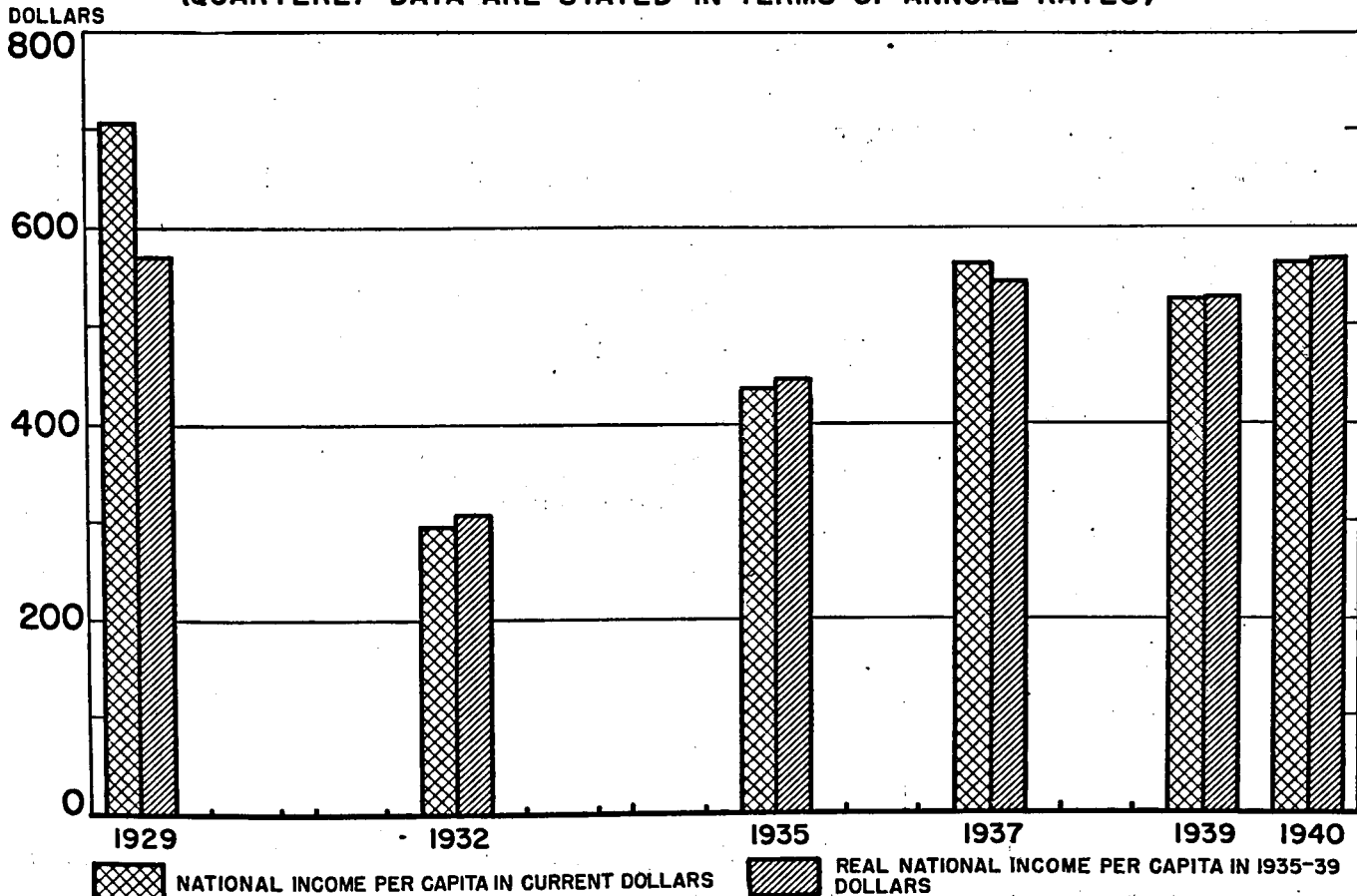
more than the balance of the unemployed skilled construction workers available at the end of the year. Thus, there appears a need for new workers to be trained in this type of work.

Conclusion

If the employment problem be reviewed in the light of these data, it appears that its solution must be found mainly through expansion in the nonagricultural activities. The demands for construction workers during the coming months of 1941 will doubtless call for new skilled workers in these trades. Manufacturing enterprise will be calling for new workers, as will government and the commercial activities. However, the high level of manufacturing production arising from the defense program cannot be maintained after the defense pro-

NATIONAL INCOME PRODUCED, PER CAPITA, FOR THIRD QUARTER OF SELECTED YEARS

(QUARTERLY DATA ARE STATED IN TERMS OF ANNUAL RATES)



Source: Data Based on Income Payments of Dept. of Commerce, Adjusted, and Population Estimates of the Bureau of the Census, Dept. of Commerce.

Chart 4

gram has been completed unless some other fields can be found to take the place of the defense program. In case full employment should involve military priorities in the field of construction and in other durable goods industries, a backlog of demand might be created which would be serviceable at the end of the defense program in the direction of the maintenance of the high level of employment that is likely to be attained during this program.

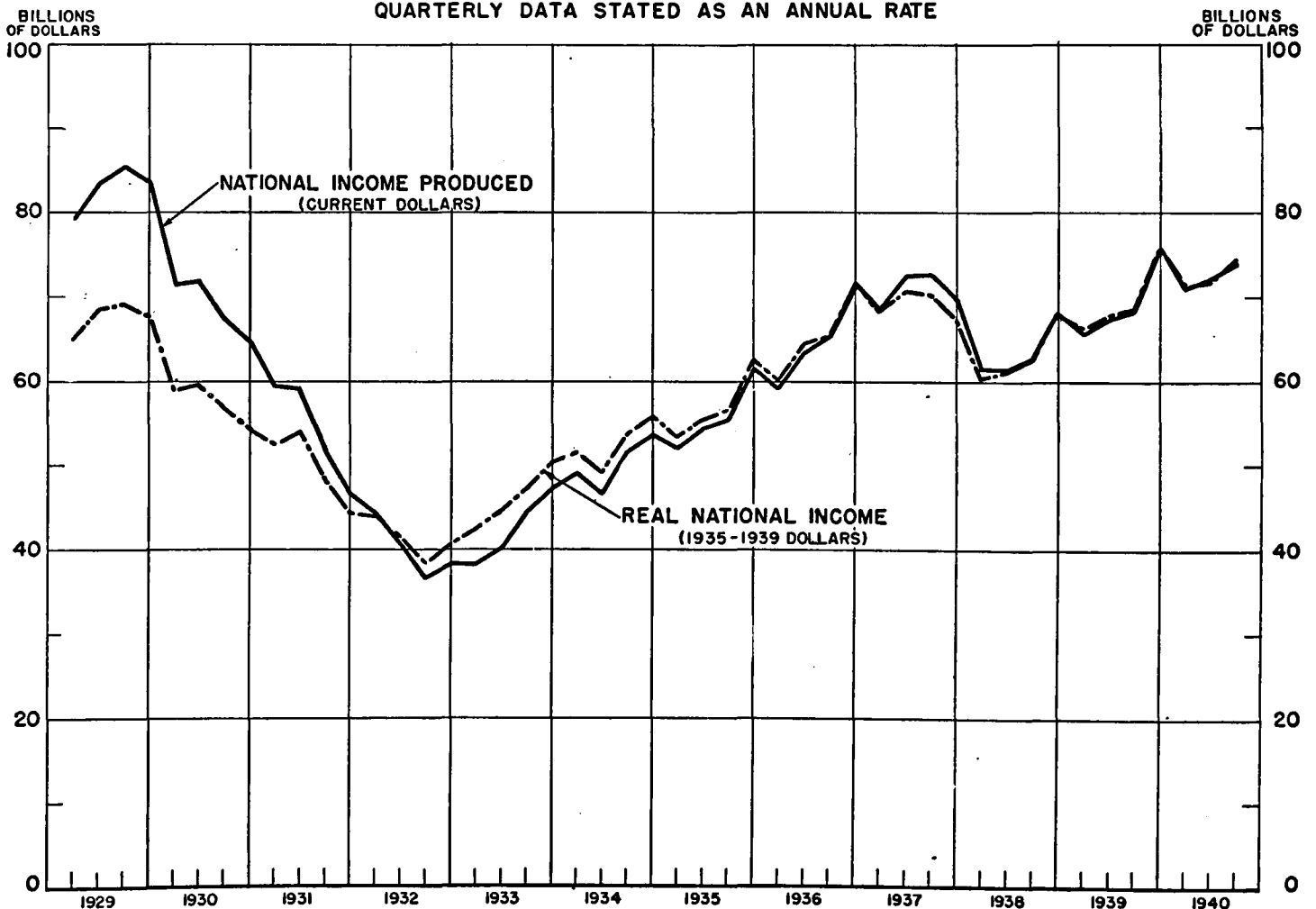
If it proves to be possible to approach full employment without a material rise in the level of prices, this also would be an achievement tending to reduce the readjustments involved in shifting an enlarged portion of total output into the field of goods for civilian consumption. In order to secure such a favorable post-defense economic situation, it will be necessary, as full employment is approached, to finance defense activities mainly from current savings, which high levels of production will make possible. But a high level of prices

in a period of readjustment and curtailment of national income would have drastic consequences for attempts to maintain a high level of employment.

The importance of price levels in relation to national income cannot be overemphasized. Changes in price levels must be considered not only in estimating business activity but also in measuring the well being of the people as a whole. Thus, a study of the national income for the past few years shows that a significant mark was passed during the third quarter of 1940. At that time, the average real income per person just about equalled the highest previous figure on record. This estimate is made by adjusting the national income for price changes and dividing by the number of the population. (Charts 4 and 5 and tables 8 and 9.)

It must be noted at once that this is an average figure. It does not mean that each person is as well off in terms of his access to goods and services. Some have doubtless benefited more than others, and some

NATIONAL INCOME PRODUCED, BY QUARTERS, 1929 - 1940
 QUARTERLY DATA STATED AS AN ANNUAL RATE



Source: National Income Data Based on Income Payments Series Published by the Dept. of Commerce; Real National Income Is Given by National Income Deflated by Bureau of Labor Statistics Cost of Living Index

Chart 5

are below the 1929 level. Just how this average gain has been distributed we do not know. We do know that the largest increase has been in those goods that

TABLE 8.—National income produced, by quarters, 1929-40

[Quarterly income data stated as an annual rate]

Period	National income produced (billions of dollars) ¹	Cost of living (1935-39=100) ²	Real national income (billions of 1935-39 dollars) ³
1929:			
1st quarter.....	79.3	121.9	65.0
2d quarter.....	83.5	121.7	68.6
3d quarter.....	85.3	128.4	69.1
4th quarter.....	83.5	123.4	67.7
1930:			
1st quarter.....	71.6	121.4	59.0
2d quarter.....	71.9	120.7	59.5
3d quarter.....	67.3	118.2	57.0
4th quarter.....	64.7	116.8	54.2
1931:			
1st quarter.....	59.5	113.2	52.6
2d quarter.....	59.2	109.6	54.0
3d quarter.....	51.9	107.9	48.1
4th quarter.....	48.6	105.1	44.4
1932:			
1st quarter.....	44.3	100.7	44.0
2d quarter.....	40.7	98.1	41.5
3d quarter.....	38.9	96.3	38.3
4th quarter.....	38.3	94.3	40.7
1933:			
1st quarter.....	38.2	89.9	42.5
2d quarter.....	40.1	89.5	44.8
3d quarter.....	44.2	93.7	47.1
4th quarter.....	47.3	94.2	50.2
1934:			
1st quarter.....	49.0	94.7	51.7
2d quarter.....	46.7	95.2	49.1
3d quarter.....	51.7	95.9	53.9
4th quarter.....	53.8	96.2	55.9
1935:			
1st quarter.....	52.1	97.5	53.4
2d quarter.....	54.4	98.3	55.3
3d quarter.....	55.4	97.7	56.7
4th quarter.....	61.5	98.4	62.5
1936:			
1st quarter.....	59.1	98.2	60.2
2d quarter.....	63.4	98.5	64.3
3d quarter.....	65.3	99.7	65.5
4th quarter.....	71.4	99.7	71.6
1937:			
1st quarter.....	68.8	101.0	68.2
2d quarter.....	72.6	102.5	70.8
3d quarter.....	72.6	103.4	70.2
4th quarter.....	69.7	103.7	67.2
1938:			
1st quarter.....	61.4	101.6	60.4
2d quarter.....	61.5	100.8	61.0
3d quarter.....	62.9	100.5	62.6
4th quarter.....	68.1	100.2	68.0
1939:			
1st quarter.....	65.8	99.4	66.2
2d quarter.....	67.3	99.0	67.9
3d quarter.....	68.4	99.5	68.7
4th quarter.....	75.9	100.0	75.9
1940:			
1st quarter.....	71.0	99.9	71.1
2d quarter.....	72.0	100.4	71.7
3d quarter.....	74.0	100.4	74.3

¹ Based on monthly data on income payments of the Department of Commerce. The income payments are adjusted to yield income paid out and an estimated monthly business savings added to obtain income produced. The annual monthly totals are further adjusted so as to agree with the Department of Commerce annual data on income produced.

² Bureau of Labor Statistics, Department of Commerce; quarterly averages obtained from monthly data; data for months not reported by Bureau of Labor Statistics obtained by interpolating with the monthly indexes of the National Industrial Conference Board.

³ National income divided by the cost of living index.

make up about 60 percent of consumer purchases, i. e., the perishable goods and services, such as food, gasoline, doctor services, and recreation. These were produced in amounts slightly larger per person than in 1929. Semidurable goods, which consist of such items as clothing and automobile tires, and which make up about 5 percent of consumer purchases, were produced in slightly less quantities than in 1929. Durable consumer goods, which consist of such articles as household furnishings and automobiles and make up another 5 percent of consumer expenditures, were produced in considerably less volume than in 1929. Housing, which makes up the remainder of the consumer's budget, was also available in less quantity than in 1929. (Table 10.)

TABLE 9.—National income produced, per capita, for third quarter of selected years

[Figures are stated on an annual rate]

Year	National income per capita in current dollars	Real national income per capita in 1935-39 dollars
1929.....	\$701	\$568
1932.....	285	306
1935.....	434	444
1937.....	561	543
1939.....	522	524
1940.....	562	564

Source: Based on income payments of the Department of Commerce, adjusted, and estimates of population of the Bureau of the Census, Department of Commerce.

TABLE 10.—Consumers' outlay for perishable, semidurable, and durable commodities and for services, 1929-40 ¹

[In millions of current dollars]

Year	Commodities				Services	Total
	Perishable	Semidurable	Durable	Total		
1929.....	28,550	12,382	9,913	50,845	22,497	73,342
1930.....	26,395	10,731	7,550	44,676	24,385	69,061
1931.....	21,481	9,024	5,748	36,253	20,035	56,288
1932.....	18,147	6,722	3,806	28,675	15,380	44,055
1933.....	18,133	6,513	3,882	28,528	13,742	42,270
1934.....	20,756	7,512	4,686	32,954	16,750	49,704
1935.....	23,095	8,151	5,918	37,164	15,071	52,235
1936.....	25,363	9,200	7,342	41,905	17,000	58,905
1937.....	26,706	9,720	7,664	44,090	18,000	62,090
1938.....	25,503	8,992	5,410	39,904	17,700	57,604
1939.....	26,000	9,850	7,250	43,100	18,300	61,400
1940.....	27,000	10,300	7,700	45,000	18,500	63,500

¹ Data for the commodity components of consumers' outlay for 1929 through 1938 from Kuznets, *National Income and Capital Formation, 1919-35* (1937) and *Commodity Flow and Capital Formation in the Recent Recovery and Decline, 1932-38* (1939); the consumers' services component through 1935 are taken from the former study. The consumers' services component for 1936 through 1938 represent estimates by Martin Taitel on the basis of data compiled by V. L. Basina.

C. PUBLIC WORKS PLANNING FOR EMPLOYMENT STABILIZATION

When Adam Smith, a century and a half ago, listed the construction of public works as one of the appropriate functions of government he stated no new principle. The provision of the physical facilities needed for the service of the community as a whole has traditionally been considered a proper responsibility for government finance and administration. In our own country, the construction of highways, waterways, and lighthouses to facilitate commerce and trade, sewerage systems and water supplies to minister to the public health and convenience, and fortifications to provide for the common defense, to name but a few types, have been undertaken by government since our earliest days.

It was recognized long ago that activities such as these presented opportunities for job creation during recurring periods of widespread unemployment. Jurisdiction over the work is wholly in the hands of public bodies, a large proportion of the labor required needs no special skill, and the work is widely spread geographically. Before the Civil War, New York City could have been observed improving Central Park and building new streets in response to demand that work be provided for the unemployed during the winter of 1857-58. Boston, in 1875, provided jobs for its needy unemployed by putting them to work on grading its streets, breaking stones, and removing rock from ledges. Milwaukee, in 1894, hired a large group of unemployed men to make street improvements that had been contemplated but never begun. In 1914-15, more than 50 cities reported resorting to some form of public construction operation for the relief of unemployment. All these efforts were largely in terms of providing jobs for needy people, rather than in terms of attempting to influence the forces that had caused the unemployment in the first place.¹

Public Works for Cyclical Stabilization

In later years, proposals had been made by legislators, business men, publicists, and economists that the downswing of the business cycle be subjected to some degree of control by adjustments in the level of public construction activity. Opinions differed as to precisely how that control should be exercised and as to how effective it might be under varying circumstances, but in general the proposals focused on the normal construction operations of government and contemplated

timing of activities so that expenditures would be low during periods of business prosperity and high during depressions.

For example, "the minority report of the British Poor Law Commission of 1905 * * * advocated not relief work of the [sort that had formerly been relied upon during periods of unemployment] but rather a scheduling of regular public works and regular government purchases in such a way that a larger amount would be done when private business was less active and a smaller amount when private business was more active, with the idea that this would serve as a regulator and stabilizer of the total economic activity of the nation".²

In this country, as early as 1919, a United States Emergency Public Works Board had been proposed to Congress, which would cooperate with Federal, State, and municipal agencies in stimulating public construction in times of depression. In 1923, the principle of planned public construction received the endorsement of the President's Conference on Unemployment, and following the submission of its report, a bill was introduced into Congress "to prepare for future cyclical periods of depression and unemployment by systems of public works," which provided for advance preparation of engineering plans by the various departments of the Federal Government and gave broad powers to the President in retarding or expediting projects. In 1926, an amendment was proposed to the public buildings bill in Congress to provide that "the Secretary of the Treasury shall take into consideration the stabilizing effect governmental construction policy may exert upon general employment and industrial activity, and shall report to Congress with recommendations whenever the volume of construction for the United States during any period falls one-third below the volume of the corresponding period of 1925."³

During the seventy-third session of Congress, Senator Wagner introduced a bill which, after some modification, was passed in February 1931, as the Employment Stabilization Act. That act declares that it is "the policy of Congress to arrange the construction of public works so far as practicable in such manner as will assist in the stabilization of industry and employment through the proper timing of such construction, and that to further this object there shall be advance planning, including preparation of detailed construction plans, of public works by the construction agencies and the

¹ J. M. Clark, *Economics of Planning Public Works*, p. 9.

² See Gayer, A. D., *Public Works in Prosperity and Depression*; J. M. Clark, *Economics of Planning Public Works*; Wolman, Leo, *Planning and Control of Public Works*.

¹ See L. H. Feder, *Unemployment Relief in Periods of Depression*, Russell Sage Foundation, 1936.

board." It provides that Federal departments engaged in construction should prepare six-year programs of their construction projects and that in the event of an impending state of business depression, the President is requested to report to Congress on the appropriation needed to undertake sufficient public construction to "aid in preventing unemployment." The act also states, "The board shall collect information concerning advance construction plans and estimates by States, municipalities, and other public and private agencies which may indicate the probable volume of construction within the United States or which may aid the construction agencies in formulating their advance plans".

Local Government Public Works

It is important to note that during the high tide of the twenties, no widespread curtailment could be made in the volume of public works expenditure, as called for by the early proposals for stabilization. Whether or not the level of expenditures during that period was higher than "normal" must depend upon the rather difficult determination of what "normal" is. It is certain that local governments were striving valiantly during those prosperous years to catch up with the demands made upon community plant by an unprecedented rate of urban growth, by the rapid expansion of the use of the automobile, and by the high level of industrial production. Borrowing for new public facilities may have been greater than could be supported by future public revenues, but we have the advantage of hindsight when we express this judgment. It would be difficult to demonstrate that there was any widespread construction of unneeded facilities. (It may be noted that most of the excesses that appeared were in the area of special-assessment improvements undertaken in connection with real estate booms.) Late in the twenties, cities were still typically under-provided with the streets, sewers, water systems, school buildings, and other items of community equipment that modern urban living conditions demand.

However, the fact remains that in 1930 the level of State and local public expenditures for construction was at a high point. It was not unnatural, therefore, that the first effect of declining business activity, with its concomitants of lowered real estate values, declining tax collections, reduced bonding limits, and shrinking credit facilities, should have been a rapid decrease in State and local public construction activity, a decrease that added materially to the deflation already well under way.

First National Efforts to Expand Public Works

A few days before the close of 1930, when the forces of depression were rapidly gaining strength in their steady onslaught against the level of business activity and when the number of unemployed workmen was already a matter of grave concern throughout the country, the Congress passed the Supplemental Emergency Construction Appropriation Act, which increased by \$116,000,000 the Federal Government's expenditures for construction. That action marked the beginning of the efforts made during the past 10 years to utilize public construction activity as a counteraction to depression forces. More ambitious recommendations for Federal Government expenditure had been made to President Hoover by his Emergency Committee for Employment, under the chairmanship of Col. Arthur Woods, but in presenting his message to Congress on December 2, 1930, the President had stated that he did not feel warranted in asking for an appropriation of more than from \$100,000,000 to \$150,000,000. The congressional appropriation of \$116,000,000, bolstered by the Woods Committee's exhortation to local governments to accelerate their public works programs, was then deemed adequate for the situation faced by the Nation.

"Encouragement" of local public works construction, however, proved ineffective in the face of steadily declining local government revenues, and the amount of Federal funds made available was seen to be insufficient to make appreciable inroads on the steadily mounting army of unemployed. Throughout 1931, the depression deepened, and proposals multiplied that the Federal Government apply itself energetically to combat the decline in business and employment by more strenuous stimulation of public construction. In a sense, the culmination of these proposals was the passage in that year of the Employment Stabilization Act.

On July 21, 1932, President Hoover approved the Emergency Relief and Construction Act. In that act, \$322,224,000 was appropriated for Federal public works (including \$120,000,000 for supplementary grants for Federal-aid highways), and, more significantly, \$1,500,000,000 was made available to the Reconstruction Finance Corporation for loans for "self-liquidating" local public works projects. Before long, however, it was discovered that the self-liquidating-project formula was ineffective in achieving its announced objective of stimulating local government construction activity. The scheme was doomed to failure by the sheer lack of enough local projects capable of being financed on the toll-bridge principle. By the end of 1933, the Reconstruction Finance Corporation had disbursed little more than \$60,000,000 for such projects.

The PWA Established

In the dramatic days that followed the inauguration of a new administration in the spring of 1933, a new formula for public works expenditure was hammered out and enacted into law on June 16, as title II of the National Industrial Recovery Act. The act provided that grants-in-aid could be made to States and to local governments for the building of public improvements, up to 30 percent of the cost of labor and materials,⁴ and that loans could be extended for the remainder of the project cost. Self-liquidation was no longer required, and \$3,300,000,000 of Federal funds was made available. Provision was also made for loans to limited-dividend housing corporations and to railroads for the modernization of plant and equipment. For the administration of the funds, there was established the Federal Emergency Administration of Public Works, a name almost immediately shortened in popular usage to PWA.

For a variety of reasons,⁵ the new program of public works was slow in getting under way. The unemployed were not rapidly absorbed, and in November, \$400,000,000 of the public works fund was used to establish the Civil Works Administration, a force-account construction agency, to do improvement work for local governments entirely at Federal expense. It was provided that at least half of the labor employed should be taken from the relief rolls. In less than a month, the CWA found enough temporary projects to employ 4,000,000 men, but by March 31, 1934, the funds allotted to it had been spent, and the agency was discontinued.

Development of the Work Relief Program

Attention was now being directed more and more strongly to efforts to give work of some sort to the millions of men on the relief rolls, and the Federal Emergency Relief Administration, created at about the same time as the PWA for the purpose of aiding the States in their direct-relief programs, set up a Work Division to continue the activities inaugurated by the CWA. When, in the following year, the Emergency Relief Appropriation Act of 1935 was passed, its stated purpose was "to provide relief, work relief and to increase employment by providing for useful projects." That act appropriated \$4,880,000,000, and the goal set for its administration was the employment by December 15, 1935, of 3,500,000 men drawn from the relief rolls. The PWA was continued as an agency in the administration of the new program, with its grant-making authority changed to provide grants to local

governments up to 45 percent of project costs.⁶ For that purpose, the act allocated \$900,000,000. But major reliance was placed upon the Works Progress Administration, a new work-relief agency established by executive order, as authorized in the act, and local government public improvement construction began to be undertaken more and more with a work-relief objective.

In 1936, another Emergency Relief Appropriation Act was passed, providing now but \$300,000,000 for the PWA type of activity, and that only from funds already on hand or to be raised by the re-sale of securities purchased under previous programs. For work-relief activities, \$1,425,000,000 was appropriated.

In 1937, to allow the PWA to make allotments for projects whose sponsors had already undertaken commitments of one sort or another in anticipation of Federal aid, Congress authorized the RFC to acquire securities up to \$400,000,000 and the PWA to increase the amount of grants from the revolving fund from \$300,000,000 to \$359,000,000. In 1938, following the alarming decline in employment that attended the latter part of 1937, provisions for public works funds were again raised by an appropriation of \$965,000,000 to the PWA. In both those years, very much larger sums had been appropriated for work relief. The appropriation in 1938 was the last one made to the PWA.

During all the years reviewed in the preceding paragraphs, the regular Federal appropriations had included amounts for construction operations under the jurisdiction of Federal agencies. These amounts do not indicate the whole extent of Federal construction, however, for generous allotments for that purpose were also made from the emergency appropriations each year. Actual expenditures for Federal construction rose from \$195,000,000 in 1930 to \$660,000,000 in 1940.

From the foregoing history of the Federal appropriations for public works since 1930, it can be seen that the emphasis in the earlier part of the period was placed upon increasing public construction activity as a means of regenerating business activity. Employment of men on the site of construction was not the only purpose in view. It was hoped that the materials orders involved in the construction would serve to stimulate heavy industry and, furthermore, that the re-spending of wages received through direct or indirect employment would itself have a beneficial effect upon the country's economic health. As the depression continued, this view was gradually replaced by one that emphasized construction-site employment of men taken from the relief rolls. Administrative policies were aimed at obtaining the maximum yield of such employment from the funds available.

⁴ In the administration of the act, the 30 percent figure was applied to all such projects receiving grants. In other words, all grants made were at the maximum authorized by law.

⁵ See p. 20.

⁶ In practice, the 45 percent was applied to all projects, although in the law it was established as a maximum.

It can be said, therefore, that decreasing reliance was placed upon the effects of public works expenditures in stimulating business recovery, and that in the later years of the period, such expenditures had as their major objective the alleviation of the distress caused by unemployment.

The Course of Public Construction

It can be seen from table 1 that Federal expenditures for public construction showed a great increase as a result of the congressional appropriations. However, the increase in funds appropriated was not fully translated into an increase in actual construction activity until some time after the first major congressional enactment of 1933. The high year of actual construction volume financed in whole or in part by Federal funds was 1936, after which the total began to fall off. Furthermore, it can be seen from table 1 that increased expenditures on Federal projects represented but a minor part of the total rise.

TABLE 1.—Estimated expenditures of Federal funds for new public construction (1925-38)

[Millions of dollars]

Calendar year	Federal construction projects	PWA grants and Federal aid for State highways	Work relief expenditures	Total Federal funds expended for construction
1930.....	190	117	.....	307
1931.....	250	172	.....	422
1932.....	283	177	.....	460
1933.....	312	197	138	647
1934.....	368	297	715	1,380
1935.....	427	360	447	1,234
1936.....	501	612	1,222	2,335
1937.....	524	525	994	2,043
1938.....	475	404	1,206	2,085
1939.....	553	610	1,043	2,206
1940.....	1,999	1,832	1950	1,281

¹ Preliminary estimates.

During the earlier part of the period under examination, State and local governments were feeling the pinch of declining revenues and were drastically decreasing their rate of public works spending. If their construction is added to that financed by the Federal Government, as is done in table 2, a better picture of the total effect can be gained.

Public construction activity began to decline immediately after 1930, and reached a low point in 1932 that was not much more than half the pre-depression volume. It rose slowly during 1933, 1934, and 1935, but did not surpass the 1930 figure until 1936, and then only by virtue of the expenditures made for work relief. If the work-relief activity is excluded from the total, it can be seen that the amount of public construction carried on by normal procedures has never been greater than the volume of public construction during the pre-depression period.

An even better understanding of the effectiveness of Federal appropriations can be obtained by considering also the extent to which the depression affected the level of private business expenditures for construction. Pri-

TABLE 2.—Estimated expenditure of public funds for new public construction¹ (1925-38)

[Millions of dollars]

Calendar year	Public construction financed by Federal funds	Public construction financed by State and local funds	Total public construction
1930.....	307	2,469	2,776
1931.....	422	2,156	2,578
1932.....	460	1,334	1,794
1933.....	647	707	1,354
1934.....	1,380	794	2,174
1935.....	1,234	616	1,850
1936.....	2,335	891	3,216
1937.....	2,043	845	2,888
1938.....	2,139	1,089	3,228
1939.....	2,085	1,103	3,188
1939.....	2,206	1,314	3,520
1940.....	1,281	1,143	2,424

¹ Including work-relief construction.

² Preliminary estimates.

TABLE 3.—Total estimated expenditures for new construction in the United States (1925-38)

[Millions of dollars]

Calendar year	Private construction expenditures	Expenditures for public construction ¹	Total expenditures for construction ¹
1930.....	5,941	2,776	8,717
1931.....	3,712	2,578	6,290
1932.....	1,767	1,794	3,561
1933.....	1,091	1,354	2,445
1934.....	1,233	2,174	3,406
1935.....	1,605	1,850	3,455
1936.....	2,551	3,216	5,767
1937.....	3,443	2,888	6,331
1938.....	3,072	3,188	6,260
1939.....	3,491	3,520	7,011
1940.....	3,985	3,434	7,409

¹ Including work-relief construction.

² Preliminary estimates.

vate construction has normally been several times as great as public construction. But the depression hit hard at private building. In 1930 it was already dropping fast, and it reached an extreme low in 1932, when it was even less than public construction, which was itself at its low point. Although private construction began to revive after 1933, it has not yet begun to approach its pre-depression volume of about \$8,000,000,000 annually.

What 10 Years of Experience Have Shown

The past 10 years have provided a rich experience in the utilization of public construction as a means toward employment stabilization. We have learned that each of the following seven points must be taken into account in carrying forward the objectives of the Employment Stabilization Act.

1. Coordination of Federal-State-Local Policies

There is an absolute necessity for close coordination of the public works policies of the Federal, State, and local governments. In the absence of such coordination, it is very difficult to avoid having the efforts of the Federal Government to expand activities frustrated by the curtailment of expenditures by States and cities.

The severe reduction in local government expenditure for public works construction in the period immediately following 1930 was not due to perverseness on the part of municipal government officials. It followed logically from the way local government construction is financed. Local governments are dependent largely upon the yield of the property tax, and in that period of rapidly falling business activity, property values naturally showed a declining trend. Lowered assessments followed in many instances, with a resultant reduction in tax payments, but even where adjustment in assessments lagged, tax rates were subject to the downward pressure of public opinion. It was inevitable, therefore, that municipal revenues should have fallen off rather drastically during the sharp downturn of the business cycle.

Furthermore, a large share of municipal expenditures for public works improvements are financed in the first instance by the issuance of bonds. The principal purchasers of these bonds under ordinary circumstances are trust funds, insurance companies, and savings banks. Consequently, State laws governing the operations of these fiduciary institutions, such as those of New York and Massachusetts, or rather the expressed opinions of bond attorneys interpreting these laws in relation to specific bond issue proposals, are likely to be controlling on marketability. The rigid requirements of these laws in regard to default either on principal or interest tend to make the municipal financing operation a highly conservative one, and it is almost inevitable that if property values and property tax yields decline, the normal market for municipal issues will be reduced. Moreover, public opinion has in general been opposed to municipal borrowing during periods of falling business activity.

All the forces referred to combined during the early 1930's; and to aggravate the situation, there developed a Nation-wide demand for liquidity, with a resultant drying up of credit facilities in general.⁷ It is not

⁷ The Board of Governors of the Investment Bankers Association of America on January 30, 1932, adopted the following resolution:

"Whereas, due to unsettled economic conditions, following a period of tremendous activities, states and municipalities, which were called upon to provide greatly increased services and equipment, are today faced with the difficult problems of carrying on the functions of government and meeting heavy fixed charges in the face of declining revenues and mounting deficits;

"And whereas, it has been proposed that unemployment be relieved by a program of public improvements to be financed through the extension of credit to states and municipalities;

"And whereas, a substantial increase in the indebtedness of states and municipalities at this time would retard the recovery of business and, thereby, the ability of business to increase employment and would be detrimental to the credit stability of such governments and create an added burden on the taxpayers;

"And whereas, it is important to the return of economic stability to maintain the high credit position of states and municipalities, and to decrease the burden of local taxation wherever possible.

"Be it resolved, that the Board of Governors of the Investment Bankers Association of America is opposed to the extension of public improvements which would necessitate an increase in the bonded indebtedness of states and municipalities under present conditions, and that public officials be urged to adopt programs of strict economy, adjust expenditures to actual income, and restrict the incurrence of bonded indebtedness to the end that taxation may be reduced and credit maintained."

surprising that in a period like that of from 1930 to 1935 municipal expenditures for public works were reduced greatly below their pre-depression level.

The provision of financial assistance by the Federal Government for the construction of State and local public works during such periods has an important alleviating effect, but it is not to be concluded that, after the panic stage has been passed, the Federal expenditure will represent entirely a net addition to what such expenditures otherwise would have been. It is impossible to say by just how much local governments' real ability to finance public improvements has been lowered by the depressed conditions of the business community. To an indeterminate degree, Federal grants during the period under review took the place of, rather than added to, expenditures from local revenues. In fact, local public works expenditures from local funds in 1940 were still considerably below the level of such expenditures 10 years earlier. Although the expenditures of the Federal Government for public works purposes are higher, total public works expenditures are not materially more than they were in the pre-depression years.

It is clear that the factors governing local government finances are critical in any national public construction program designed to counterbalance depression forces. Long-range programming of local construction, in conformance with the long-range financial resources of the community, will go far toward smoothing out the curve of local public works activity, and will provide a sound basis of administration for any Federal financial assistance to be made available during periods of depression. But the relations that are to prevail between the Federal Government and the State and local governments during an "emergency" period must be formulated in advance if the necessary coordination of action is to be achieved. If the States and cities are to make their programs properly, they must know ahead of time what sort of aid they are to expect from the Federal Government, whether it is to be grants of a certain proportion of project cost, loans, guaranties of bond issues, or other types of financial assistance. In this field, long-range planning is required by the Federal Government as well as by the States and cities themselves.

2. Continuing Federal Policy

It has also been demonstrated that a series of "emergency" programs of public works construction may be self-defeating in achieving the aim of employment stabilization. Throughout the entire period discussed, there was no definitely continuing policy to guide the planners and administrators of Federal, State, or local governments. Each program was set up as if it were the last. The consequence was a sort of "dead-

line" type of administration, with projects chosen for prosecution in accordance with their degree of readiness and the quickness with which they would put great numbers of men to work, rather than in accordance with the urgency of demand for the improvement being undertaken. When these two criteria worked together, important and socially valuable community improvements resulted; when they conflicted, community value had to take second place.

It is true, of course, that a quick start was highly desirable for the first program; there were millions of unemployed men completely unprovided for at that time. During the ensuing years, however, the number of unemployed was always much greater than could be put to work by the programs appropriated for and the need for quick stopping and restarting was not of fundamental importance. The emergency programs were based on the hope that the unemployment problem would be solved in a brief period, but these hopes, experience proved, were not to be realized.

A continuing policy, established by the Congress, would have made it possible to plan a public works program for a considerable period in advance, projects could have been made ready with the care that important undertakings require, they could have been chosen in accordance with the community values represented by their completion, administration could have functioned smoothly, and the deflationary effects of periodic work curtailment could have been avoided.

3. On-Site and Off-Site Employment

The employment yield of public expenditure for the construction of public improvements is not limited to the jobs on the site of construction. The total employment attributable to a public construction project must take into account also the people employed in the mines and factories producing construction materials, those transporting the materials to the site of the construction operation, and those engaged in managing the work.

The extent to which this off-site employment is developed by any program, of course, depends largely upon the type of projects chosen for prosecution. From project to project, it is extremely variable. Studies have revealed that for the PWA program of non-Federal construction about two man-hours of employment off the site of construction were required for every man-hour of work put in on the construction job itself. On the other hand, the ratio was about one-sixth to one for the work-relief projects included within the program of the WPA.

It has also been shown that employment yield, in man-hours per dollar, is governed principally by the type of work undertaken and the characteristic wage rates paid to the construction workmen, factors that

are likely to be masked in over-all figures for different programs. For example, a recent study indicates that for all the projects included within the PWA's non-Federal program, the cost of each man-hour of employment, including both on-site and off-site labor, was \$1.12, while for the work-relief construction projects carried out by WPA it was \$0.55. If, however, the analysis is confined to a single type of project, such as building construction, the total man-hour cost for the PWA projects was \$1.00 as compared to \$0.73 for those of the WPA. Making a further correction to account for the differences in characteristic wage rates on the two types of project, the cost figures are \$1.00 per man-hour of total employment created on the public works jobs and \$0.90 per man-hour on the work-relief jobs.⁸ This appears to indicate that as far as employment yield is concerned, the type of administration employed is of less importance than the project-composition of the program and the wage rates paid.

4. Self-Liquidating Projects

Any public works program of sufficient size to have marked effect upon a major drop in employment cannot rely wholly upon so-called self-liquidating projects, in the strict interpretation of that term. Our experience of 1932 and 1933 with the R. F. C. public works program provides the evidence. In that program, \$1,500,000,000 was made available for loans to public bodies for the construction of projects that were to be financed wholly out of tolls and service charges; the amount of construction so undertaken was small, and disbursement of the expenditure involved was extremely slow.⁹

There are severe limitations on such a program if the meaning of the term "self-liquidating" is to be confined to that used in the Emergency Relief and Construction Act of 1932. A limited number of projects capable of successful commercial operation on a price basis fall within the customary field of government activity, such as toll bridges, power systems, water works, and sewerage systems, in which the amount of use made of the improvement by any individual is capable of direct measurement. Street and highway improvements, flood protection works, and all those projects directly benefiting property values can be included only if the meaning of the term "self-liquidating" is extended to cover projects that influence revenues derived from special taxes, like gasoline taxes, or from special assessments. Many of the projects for which there is greatest social need could not be included in this category at all.

The number of projects for which service-charge financing will provide an equitable system of allocating

⁸ Galbraith, J. K. and Johnson, G. G., Jr., *The Economic Effects of the Federal Public Works Expenditures, 1933-1938*, National Resources Planning Board, p. 53.

⁹ See p. 15.

costs is still more limited. The benefits derived from the use of many projects most important in community life are extremely widespread, and equity demands that the project cost be borne by the community as a whole rather than by individual users in proportion to the apparent use they might make of the structure. Indeed, the value to the community of many of these projects is dependent upon the extent to which they are used, and any financing method that might curtail this use would be socially detrimental.

In theory, the principal justification for the use of a price base in financing a public service is the economical use of resources brought about thereby. In other words, a price is justified when it prevents waste. For example, a publicly-owned power plant distributing electricity without any schedule of rates, with the entire cost of the service borne by general tax revenues, would without question lead to a highly wasteful use of electric energy. Meters, rate schedules, and special bills for electric service therefore become entirely proper. On the other hand, where there is no close relationship between the price charged for a service and the demand that will be made for it, as in the case of a sanitary sewer system, a price may be quite improper, except on the ground of expediency.

However, many of the projects characteristic of public construction programs are susceptible of partial self-liquidation. Municipal hospitals, for example, may return some revenue, possibly enough to pay the building cost, even though charges to patients could not make the whole hospital operation self-supporting. Housing for low-income groups may continue to need partial subsidy but will produce a certain amount of revenue to be applied against the cost of construction. Wharves, docks, and navigation facilities are capable of a large degree of self-support through service charges and may, in some instances, even be profitable in a commercial sense. Many facilities for recreation also fall into this same class of partially self-liquidating projects. Non-Federal projects built by the Federal Government and leased to State or local governments on terms that fully amortize the construction cost are wholly self-liquidating as far as the Federal Treasury is concerned.

Furthermore, there are types of construction that have not heretofore been characteristic of public activity which could be undertaken during periods of depression and properly financed out of service charges. For instance, the great traffic congestion of our downtown urban areas might be materially relieved and individual convenience served by parking garages which could be self-supporting on the basis of parking fees. Judicious use of the excess condemnation device may secure a return to the public of a part of the benefits to surrounding property growing out of public improvements.

The extension of the scope of public activity during the past decade has also widened the field for many projects that could be wholly self-liquidating. The great power developments on the Tennessee and Columbia rivers, for example, indicate another field of developmental works that can be built within the meaning of the term "self-liquidating."

5. The Elements of Delay

It has been amply demonstrated that many months may elapse between the authorization of a large program of public construction, or even the appropriation therefor, and the actual employment of great numbers of men on construction operations. This delay is occasioned by the time necessary to carry out the preliminary surveys, studies, and investigations, to make the detailed plans and specifications, to arrange for financing (for local governments this may even mean the holding of a special election to approve a proposed bond issue), to acquire land, to advertise for and receive bids and award contracts, and to organize the construction operations. Even after the construction job is completely organized, considerable time may elapse before the employment on the site attains any considerable magnitude.

Although problems of great difficulty must first be solved, it is possible to shorten or telescope some of these time elements. For example, it is entirely possible for land to be acquired in advance of the decision to proceed with construction, even though such advance acquisition requires an outlay of funds that may not be productive of service for considerable time and is, therefore, not likely to be given easy approval by those responsible for public affairs.

The time required for bid advertisement is customarily stated in city charters and ordinances. The purpose of such provisions, of course, is to prevent hasty or concealed action and to give assurance against favoritism. Furthermore, there is a practical need for such time to provide reasonable opportunity for contracting companies to prepare their bids. Force-account construction would eliminate this element of delay if a force-account organization were always promptly available to undertake the work. If such an organization had to be built up, however, the delay involved would probably be even greater than that required to utilize the available facilities of the private building companies.

Expansion of existing force-account organizations to engage in a large volume of easily started work can be accomplished rapidly, however, as experience with the CWA in 1933 showed. Provided that no additional elements of delay are introduced, such as that involved in arranging for joint financing by Federal and local governments or in qualifying each job seeker as to his

eligibility to receive relief, the CWA formula, or something similar to it, provides a convenient way of bridging over the time necessary to prepare for the more solid projects.

Even when a construction contract is awarded, dirt does not begin to fly immediately. Whether the project is built by a private contractor or by a force-account organization, time is required to recruit the construction personnel, to set up construction equipment, and to take the other steps necessary to put the work into full swing. The length of this time interval varies widely from project to project and is governed largely by project size, although it is also affected by the season of year in which the contract is let. The larger the project the longer is the time likely to be between the theoretical starting point and the employment peak. This is probably a natural relationship not susceptible of alteration to any considerable degree. A large project is prone, by its very nature, to require in its first construction steps operations that make limited demands upon construction labor and to require a large working force only after a considerable amount of the preliminary time-consuming work has been completed.

Contracts awarded in the autumn are not likely to reach full operation before the good construction weather arrives in the following spring. The fiscal year of the Federal Government splits the best construction season in half, and appropriations for the public construction programs undertaken during recent years have not ordinarily been passed by the Congress until May or June. If such a program could be made the first order of business upon the convening of Congress, it would be possible to manage the program in closer accord with the natural construction season.

It is entirely possible to reduce to a minimum the delays that so far have been caused by the necessity of carrying our preliminary surveys, studies, and investigations and in making detailed plans and specifications. But here, too, there are some serious problems to be faced. The steps necessary will have to be taken long before the need for an expanded program becomes apparent, and the key to taking these steps is the advance provision of funds for the preliminary planning work.

It is almost universal practice to consider engineering costs as properly chargeable against the project cost itself, and consequently, the engineering work is not ordinarily undertaken until the construction of the project is virtually determined upon. In the case of local government projects, in fact, it is customary for the engineering work to be financed out of the proceeds of the bonds sold for the project's construction, and consequently, the engineering is not undertaken until the project as a whole has been financed.

To provide funds some years in advance for the engineering work involved on public construction

projects presents, of course, the hazard that engineering costs will be incurred on many projects that will never be built. To the extent that this occurs, the procedure would be a wasteful one. However, the hazard is not particularly great if the financing of this preliminary work is properly administered; exercise of sound administrative judgment would reduce to a minimum the loss involved. In any event, the losses that would come about might quite properly be considered the cost of insuring against an emergency. The cost would, without question, be far less than the cost of being caught unprepared.

The situation calls for the advance provision of funds for preliminary studies and for engineering plans and specifications for projects on which no commitment as to construction has been made. One way of making this provision for Federal construction projects is for the Congress to set up by appropriation a revolving fund out of which sums might be made available by administrative allocation to construction agencies for making studies, surveys, investigations, engineering plans, and specifications for proposed projects. It would be understood that the fund would be reimbursed out of any money later made available for the project's construction, but that the advance would represent in no sense a commitment to undertake the construction at any time. Allotments from the fund might most appropriately be made by the President through his Executive Office.

For non-Federal projects, the same procedure might be followed, with advances from the revolving fund to be returned out of construction funds when the project is undertaken.

6. Flexibility and Commitments

The larger the project, we have learned, the greater the difficulty of getting it under way quickly and, conversely, the greater the difficulty of bringing it to a close. Small projects, on the other hand, can ordinarily be started quickly and are, naturally, of short duration. Merely by controlling the number of new projects started, a program made up of many small ones can be reduced or terminated readily without leaving projects half done. A program made up of large projects, like great bridges or big irrigation and power works, is not so easily controlled. Once a large and important public improvement is put under way, there is usually a virtual commitment to carry it through to completion. It is entirely possible, even, that the level of operation on big projects would be in an increasing stage at the time when general policy would demand program curtailment.

A well-balanced program might well consist of a limited number of projects of considerable magnitude to provide weight and solidity, to which would be

added a much greater number of rather small undertakings to provide flexibility.

Flexibility in rate of program progress can be provided to an even greater degree by including in the program the proper proportion of projects of certain types. In general, streets, roads, water distribution systems, sewers, curb-and-gutter work, and the like can almost literally be constructed by the yard and provide utility in proportion to the amount of work done. The operations can be so arranged that whatever is completed when the job is stopped will be of value. Other types of projects like sewage treatment plants, water purification plants, buildings, and so on are not likely to be useful at all until wholly completed.

Rigidity is the reverse of flexibility, and rigidity is one of the principal characteristics of the Federal Government's own construction program. To a large extent, that program is automatically determined for several years in advance by virtual commitments to proceed with large undertakings already under way. In many instances, these commitments are so firm that they cannot be avoided except by the abrogation of existing contracts. Controllability of the construction program is rather completely frustrated, for proper programming implies controllability downward as well as upward. In view of the rigidities introduced by long-term commitments, programming itself loses much of its value.

A similar problem is presented by grants-in-aid to States for highway construction. The amount of work undertaken by the States is virtually determined by the Congressional authorizing legislation, which sets for a two-year period in advance the amount of highway construction for which the Federal Government will bear half the cost. It is not difficult, of course, to expand the amount of highway construction by the enactment of supplemental authorizations, but efforts toward contraction encounter the two-year commitments already made, on the basis of which the States are likely to have let construction contracts.

7. Public Construction Is One of Several Tools

Of paramount importance is the fact that in a major depression it is impossible to rely solely upon the employment created through an expansion of public construction to make up for all of the unemployment created by the decline in business activity. At the lowest point of the great depression, public works employment and business dis-employment were really

of two entirely different magnitudes. Although estimates differ as to the extent of unemployment during the depression period, it was probably in the neighborhood of 13,000,000 in 1933. The estimated combined off-site and on-site employment on construction financed wholly or partially from Federal funds, including work relief, in 1933 was 745,000.

In 1937, unemployment was in the neighborhood of 7,000,000, while employment resulting from Federal activities was 3,500,000. It is clear, therefore, that an important contribution toward stabilization of employment can be made, in fact has been made, by public works, but they cannot do the whole job. It can, however, be reasonably expected that governments see to it that they do not add to prevailing business depression by reduction of their own activities.

Other government activities beyond public works must be considered if the effects of depression are to be mitigated. For example, much of the good done by a public construction program can be undone if the fiscal policies of government are such as to reduce private activity. The compounding of taxes that bear heavily on consumption at times when consumption is low is an example of the type of policy that can have such effects.

In addition to activities in the realm of expenditures and taxes are those that move more directly to the stimulation of private activity. Thus, government has taken the lead in establishing conditions under which the costs of financing by private individuals and institutions are lower. The Federal Housing Administration, through its insurance fund and the use of government credit, has made possible the increase of private investment in residential housing. The Reconstruction Finance Corporation and the Federal Reserve banks, in addition to making direct loans to private enterprise, have also participated in loans made by private banks.

Public measures for insuring some minimum of income for all of our adult population are likewise important in maintaining employment stability. Old-age pensions and unemployment insurance are significant not only because they help those who would otherwise have no income but also because they assist in maintaining the more regular flow of income through the economy and thus are of help to everyone.

Unrestrained monopoly may interfere with full production and restrain employment. Policies of the banking and monetary authorities affect not only the flow of capital but also have their influence on price changes. Thus, in addition to direct financing, there are many governmental activities that should be pursued to stimulate general economic activity.

D. PUBLIC WORKS PLANNING FOR NATIONAL DEVELOPMENT

Public works construction is a means toward an end rather than an end in itself. Great though the process values may be in providing jobs in a period of economic strain, the primary aim of the process must be a product that will contribute to the development of the Nation. Public works projects are not luxuries, mere ornaments to society. They are part and parcel of the physical plant that is demanded by civilization as fundamental and indispensable to its functioning.

Public works construction has always been a major activity of the Federal Government. The first public improvements undertaken by the Congress were lighthouse stations and lighthouses in 1791, which called for an appropriation of \$23,000. Public building construction was begun the following year. The construction of military and naval equipment, of course, is also very old, dating from 1794. But it was not until 1822 that public improvement activity got under way in any great magnitude. It was begun with expenditures for river and harbor improvements and for related flood control. Irrigation projects were not begun until 1903.

In modern society, the need for physical plant goes far beyond anything that would have been imagined in earlier years. Infinitely expanded technical knowledge, a far more closely integrated society featuring great subdivision of labor, a tremendous intensification of productive activity, and a heightened sense of public responsibility for social betterment have been irresistible forces calling for ever-increasing provision of public facilities of wide variety. We have made for ourselves the world's most complete network of transportation routes—waterways, railways, airways, highways, and city streets; we have made the "desert blossom like the rose" through great structures husbanding the waters of semi-arid regions; we have protected our most fertile lands from devastation by flood; we have harnessed the roaring waters to provide power for our factories and our homes; by modern water supply and sewage disposal systems we have virtually eradicated many of the communicable diseases that in an older world periodically decimated city populations; we communicate our thoughts to one another with the speed of light; we, too, have our stadia, our national parks, our playgrounds and other facilities for the recreation of the human spirit. We have made all these things for ourselves. They are interwoven with our modern civilization. They are a measure of our progress from the simpler days of our beginnings. And further progress in the development of our Nation will be

related closely to the further efforts we make in providing for its physical structure and in ministering to its social organization.

Federal and Non-Federal Responsibilities

For a variety of reasons, in some instances wholly logical and in others merely historical, responsibility for building, maintaining, and operating these public facilities is divided among our national, State, and local governments. Although the development of grants-in-aid from Federal Government to States and from States to cities has in many areas brought about a sharing of financial responsibility, cities build the water supply systems, the sewerage systems, and the street systems that serve urban concentrations. They carry responsibility for elementary and secondary education and build the necessary plant therefor. The States build the broad highway networks, the buildings needed for higher education, and those required for the institutional care of the unfortunate. The Federal Government provides the navigation network, much of the land reclamation plant, the flood protection works, the facilities for our national parks, all the requirements for national defense, and many other works of large magnitude charged with a high degree of national interest.

Although the Federal operations are likely to be the most spectacular, in the aggregate the works constructed by local governments represent the largest block of responsibility. In the years preceding the depression, Federal public works accounted for less than one-tenth of all public construction. More recently, the proportion has increased in consequence of the great expansion of the area of Federal public works activity; and the proportion financed by Federal funds has increased even more strikingly as a result of the strenuous national effort to provide work for the unemployed on public improvement construction.

Public construction expenditure by the Federal Government, including grants-in-aid but not loans, as measured by Treasury withdrawals, has been increasing since 1930 both in relative and absolute amount, from about \$275,000,000 in 1930 to about \$2,500,000,000 in 1939. As a proportion of the total Federal expenditure, it has risen from 7 percent in 1930 to 30 percent in 1939. It should be noted, however, that this rise in both the relative and absolute amounts of public construction has been largely due to the use of construction employment as an unemployment relief

measure, although an increased demand for the services and facilities that Federal public works make available has also contributed to this increase.

Although direct expenditures, grants, and loans all call for withdrawals from the Federal Treasury in the first instance, on many of the items the Government receives some form of repayment in future years. For instance, expenditures for such works as those built by the Bureau of Reclamation, the Tennessee Valley Authority, and the Bonneville Project provide revenue receipts to the Treasury, in many instances in an amount sufficient to cover the original outlay. Also, the Government-owned corporations like the Inland Waterways Corporation and the Panama Railroad are business enterprises that pay for their operations out of their receipts. Loans to public or private agencies are all repayable, and while the repayments may not in all cases be direct receipts of the Treasury,

still, if they are made to Government-owned corporations, they do represent a realization on assets in which the Government has a proprietary interest. Guaranties made by the Government are eventually liquidated by the repayment of the loans underwritten. Only the grants-in-aid and the direct expenditures for the construction of facilities that produce no revenue are to be regarded as non-recoverable budgetary drains.

Federal Participation in Total Construction Activity

In comparing the operations of government in the construction field with the construction operations of private corporations, many close similarities are disclosed. Ordinarily, the same type of workmen are employed, the same type of materials and equipment are utilized, and management problems are not greatly

ESTIMATED VOLUME OF NEW CONSTRUCTION ACTIVITY IN THE UNITED STATES, AND FEDERAL EXPENDITURES AND GUARANTIES FOR NEW CONSTRUCTION 1920-1940

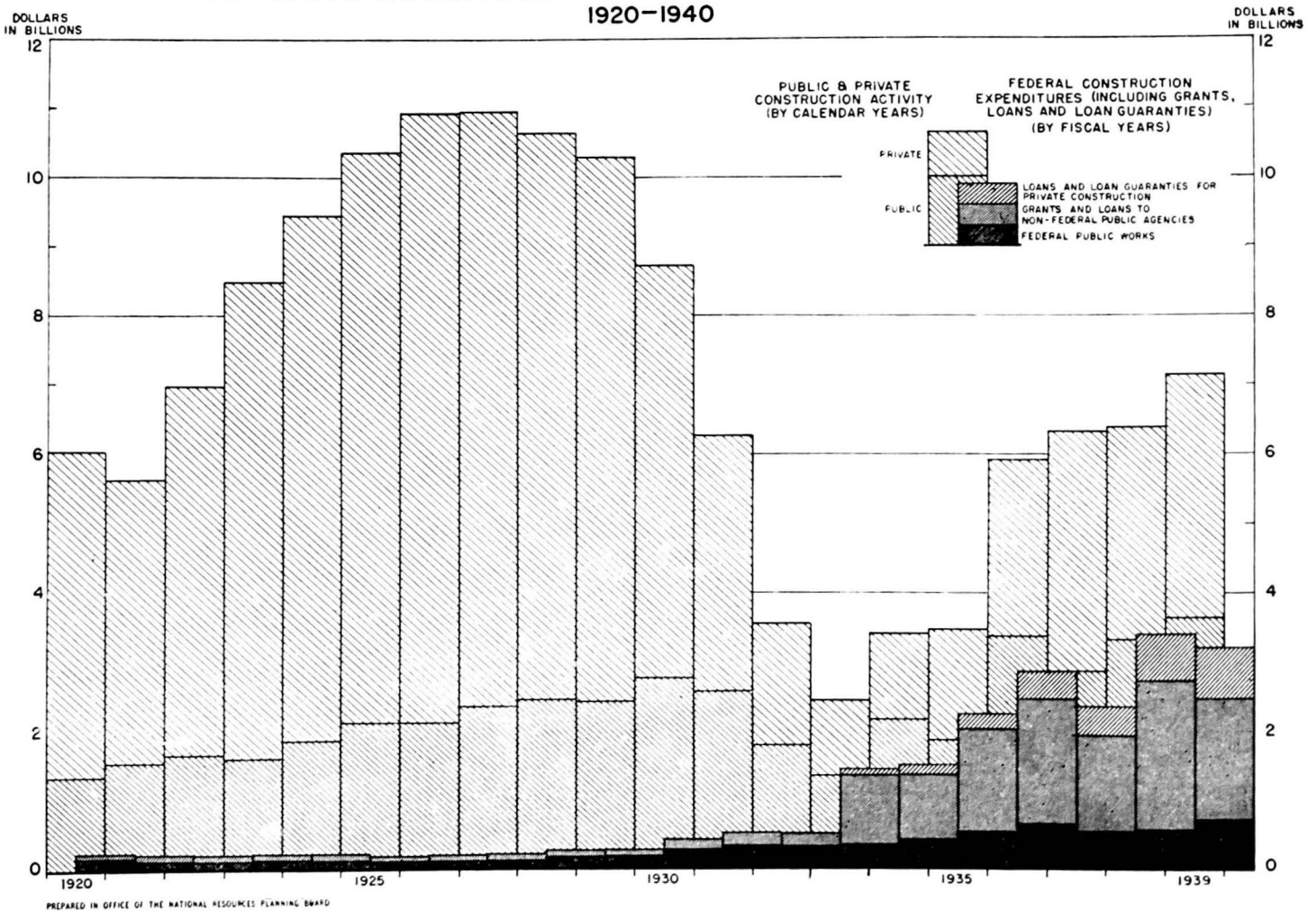


Chart 6

different. Public construction, therefore, is ordinarily considered a component part of the construction industry.

The influence of public-works activity upon the total volume of construction in the country from that point of view becomes a highly pertinent consideration. As a builder and as a building financier, the United States Government has directly influenced construction activity in four different ways. These have been, (1) expenditures made by regular Government departments or by Government corporations for the Federal account, (2) grants-in-aid to State and local governments, (3) loans to non-Federal public agencies, and (4) loans to private agencies and guaranties of private loans.

From 1920 to 1932, the amount of construction affected by Federal Government participation, either direct Federal construction or Federal financial assistance, was a relatively small part of the total, particularly during the first half of that period, when it averaged between 2 and 2.5 percent. After 1927, it became an increasing proportion, rising from about 2 percent in 1927 to about 20 percent in 1932, largely because of the rapid falling off of private construction and local public works. During all that time, however, Federal participation was confined to direct expenditures for the Federal Government's own works and grants-in-aid to States for highway construction.

Following 1932, several important changes occurred in the type of these expenditures. Grant-in-aid expenditures were increased in amount and were applied to a wider variety of types of construction, while construction loans (or guaranties of construction loans) were made available to public and private agencies. Consequently, from 1933 through 1935, the Federal Government participated in one manner or another in a much larger proportion of the total construction activity of the country. Beginning with 1936, the extent of this participation, while increasing in absolute amount, has become, by reason of the revival of private building, a somewhat smaller proportion of the total volume of construction activity. It is important to note, however, that a large volume of private construction is now financed by Federal loans or facilitated by Federal loan guaranties, a condition that did not prevail during the earlier period. The total Federal participation of all kinds in recent years has amounted to more than \$3,000,000,000 or about 40 percent of the total construction volume.

Construction Undertaken by the Federal Government

From 1921 to 1932, the bulk of Federal construction expenditure was made for roads, river and harbor improvements (including some flood control work), public

buildings, and irrigation works. Beginning in 1932, these expenditures were extended to include—by means of grants or loans—practically all types of public and private construction.

In considering the purposes for which Federal construction expenditures have been made, the expenditures have been divided, by our technical advisers, for purposes of convenience in this report, into six major categories for this discussion:

1. *Water use and control*—Including flood control, irrigation, hydroelectric plant and transmission systems, public water supply systems, and public sewerage systems;

2. *Public land development*—including parks and forests, wildlife conservation, and soil erosion control;

3. *Transportation*—including roads, river and harbor improvements, aids and assistance to navigation, airports and airways, railroads, canals, and various structures such as wharves, docks, bridges, etc.;

4. *Defense*—including Army and Navy flying fields, military and naval posts, supply depots, and navy yards;

5. *Government plant*—including administrative buildings, post offices, research facilities, hospitals, prisons, educational buildings;

6. *Housing.*

Trends in Construction by Federal Agencies

Following the readjustment of Federal expenditures after the World War, the Federal Government's direct expenditure for its own works became fairly well stabilized in the neighborhood of \$125,000,000 annually, where it remained up to 1929. During that period, the largest single item of expenditure was for the development of rivers and harbors. In 1929, however, the first step-up in rate of expenditure occurred as a consequence of the public buildings program initiated at that time. A four-fold increase in this category occurred in 1929, which, together with smaller increases in practically all other categories, carried the expenditure as a whole for that year to about \$187,000,000. The public buildings program carried through to 1933, when it reached its maximum of \$118,000,000. Between 1929 and 1933, the other categories of public works showed no marked increases, except for a rise in reclamation (reflecting the construction of Boulder Dam), in flood control, and for a short period in 1931 and 1932, in the construction expenditures of the Quartermaster Corps. Largely as a result of the public buildings program, the 1932 total was in the neighborhood of \$334,000,000.

The next significant date is 1933, when the PWA was established in an effort to expand public construction to take care of the unemployed. That year also

saw the creation of the TVA. The public buildings program of 1929 had by 1934 tapered off to about \$80,000,000.

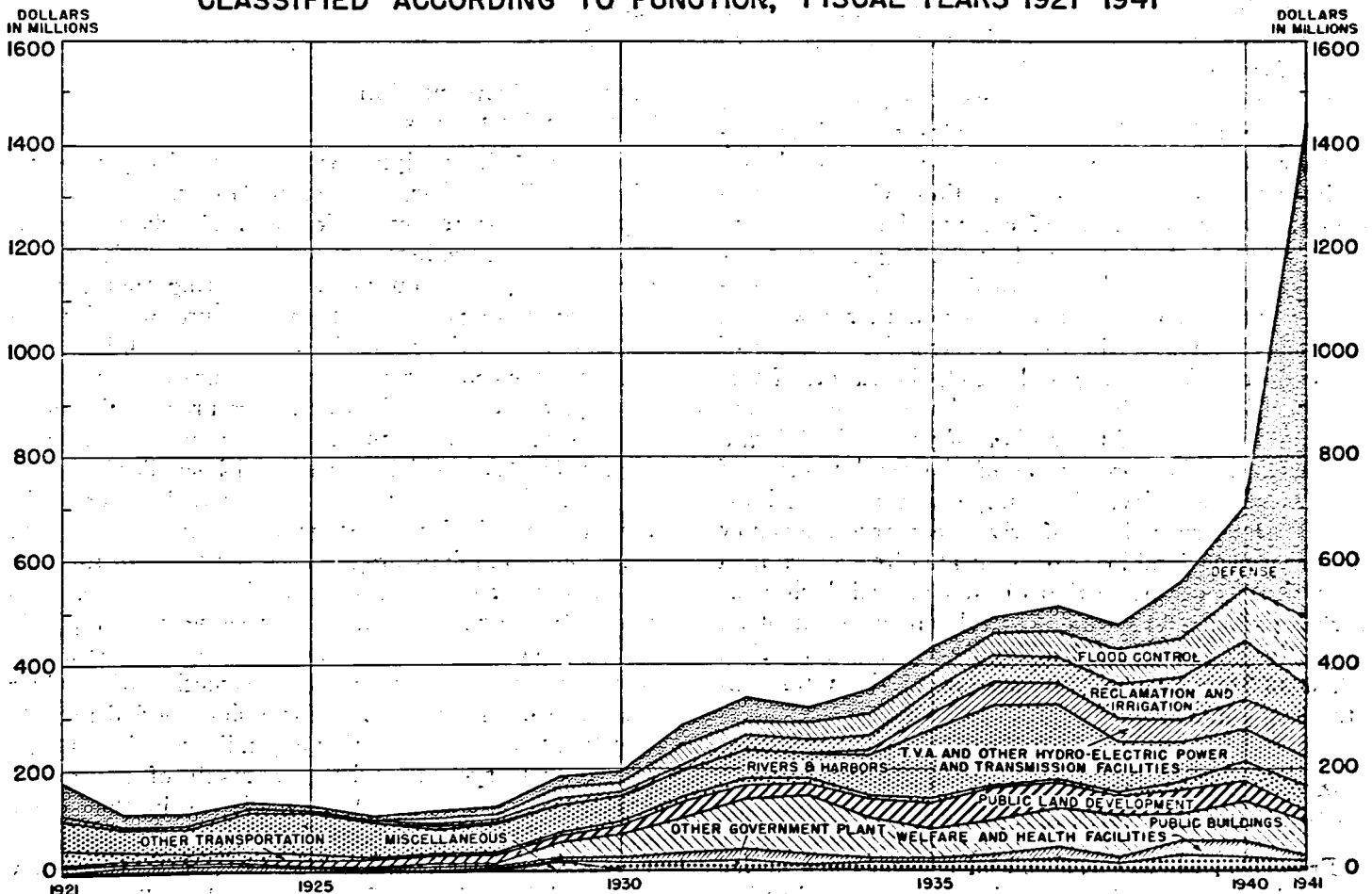
In carrying out its function of raising the level of public works construction throughout the country, the PWA made a number of allocations of emergency funds to various Federal departments to allow them to expand their construction activities. The category most immediately affected was that of river and harbor development, which rose by \$30,000,000 in the program's first year. The undertaking of the Bonneville and Fort Peck projects also contributed strongly to the peak of \$152,000,000 reached in this category in 1936. The TVA expenditure was rather modest during the first year of its life but within 2 years reached a fairly well stabilized level of about \$35,000,000 annually. Expenditures for the purpose of land development rose considerably through the expansion of the work of the Forest Service and the National Park Service and the inauguration of soil erosion control activities. Peak expenditure in this category also

occurred in 1936, when it reached a \$62,000,000 level. The public works programs begun in 1933 also brought about a further sharp rise in expenditure for reclamation, occasioned principally by the undertaking of construction on several projects of great size, including the Grand Coulee project. Flood control increased slowly but steadily over the same period.

The net effect of these forces was to carry expenditures for Federal public works to a high of about \$510,000,000 in 1937.

In the following year, expenditures as a whole declined to \$480,000,000. Analysis indicates, however, that the decline was brought about almost wholly by a reduction in expenditures for river and harbor development, for during that year expenditures for public buildings, for land development, for the TVA, and for most other categories remained fairly constant. Indeed, expenditures for reclamation and flood control even increased their rates of expansion, with flood control expenditures going up in consequence of the 1936 Flood Control Act and its 1937 amendment.

EXPENDITURES FOR CONSTRUCTION OF FEDERAL PUBLIC WORKS CLASSIFIED ACCORDING TO FUNCTION, FISCAL YEARS 1921-1941



PREPARED IN OFFICE OF THE NATIONAL RESOURCES PLANNING BOARD

Chart 7

This 1938 decline in construction expenditure was very short-lived; in 1939, the total rose again to \$564,000,000 and to \$658,000,000 in 1940. To be sure, a very large proportion of this later rise was due to expansion in construction designed to bolster national defense; the increase in this category alone was \$100,000,000. However, the steady rise in expenditures for reclamation and for flood control was also a strong contributing factor. (The Flood Control Act of 1936 was further amended in 1938 in such a way as to call for increased Federal expenditure.)

In the fiscal year ending June 30, 1940, when the total Federal construction was \$658,000,000, the distribution over five general categories was as follows:

	<i>Percent</i>
Water use and control (including flood control, reclamation and TVA).....	38
Public land development.....	6
Transportation (including rivers and harbors).....	14
National defense.....	23
Government plant (including public buildings).....	19

During the past 8 years, water use and control has received a steadily increasing proportion of the total, from about 19 percent in 1933 to 38 percent in 1940. Expenditures for land development have been a fairly constant proportion of the total, rising from 6 percent in 1933 to 12 percent in 1936 and dropping back to 6 percent in 1940. The proportion going for transportation expenditures shows a rise and subsequent decline similar to that shown for land development, from 20 percent in 1933 to 32 percent in 1936 and back to 14 percent in 1940. The proportion for national defense remained fairly constant, at about 8 percent, from 1933 to 1937 and then rose to 23 percent in 1940. Expenditures for public buildings and other Government plant received a sharply declining proportion of the total during the early portion of this eight-year period, declining from 47 percent in 1933 to 20 percent in 1935, and have remained at about that proportion ever since.

The general trend of expenditure during recent years, therefore, has been a rise in both relative and absolute amounts for water use and control and for national defense, a relative and absolute decline in transportation, and approximate stability in expenditures for land development and general facilities. Within the water use and control category, TVA expenditures have become approximately stabilized, while expenditures for flood control and reclamation have been steadily rising in both absolute and relative terms. Within the category of transportation, river and harbor expenditures have been declining steadily since 1936.

Estimates of expenditures for the fiscal year 1941, however, show that an entirely new movement has been initiated. The increased emphasis on national defense

will bring about during the current year a three-fold increase in construction expenditures for the Bureau of Yards and Docks and a nine-fold increase in the expenditures of the Quartermaster Corps. In addition, expenditures in several categories of what are normally considered civil public works will be greatly increased because of the contributions that the new facilities will make to the national defense purpose.

Although total expenditures for Federal construction will show a rise from \$659,000,000 to an estimated \$1,533,000,000, that rise is largely accounted for by the rise of \$746,000,000 in the expenditures for the Bureau of Yards and Docks and the Quartermaster Corps. Exclusive of defense items, Federal public works expenditures will remain approximately the same. This will be in the face of an increase of TVA expenditures over the next year from \$39,000,000 to \$60,000,000, an increase in the expenditures for the Panama Canal of from \$18,000,000 to \$32,000,000, and a tripling of expenditures for physical facilities for research, principally the building up of the facilities of the National Advisory Committee for Aeronautics, all of which are to be undertaken with a national defense purpose.

Flood control will continue its rapid rise, from \$105,000,000 in 1940 to about \$114,000,000 in 1941. On the other hand, reclamation and land development expenditures will probably show a decline. Expenditures for rivers and harbors and for public buildings will continue their downward trend.

Trends in Construction by Federal Corporations

The Farm Security Administration, the Panama Railroad Co., and the Inland Waterways Corporation are three Federal corporations making expenditures in the construction field. Also, certain expenditures made by the PWA Housing Division before November 1937, when the projects were taken over by the United States Housing Authority, may be included in this category. (These expenditures are for housing projects owned by the Government but leased to local authorities.) In relation to the expenditures in the other categories already discussed, the expenditures of these corporate agencies are minor in amount, but an accounting for them is necessary to complete the picture of construction activities for which the Federal Government is responsible.

Obviously, the construction for which these agencies are responsible is confined to three categories: (1) land development and (2) housing by the Farm Security Administration and the United States Housing Authority and (3) transportation by the Panama Railroad Co. and the Inland Waterways Corporation. The two transportation companies, of course, were the only

Federal operating corporations in existence prior to 1934, and consequently before that year, all of the expenditures in this general class were for transportation. From 1930 until 1935, these transportation expenditures declined steadily, down to \$31,000 annually, but began to increase again in 1936 and attained a level of more than \$10,000,000 in 1939, which is several times the amount expended by those two agencies a decade earlier.

The Farm Security Administration came into being in 1934. Its land utilization projects account for expenditures in practically only 2 years, 1936 and 1937, but its rural rehabilitation housing projects have continued through to the present time. The year 1937, when it spent nearly \$50,000,000 for each of those two purposes, saw the high point of this agency's expenditures.

Since the close of 1937, only transportation and housing are represented in the category of corporation expenditure; the former has shown an upward trend during the past few years, while the latter has been declining sharply.

Federal Grants-In-Aid for Public Construction

Until 1933, grants-in-aid by the Federal Government for public construction were confined entirely to grants made to States for highway work. For 6 or 8 years previously, the annual amount distributed in the form of grants was stabilized at about \$85,000,000, dropping to about \$78,000,000 in 1930. In 1931, however, road grants were doubled, and the higher level prevailed for the next few years, reaching \$166,000,000 in 1933.

Grants-in-aid were increased much further by the establishment of the 1933 public works program. Not only were State highway grants increased again, but the PWA and the CWA were organized on a grant-in-aid basis, the latter to be succeeded during the following year by the WPA. In consequence of the functioning of these new agencies, the amount distributed in grants rose to an entirely new level in 1934, to about \$882,000,000. Of this amount, \$224,000,000 was distributed by the Bureau of Public Roads and the remainder by the PWA and the new work-relief agencies.

In addition to the establishment of new grant-making agencies, new categories of construction were made eligible for grants. Although more than half of the amount so distributed in 1934 was still for roads and city streets, local government construction of flood control facilities, public water supply systems, sewerage facilities, public buildings, hospitals, schools, electrical utilities, and others received grants for the first time.

Since that year, the total amount of grants has fluctuated from year to year with the alternate expansion and curtailment of various "emergency" programs, but on

the whole, the trend has been strongly upward. The total has increased from about \$882,000,000 in 1934 to about \$1,919,000,000 in 1939, decreasing to about \$1,308,000,000 in 1940. Although the grants made by the PWA have been of great importance in certain categories, such as public water supply systems and educational buildings, the amount granted for construction carried out under work-relief auspices has been the dominant factor in the total.

From the 1933 figure of \$166,000,000, grants for roads and street construction increased steadily to more than \$1,000,000,000 in 1939, then decreased to slightly less than \$700,000,000 in 1940. Educational buildings, recreation facilities, and sewerage systems have been three additional categories of considerable importance, amounting to \$181,000,000, \$167,000,000, and \$136,000,000, respectively, in 1939.

The distribution of the total over the categories employed in this report has been fairly constant ever since 1934. Grants for transportation works have consistently claimed more than half of the total grant program. General facilities, including public buildings, educational buildings, and recreational facilities, have received about 30 percent of the total. Construction falling within the category of water use and control, including water supply and sewerage systems, has been fairly well stabilized at about 12 percent of the total. The small remainder has gone for construction designed to further national defense, particularly armory buildings, and for land development activities.

Federal Loans for Public Works Construction

The practice of lending money to local governments for public construction was not begun by the Federal Government until the Reconstruction Finance Corporation was established in 1932. Its activities in lending money for "self-liquidating" projects occasioned the distribution of about \$29,000,000 in 1933. The establishment of the Public Works Administration in that year, however, at a time when the private market for municipal bonds had dried up, caused the amount of funds lent to increase greatly in 1934 and the years following, although it never approached the amount distributed in the form of grants. The 1936 figure was about \$199,000,000. The running out of the first PWA program in 1935, its re-establishment in 1936, and its curtailment in 1937 and 1938 brought about wide fluctuations in the amount of loans extended to States and local governments. On the other hand, the establishment of the United States Housing Authority in 1937 brought the total amount so distributed to a new high of \$438,000,000 in 1940.

From 1933 through 1936, the lion's share, from 40 to 50 percent, of these loans went for public water supply

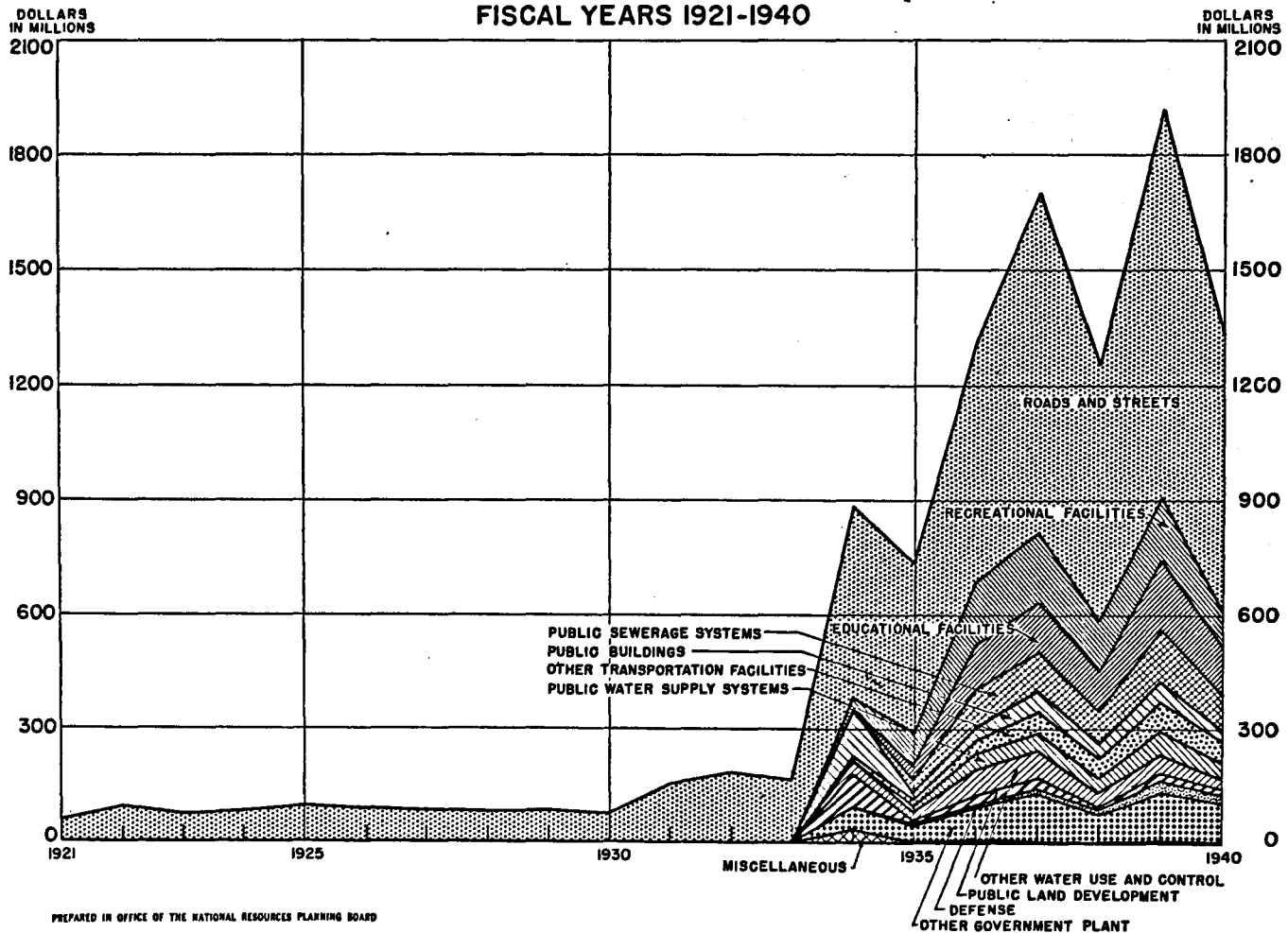
systems, hydro-electric generation and transmission, reclamation and other construction for water use and control. After 1936, when the private market for municipal securities had been re-established, the amount lent for this category of construction declined steadily until, in 1939, it represented little more than 5 percent, the principal part of which was for water supply systems. Similarly, loans for transportation facilities bulk large in the first years of the loan program, from 15 to 50 percent of the total, and have declined steadily from 1936 to represent but 9 percent in 1940.

Educational buildings received the next largest share of loans when the PWA was first established, but the amount lent for this purpose has dropped since 1935, when it amounted to 21 percent of the total, to only 3 percent in 1940.

On the other hand, public housing received practically nothing in the form of loans prior to 1938. In that year, the amount lent by the United States Housing Authority represented a little less than 3 percent of all Federal loans for public construction, but it increased its share rapidly to about 45 percent in 1940. Similarly, the amount lent for construction of electric utility plant was relatively small before the establishment of the Rural Electrification Administration in 1935, but because of the activities of that agency, the amount so lent expanded greatly in 1938, when it represented slightly more than 40 percent of the total in that year, and declined again in 1940 to account for about 24 percent.

The changing nature of the various loan programs has been the dominant factor in determining the distribution of loan funds over these various categories.

EXPENDITURES FOR FEDERAL GRANTS FOR NON-FEDERAL PUBLIC CONSTRUCTION CLASSIFIED ACCORDING TO FUNCTION, FISCAL YEARS 1921-1940



PREPARED IN OFFICE OF THE NATIONAL RESOURCES PLANNING BOARD

Chart 8

When the loan program was first introduced, the bulk of it went for construction in the field of water use and control and transportation. More recently, however, public housing and electric plant facilities have come to be dominant.

Federal Loans for Private Construction

The Reconstruction Finance Corporation and the Federal Housing Administration have been the principal agencies engaged in making loans to private agencies for construction (considering the loan-guaranty arrangements of the Federal Housing Administration as equivalent to loans for purposes of this study). As in the case of loans for local governments' public works, loans for private construction have fluctuated widely during the past 7 years as a result of shifts in emphasis on the work of the various lending agencies.

The year 1934 was the first year in which these loans for private construction totaled any considerable amount, when a total of \$83,000,000 was reached, \$75,000,000 of which represented PWA loans to railroads. In 1935, the total amount rose to \$136,000,000,

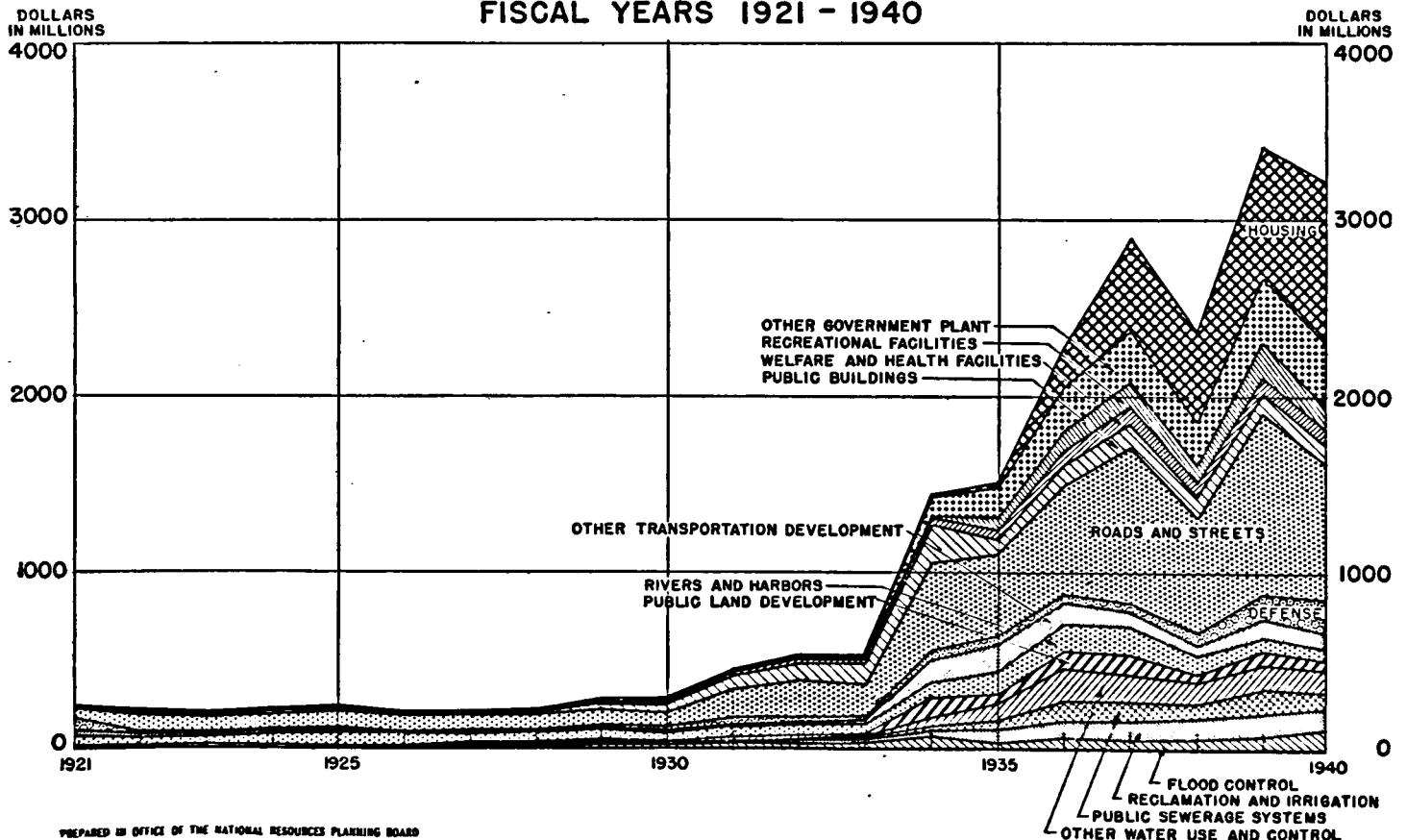
most of which was again for railroad loans. From 1936 onward, the picture has been strongly dominated by the FHA guaranties of loans for private housing. The amount of guaranties so extended has climbed steadily from something less than \$200,000,000 in 1936 to more than \$700,000,000 in 1940.

Clearly, the trend for this class of Federal activity is sharply upward, due to the expansion of the activities of the Federal Housing Administration.

Total Federal Participation in Construction

When direct expenditures, grants, loans, and guaranties are taken into consideration, the total volume of expenditure represented shows almost a twenty-fold increase since the pre-depression period. Prior to 1930, only direct expenditures, grants-in-aid for State highways, and the small expenditures of two Federal corporations were involved, and the total amount was rather well stabilized at a little more than \$200,000,000 annually. In 1929 and 1930, the volume was somewhat raised by an increase in direct Federal expenditures and grants to about \$275,000,000. The increases became more rapid in 1931, 1932, and 1933, principally through

FEDERAL EXPENDITURES, GRANTS, LOANS AND GUARANTIES OF LOANS FOR CONSTRUCTION CLASSIFIED ACCORDING TO FUNCTION, FISCAL YEARS 1921 - 1940



PREPARED IN OFFICE OF THE NATIONAL RESOURCES PLANNING BOARD

Chart 9

the doubling of State highway grants and a decided rise in direct expenditures for reclamation, irrigation, and public buildings.

The establishment of new agencies in 1933 caused a three-fold rise in the total for the following year, with the greatest increase being brought about by the extension of the grant-in-aid principle to the field of local public works and the inauguration of work-relief activities in the field of construction. Since that year, the course of total expenditures and guaranties has had a strong upward trend, to a total of \$3,400,000,000 in 1939. At the present time, the field is strongly dominated by grants-in-aid rather than by direct expenditures; with the principal element in this dominance being the work-relief activities of the WPA. Grants represent approximately half of the total of construction expenditures for which the Federal Government may be considered responsible. The second strongest item is the loan-guaranty activities of the Federal Housing Administration.

In 1939 and 1940, the average distribution of the total amount over these various types of expenditures was as follows: direct expenditures 19 percent, grants 49 percent, public loans 10 percent, private loans and guaranties 21 percent, corporation expenditures less than one percent.

When this total of the Federal Government's participation in the construction industry is analyzed by functional categories, it is found that the field of transportation was by far the largest item until 1936. Since that time, it has been declining relative to the total, although the absolute amount has still been rising, to more than \$1,200,000,000 in 1939. Starting from scratch in 1934, financing of housing construction has increased rapidly until, in 1940, it attained a volume of more than \$900,000,000, nearly equal to that attained by transportation. Other construction within the field of government plant, including public buildings, educational buildings, recreation facilities, and publicly owned electric utilities, is the next largest category at present, totaling about \$738,000,000 in 1939. Expenditures for water use and control, including flood control, reclamation, public water and sewerage systems, and the TVA, became the next strongest item in that year, accounting for a little less than \$500,000,000. Construction undertaken for the purpose of national defense, of course, has expanded rapidly during recent years, to about \$185,000,000 in 1940. Construction for the purpose of furthering land development amounted to about \$64,000,000 in 1939.

Significance of the Past 10 Years

The past decade has clearly been an extremely significant period for public works. Principally because

of the Nation's efforts to utilize its public construction activities as a means toward employment stabilization, there have been important changes in the amount of activity undertaken in this field, in the scope of the field itself, in the relations of the Federal Government to it, and in the methods by which the activity is administered and carried on.

Taking into account all governmental expenditure for construction, there has been no sharp increase in the total, but there has been a marked shift toward Federal financing. Local governments' activity still dominates the field as it has always done, but Federal financing, through grants and loans, now accounts for a very much larger share of the total than it ever did before. This financial participation has naturally brought about an entirely new situation in regard to the relations between the Federal Government and the cities, a relationship that was practically non-existent before 1930. To a considerable degree, municipal activity in the public works field has become dependent upon and even governed by Federal Government action. Only the future can tell us whether or not these new relationships are to remain permanent aspects of our governmental institutions.

Entirely new activities have been undertaken, and the distribution of emphasis among activities of long standing has been altered. Governmental construction of housing facilities has become an established area of public activity. The construction of publicly owned power facilities has been developed considerably beyond the place it occupied a decade ago. Improvements in transportation facilities still represent a most important category, but within that category, the development of air transport has occasioned a marked growth in the construction of airports and airway facilities.

A most important development has been the tremendous growth of the area of work relief. Of the total number of workmen engaged in public construction, a major proportion is now accounted for by those who have been employed because they badly needed jobs to do, rather than because the job to be done needed them. This is an extremely significant change, for it reverses entirely the operating principles prevalent a decade ago. Out of that change have come related changes in the manner of doing work, such as the change from a maximization of labor-saving machinery to achieve greatest economy in construction operations to a maximization of the use of unskilled labor, and in the criteria of project selection, from placing major emphasis upon urgency of community demand to major emphasis upon a project's suitability for operation under work-relief auspices.

The distribution of expenditures among the various purposes for which public improvements are con-

structed, however, is still not determined with the object of achieving a properly planned balance, except insofar as the distribution achieved expresses a balance of the immediate demands for various types of work. How does the Nation's real need for additional transportation facilities compare with its real need for additional flood protection? How is the need for more irrigation to be compared with the need for more housing? How can a proper balance between these

various functions be obtained? It is clear that the techniques for determining the needs must first be perfected and that the methods of making such comparisons must be worked out. Only on the basis of such determinations can a long-term public works program be properly formulated. Only in that way can we be confident that we shall be using our resources to the best advantage in the protection and development of the national estate.

E. REGIONAL AND FUNCTIONAL DEVELOPMENT POLICIES

1. PROGRAMMING OF PUBLIC WORKS

The programming of public works consists of an appraisal of specific projects to determine (1) whether or not public funds should be provided for them and (2) the order in which desirable projects should be undertaken.

First, the general objective of public works must be kept in mind. Does the project aid man to derive from all available resources the maximum benefit and satisfaction consistent with the permanent maintenance of our primary resource base? Does it increase economic welfare, promote employment stabilization, and improve the utilization of resources?

Evaluation of Costs and Benefits

No public work can be considered acceptable unless the total benefits, social and financial, to whomsoever they may accrue, exceed the total costs. Furthermore, since there may be more works that meet this criterion than available funds will finance, there must be a selection of projects with the most favorable ratio of benefits to cost.

The difficulty here lies in the measurement of benefits that can neither be sold nor definitely traced to specific individuals or to limited areas. Many social benefits cannot readily be expressed in dollars and cents. For example, the recreational value of forests, parks, or reservoirs is very real, but thus far has defied attempts at measurement. The benefits of soil conservation activities in limited areas have been measured in terms of the present dollar value of increased productivity or the arresting of declining productivity, yet from a broader point of view, the soil resources of the Nation are priceless. Many water development projects may not entirely pay for themselves, but permanent social benefits accrue from the creation of jobs or establishing a lasting resource base for those now earning a precarious livelihood. The public expense involved, often, is no greater than the direct relief that would otherwise be necessary. The retirement of submarginal lands makes possible basic land-use adjustments, contributes to a reduction in relief and other governmental costs, and increases the stability of the area as a whole, although the lands so purchased may never pay for themselves in a commercial sense.

One clue to the value of such benefits lies in the reaction of those who would ultimately have to pay the costs. If a community is willing to repay all the costs of a project, it indicates that the people of the com-

munity consider the benefits at least equal to the costs, even though the benefits are social, and not vendible. However, as the area affected widens, the possibility of obtaining such public judgment narrows. To some extent, the employment benefits from public construction that offset relief expenditures, for example, can be reduced in part to quantitative terms. The public expenditures saved by such public construction must be added to the positive benefits they create.

In multiple-purpose projects, the development of comparable measures of costs and benefits will make a significant contribution to the validity of the evaluation process. While the total dollars and cents costs of a specific project may be estimated with reasonable accuracy, the problem of apportioning costs of multiple-purpose projects is still exceedingly difficult. Until a commonly acceptable method for determining costs and benefits is developed and adopted, there is no objective basis for comparing the costs and benefits of each separable function.

Financing Public Works

The evaluation of costs and benefits is designed to indicate whether a project is worthy of being undertaken, regardless of who pays the bill. There arises the further question of the allocation of costs among beneficiaries: "Who should pay the bill?"¹ Thus, a project which provided for private, and for local, State, and Federal Government participation in the ultimate costs might be preferable to a similar project which offered little promise of local participation.

In addition to the technical difficulties of measuring intangible benefits and joint costs, the allocation of costs also involves questions of general economic policy, fiscal policy, broad governmental policy, administrative feasibility, and so on. It may, for instance, be quite feasible to estimate the benefits of some project and to trace these benefits to a particular area or group; yet broad economic policy may suggest that there are also general benefits which should be charged to the public at large. In other cases, ability to pay may be the guiding criterion, since many maladjustments are beyond the ability of individuals or groups to correct, yet corrective programs must go forward in the interest of the people and the Nation.

The important consideration is not that there should be a rigid formula for uniformly allocating the costs of

¹ For discussion of division of costs and responsibilities, see *Public Works Planning*, National Resources Committee, 1934, pp. 139-211.

all types of projects. Rather, it is that a consistent general policy should be observed by all agencies advancing capital or making expenditures for similar types of projects.

From the Federal point of view, the important decision that must be made within a consistent policy, is: "How great is the general public interest, and what proportion of the total cost should the Federal Government pay?" In periods of relatively high employment, the persons receiving directly traceable benefits in the form of increased income or services ordinarily should pay the cost of such benefits; the Federal Government should assume only the cost of those benefits which are very widely distributed, which contribute to an important national policy, or are part of a recognized Federal responsibility or function. In periods or areas of heavy unemployment, however, the Federal Government may properly assume such additional portions of the cost as may reasonably be assigned to the relief of unemployment and the stimulation of the economic system.

The ultimate responsibility for bearing costs must at this point be distinguished from the original advance of funds. The Federal Government may well perform the "banking function" of initially financing the total cost of projects for which it expects in the long run to be completely reimbursed in the ordinary business sense. It may stimulate employment, investment, and economic activity through activities of this sort without ultimately absorbing any of the cost. Self-liquidation (in its commonly accepted sense of full return from vendible benefits) should not, however, be a major consideration in comparing the desirability of public works. There are many projects that are not self-liquidating in this narrow sense, but that are never-

theless desirable; they may not be "self-liquidating" simply because the benefits are not vendible. The question of who advances the capital, and the rate at which it is repaid, is secondary. The responsibility for ultimate absorption of costs, however, is a primary consideration, and proposed arrangements for financing should, accordingly, accompany all proposals for public works activities.

Functional Policies and Regional Planning

The appraisal of specific proposals for public works activities becomes hopelessly confused if not made within a framework of both functional policies and regional plans: functional policies, such as those for land use, water use, transportation, power, etc.; regional plans, in which all of these considerations are related to a particular region. The benefits of specific projects cannot finally be judged except with reference to a logical plan for orderly development of an area or of a function. The apparent benefits of an individual project are closely related to the extent to which it can be coordinated with a more general group of undertakings, in the same area and in other parts of the country.

Fitting individual projects into a logical and orderly plan or program, area by area, requires (a) that appraisal of projects be carried on in close consultation with all agencies involved; and (b) that there be machinery in which local, State, and regional groups can aid in developing functional plans, public works proposals, and general economic plans for those areas, and that State and local support be provided for such regional and functional planning.

2. REGIONAL DEVELOPMENT PLANS

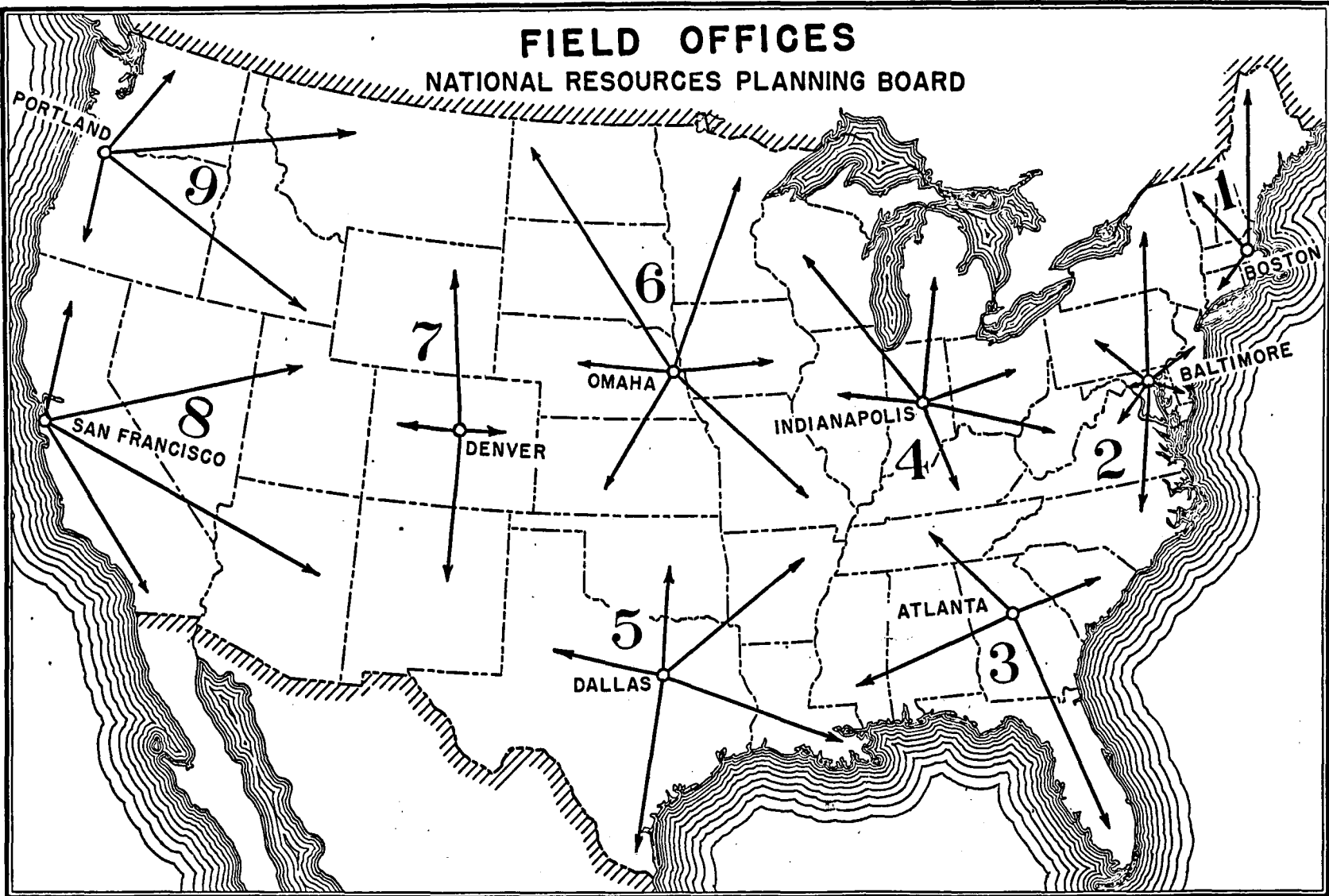
Well considered programs for national development must, of course, reflect local, State, and regional points of view as well as the best judgment of administrative groups and functional policies. In Part II of this report, we reproduce statements on Regional Development Plans prepared in the field, in cooperation with regional and State planning agencies and with representative citizens.

What is a region? Americans have always recognized the existence of regions or groups of States within the United States which have distinctive problems or unifying backgrounds. From the earliest Colonial days of the New England Confederation, through the time when the "South" was clearly recognized, down to the more recent realization of great geographic areas like the Dust Bowl, or the Tennessee Valley, we have thought in terms of regions. In 1935, the National Resources Committee issued a report on "Regional

Factors in National Planning and Development" which reviewed the many types of regions and regional organization in this country. Since that time, many further efforts have been made to organize regionally or on a sub-national basis for both public and private purposes.

The desire of the National Resources Planning Board and its predecessors to aid decentralized planning has contributed a number of experiments in this field. The Board has organized its field staff in regional centers serving areas with no fixed boundaries and using a variety of different planning methods adapted to the special situations in each area. For strictly administrative and budgetary reasons, the number of "centers" which the Board could staff was limited to 10 located as follows:

1. Boston, Mass., serving New England.
2. Baltimore, Md., serving the Middle Atlantic Region.



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Chart 10

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3. Atlanta, Ga., serving the Southeastern Region.
4. Indianapolis, Ind., serving the Ohio-Great Lakes Region.
5. Dallas, Tex., serving the South Central Region.
6. Omaha, Nebr., serving the Missouri Valley.
7. Denver, Colo., serving the Intermountain-Great Plains area.
8. San Francisco, Calif., serving the Southwest.
9. Portland, Oreg., serving the Pacific Northwest.
10. Juneau, Alaska, serving Alaska.

From each of these Field Offices or regional centers, the Board has received preliminary statements of the objectives of regional developments as seen by the regional officers of the Board. These programs have been revised, re-worked, and expanded during the last year with the cooperation of State planning boards, regional planning commissions, special advisory groups, and with the active assistance of the field representa-

tives of many Federal agencies. The resulting statements, reproduced in Part II of this report in the form submitted from the Field, are called "Regional Development Plans." They are obviously first approximations of plans rather than full specifications.

The criteria or statements of objectives which these Regional Plans suggest for testing public works projects vary as might be expected in accordance with the widely different problems which the regions face. It is hoped that these first statements and the revisions and improvements in these Regional Plans, which are already under way, may aid in the public understanding of regional points of view towards development projects and aid the Congress in making decisions concerning them.

3. FUNCTIONAL DEVELOPMENT POLICIES

The following summaries drawn from statements on land, water, energy, and transportation policies provide a general background for the weighing of public works projects in relation to functional policies. These are the results of studies by the Board's technical committees and staff. More extended statements on land, water, and energy constitute Part III of this report.

(a) Land-Use Objectives and Public Works

The central aim of a national land-use policy should be "to enable man to derive from the land the maximum benefit and satisfaction consistent with the permanent maintenance of that resource."¹ All public works that directly or indirectly affect land use should contribute to the achievement of this objective. Moreover, all public works in this field should harmonize with the far-reaching Federal, State, and local programs, in fields other than public works, that now encourage desirable physical, economic, social, and institutional adjustments essential to permanent land use.

From the standpoint of land use, a public works program has three principal aspects: (1) the general economic aspect of the public works program as a whole, (2) the aspect of public works which affect land use indirectly, and (3) the aspect of public works which are primarily land-use adjustment measures.

General influence of public works on land use.—Since a soundly conceived public works program is an essential part of public activities and expenditures designed to stimulate a high level of employment and production, the general effect of public works has an indirect but vital relationship to land use, for the ultimate success of both public and private land-use activities is

inextricably bound up with the success of the economy as a whole. The top limit of employment, benefit, and satisfaction of the people on the land is largely prescribed by the condition of the entire economy. All aids to the economy in general open possibilities in the land-use field, just as ill-considered activity in the entire economy threatens possibilities in the land-use field.

Public works closely related to the land-use field.—There are many types of public works not always considered to be in the land-use field that have a significant effect upon land use. Flood control, public roads, or power development may be planned primarily for their self-evident purposes, yet each project may have beneficial or harmful effects on the land. A flood control reservoir, for example, may inundate occupied farm land, or a rural highway may encourage settlement on inferior lands, while good lands remain inaccessible. The planning of public works in this category should therefore look not only to the primary objectives but also to the possible repercussions on land use.

Public works in the land-use field.—Finally, there is a group of activities, such as soil conservation, forest protection and development, provision of recreational facilities, and irrigation, which are recognized as important parts of a general land-use program. These activities must either be considered as public works or as similar to public works in relation to resource development and employment stabilization. Plans and programs in these fields of endeavor should therefore be evaluated primarily as integral parts of the Federal, State, and local programs for land-use conservation, development, and adjustment, broadly construed.

Before attempting to suggest the outlines of a six-year program of public works affecting land use, some understanding of general economic trends and their specific relation to land-use adjustment is necessary.

¹ *Public Land Acquisition, Part I—Rural Lands*. National Resources Planning Board Report, June, 1940, p. 1.

The land-use pattern of the United States was developed largely by trial and error. In most local areas, land use has changed many times. As new lands opened to the westward and their products flowed eastward, as Federal land policies changed, as new crops found their place in the scheme of production, and as technological developments revolutionized methods of production, the character of land use changed and changed again. A New England town began with self-sufficient farming, shifted to cash-wheat production, then to hay and horses, and finally to dairying. A Georgia county began with self-sufficiency, changed to cotton, then to dairying, back to cotton, then to peanuts, and finally back to the beginning—self-sufficiency. A Colorado county, opened under the Homestead Act, tried cash grain until the dry years came, then half the population fled as dust storms raged, and now the remaining farmers are turning to grass and livestock.

In the course of this development, the land-use adjustments were made by individuals, without public aid. Some of these adjustments were painfully achieved, because of the lack of public aids, and they were not accomplished until persistent distress "starved out" those who would not change. But the majority could either turn to new uses for their land, and find a profit in the steadily expanding markets for food, fiber, and timber, or migrate to new land and new opportunity.

Within the last generation, however, have come three great changes that marked the end of the exploitive period: (1) The United States became a creditor nation; (2) the physical frontier was closed; and (3) the urban population trend changed.

The collective impact of these changes on agricultural economy was hardly understood in the period during which they occurred, and even today few people are prepared to accept its full implications. For now the United States as a whole faces the task of changing its use of the land—nationally, regionally, locally—just as many local areas changed their land-use patterns time and again in the past. The individual today cannot make the changes alone, for adjustments must take place in all parts of the country concurrently. Public action, the lack of which permitted so much misery and maladjustment in the past, must take the lead in the readjustments of the future.

As a result of the effects of our change from a debtor to a creditor nation, the closing of the frontier, and the changes in population trends, many public aids were initiated. We tried to shift lands out of soil-depleting surplus crops, and into soil-conserving crops. Loans were made to supplement deficient farm incomes and promote better farm management. CCC enrollees carried on reforestation and soil conservation work. Arid lands were irrigated. Price-sustaining loans, ever-normal granary storage, crop insurance, and the pur-

chase of submarginal lands were instituted, all in an effort to stabilize incomes, improve the patterns of resource use, improve tenure for those on the land—in short, to build toward a reasonably permanent and socially desirable system of land use. Some complementary State aids, such as zoning, better management of tax-reverted lands, and the creation of soil conservation districts, also came into play, with varying degrees of effectiveness.

Specifically, what were the effects of the three major changes in the conditions surrounding agricultural production?

(1) *The Nation's change to creditor status.*—Up to the beginning of the World War, the United States was a debtor nation. In order to pay off capital and interest on European investments in this country, we exported more than we imported. After the World War, Europe owed us huge sums—sums she was unable to repay in gold and was not allowed to repay in goods. Our new creditor status meant that our exports were limited by how much we would import in exchange, or how much we would lend abroad; and since we raised our tariff walls and curtailed credits, surpluses of farm commodities accumulated.

After the war, the foreign market kept on shrinking. European nations, spurred by memories of short rations in wartime, were doing everything possible to increase their own farm production. Simultaneously, newly settled countries like Australia and Argentina made a bid for a larger share of the dwindling world market. Meanwhile, our own farm production had continued to expand under the impetus of technical advancement and the cultivation of new land. Our surpluses continued to grow, demoralizing the price structure, swelling the ranks of the unemployed, and forcing our farmers to exploit their resources at an accelerated rate.

(2) *The physical frontier.*—Historically, the frontier to the West has been our national safety valve. The family whose land played out could always move West. When wages were low or employment was scarce, the city workman and the agricultural laborer alike could follow the sun across the Alleghenies, across the Mississippi, across the Great Plains, or across the Rockies to new opportunity. The closing of the frontier brought the realization that there were no new land areas to exploit.

(3) *The change in population trends.*—The rapid advance of agricultural technology created a complementary decrease in the number of people necessary to operate the Nation's farms. This was no problem as long as the growth of industry provided city employment for the surplus farm population. But recently the doors of industry have been closed to laborers from country and city alike. The loss of foreign trade has reduced the markets for farm products; advances in

technology have further reduced the labor needed in agriculture; yet the closing of the frontier and the drastic shrinkage in urban employment give the surplus agricultural laborer no place to go, except as expansion of our national economy makes a place for him.

Rural unemployment has not affected all areas and regions with equal severity. Geographic shifts in comparative advantage for crop production, resulting from changes in technology, transportation costs, market demand, and soil depletion have distributed rural unemployment and poverty very unevenly. In some areas it is chronic and would persist even in the face of general national prosperity.

Nor is all rural unemployment of the same type or intensity. Many wage hands are totally unemployed; others are dependent upon seasonal or part-time jobs; and many farm operators carry on types of farming that provide them with only part-time work, which they supplement with off-the-farm labor for cash wages. This is especially true in single-crop areas, such as the cotton or the hard spring wheat territory. In such regions, the rational remedy, diversification, is not always feasible, either because of natural conditions or lack of capital. The plight of the part-time laborer and the wholly unemployed, with no resources of their own, is still more serious. Part-time and full-time unemployment among rural people represents one of the greatest wastes of the American economy. If this unused labor can be tapped, it can increase enormously our productive capacity.

The current war is likely to have a further depressing effect on agriculture. The general indications, regardless of the war's outcome, point toward a more restricted foreign market for American farm products. Certain products for home consumption will benefit from defense preparations, but areas in which export crops are grown will not benefit appreciably. In the years immediately ahead, additional land-use difficulties will tend to concentrate in these areas. Unfortunately, there is no way of anticipating with absolute assurance the land-use adjustments that will be required as a result of the world changes now under way.

However, defense expenditures and related activities are apt to give at least a temporary lift to the whole economy which may result in a temporary lessening of rural population pressure. Even a temporary period of increased industrial employment may provide the opportunity for making some basic readjustments in the land-use field.

Lines of Action for the Next 6 Years

It seems clear that the relationships of land use to the rest of the economy are such that any evaluation of public works in the land-use field must not only

be integrated with other public and private efforts designed to facilitate (1) shifts in types of land use and related shifts of population; (2) the rebuilding and development of land resources by utilizing the increasing supply of rural labor; (3) the provision of facilities necessary to health, welfare, and good land use; but also with (4) the development of labor-absorbing capacity in industrial activities. Certainly in connection with all of these, public works must play a significant part.

The total volume of public works over the next 6 years is likely to be large owing to a rapid rise in public works that contribute to national defense. However, the needs of defense must not lead to a disregard of basic conservation and development activities. Because there is a distinct possibility that curtailment of defense expenditures would, in the absence of public works, result in heavy unemployment, it will be most urgent to carry on research and investigations to permit sound preparation for employment absorption after the slackening of defense activity. For the next 6 years, it will be necessary to have in readiness programs which will make readjustments in the post-defense period least difficult.

What are some of the readjustments likely to become pressing in the post-defense period?

Shifts in land use.—Shifting lands to uses more appropriate in light of the economic outlook by such public activities as land acquisition, irrigation, drainage, forest development, and range conservation is a process that should not be allowed to lapse during the defense emergency. Indeed, haste is necessary if maladjustments are not to result in disaster: public works that facilitate necessary shifts in land use should be emphasized throughout the six-year period ahead.

Public works affecting land use must not serve to freeze existing undesirable situations. It should be the aim to recognize basic trends and adjust to them, rather than to postpone inevitable changes by ill-considered public activities. A public works program should be a dynamic means of correcting maladjustments, capable of modification as social objectives change.

Rural conservation work.—In spite of the increase in employment that is apt to accompany the period of rapid defense preparations in the United States, many rural areas will continue to be burdened by considerable unemployment. A sound program for public works which affects land use must therefore give employment to rural labor and, at the same time, yield permanent values in conservation and development of resources, especially since the areas in which population, poverty, and unemployment are most concentrated are also the areas in which the natural resources have taken the most punishment, and are most in need of protection and rehabilitation. Public works on rural

lands offer good possibilities both for absorbing unemployment and for rebuilding human and physical resources, and should be capable of rapid expansion when defense expenditures slacken.

Land settlement.—Several types of public works help achieve employment stability, either by developing new areas, or by making existing areas suitable for more intense settlement. Irrigation, water facilities, some phases of flood control, drainage, land clearing, and other activities which bring good land into productive use at a reasonable cost should be encouraged. But the development of good lands should be accompanied by the retirement of submarginal lands, or a reduction in the intensity of their use; and new production, moreover, should be directed into lines where surpluses are least burdensome.

In areas where new land is now available for settlement, an orderly program of land classification, development, and settlement should be initiated immediately. In areas where existing settlers can be made productive and self-supporting, the relevant public works should move full speed ahead. In areas where public works for land development and settlement are already under way, additional public works which follow as a logical sequence should be given favorable consideration. In all such areas, a major need is sound land classification. Without it, there is real danger of maintaining or encouraging production in areas submarginal for farming with all its well-known consequences.

Land purchase and development.—Public acquisition of the land is a basic tool for facilitating many types of adjustment. Through public acquisition and resale or lease of potentially good agricultural land, the government can guide settlement on new lands in such a manner as to avoid new maladjustments and to keep the benefits of public works from falling into the hands of speculators. Public acquisition of submarginal lands is necessary to permit the rebuilding of the soil to the point where it can again support population; to help change the system of farming in maladjusted areas; to round out the land phase of watershed protection; to reduce the costs of public services; and to play vital roles in other situations, as detailed in the National Resources Planning Board report on land acquisition.

Forestry.—A third of the land of the United States is forest land, much of which is idle, wasting. The development of the Nation's forests, public and private, is necessary in the long-run, and desirable immediately as employment for rural people. Forest development activities have not only a general flexibility, which makes them significant in rapid adaptation to employment needs, but they also develop a vital resource.

Soil conservation.—Despite all that has been done, the soil resources of the United States are still on the downgrade; the rate of loss has been reduced, but serious loss

continues. The first objective is to stop this serious loss. While much of the essential control work must be done by private individuals, it is clear that public agencies must also do a great deal on both public and private lands.

Range improvement.—Vast acreages of western range lands, on which a large part of the livestock industry depends, are seriously depleted. This is true of Federal, State, and privately owned lands. All types of works, such as water spreading structures, stock water tanks, and contour furrowing, designed to check erosion and improve the forage, are necessary and desirable. They may be quickly started, and quickly stopped, providing useful employment for skilled and unskilled workers.

Recreation.—Recreational areas, such as the national parks, should, of course, be included in public works programming. Useful work can be provided during the development period, and the recreational areas are a priceless asset to the Nation.

Public facilities.—Among the public works affecting land use, both urban and rural, those that provide the usual public facilities (such as roads, schools, hospitals, sewage disposal works, parks, housing, and public buildings) play a significant part. They are all subject to effective timing if properly planned, although the maintenance costs are somewhat inflexible. The provision of such facilities can be invaluable in timing for employment stabilization. Road construction, especially, should be consistent with general land-use plans, for the spectacle of building and maintaining new roads in declining areas is all too common. Housing, rural electrification, and health facilities cannot be emphasized too strongly in the period ahead. All of these activities are adaptable to rapid changes in scheduling public works expenditures, and sound projects in these categories may well bulk large in a reservoir of public works over the next 6 years.

Development of industrial activities.—In the last analysis, and in spite of everything that can be done to facilitate adjustment to basic trends and to increase the use-capacity of land resources, employment opportunities for many of the people now on the land must still be found in industrial and service activities. In addition to their general effect on the national income, therefore, public works should also aid in the development of new industrial activities in both rural and in urban areas.

(b) National Water Policy

The Federal Government accepted the responsibility for improving the waterways for navigation purposes more than a hundred years ago. At the beginning of this century, the Government undertook the reclamation of public lands through irrigation and more recently,

the duty of controlling power development on streams subject to Federal jurisdiction and of providing protection against floods. Measures to accomplish these purposes in general have been taken separately and have been directed primarily toward a single end. The interrelationships between water and other resources, between different types of water development, and between the various projects within the same or different drainage basins were not fully recognized until comparatively recent years.

Full utilization of our water resources requires that water be related to other resources; that in any program for water development and control, all of the potential uses be given careful consideration; that individual projects be weighed in relation to other projects in the same drainage basin and to conditions in other basins as well; and that each individual project provide—initially or ultimately—for as many uses as are feasible. It is now realized that development of water resources through unrelated projects built for single purposes, and separately operated, is generally wasteful, destroys potential values, and threatens future utility.

This principle of coordinated development of multiple-purpose projects is being recognized, both in legislation and in administration, as essential to the realization of maximum social benefits at minimum cost from the use of our water resources. Multiple-purpose projects of great magnitude are in operation or under construction in many States and more are under immediate consideration. The problem is now primarily one of establishing a unified national water policy through which this principle may be translated into effective action, including policies for financing, operating, and managing these great public projects.

A National Water Policy

Such a national water policy will provide for the preparation of plans for the unified regulation and development of the river systems in the country, based on thorough surveys and investigations of the physical, economic, and social factors involved in such regulation and development. These plans will deal with the control and best use of water resources for all of the possible beneficial purposes in effective combination, including:

- (1) Navigation;
- (2) Flood control;
- (3) Protection against droughts;
- (4) Irrigation;
- (5) Development of hydroelectric power;
- (6) Drainage;
- (7) Water-flow retardation;
- (8) Reduction of erosion and siltation;
- (9) Abatement of pollution;

- (10) Provision of water supplies for domestic and industrial use;
- (11) Enhancement of recreational opportunities; and
- (12) Conservation of fish and wildlife.

The national water policy will also provide for the programming of construction on the individual projects in the order of their urgency—the actual work to be undertaken as rapidly as is economically and socially justifiable, with due allowance for the necessity of speeding up construction in periods of unemployment and in the interests of the national defense. The policy should insure that social, general, and potential benefits are taken into account in considering specific projects, as well as economic, special, and immediate benefits. The responsibility of the Federal Government for the development of a national water policy was emphasized in the recent decision of the United States Supreme Court in the so-called “New River Case.” The Court stated that “* * * navigable waters are subject to national planning and control in the broad regulation of commerce granted the Federal Government.”

The Federal Government under a national water policy should assist in the settlement of controversies between or among States over interstate waters; encourage the States to adopt regulations to curb the wasteful use of water resources; provide for systematic and effective cooperation among Federal agencies, and between Federal agencies and the various agencies in the several States, in formulating water plans and programs; and eliminate inconsistencies and conflicts in existing laws and regulations that govern the action of Federal agencies as they pertain to the control or utilization of water resources.

Present Procedures

Progress has been made in recent years towards establishment of legislative and administrative provisions to make possible (1) the efficient budgeting, authorizing, carrying out, and reporting of surveys and investigations of interrelated water problems; (2) coordinated planning, designing, construction, and day-by-day operation of multiple-purpose projects for the fullest practicable utilization of river systems; (3) the proper division of the costs of projects of national significance among Federal, State, and local political units and the various groups of private beneficiaries, and on multiple-purpose projects, the proper allocation of costs among the several functions; (4) an orderly sequence in the undertaking of projects; and (5) the effective timing of construction to relieve unemployment during periods of business depression. Further steps are needed to secure these objectives.



Chart 11

Multiple-Purpose Development

In order to make possible the economic and efficient development of our water resources under a unified national water policy, individual projects included in the plans for the development of a drainage basin should be designed to serve as many purposes as are feasible, regardless of the primary reason for the construction of each project. Many projects, originating in a single need, afford practicable opportunities for combinations that would multiply benefits and, in most instances, reduce the cost of each of them below what it would be if the benefits were sought singly.

Every project should be carefully planned in relation to other projects within the basin and to conditions in other basins, and also in relation to possible future as well as present development.

Immediate Need for an Operating Policy

In earlier days, the operation of a public water project related chiefly, if not wholly, to a single purpose such as the maintenance of a navigation channel or the storage, release, and distribution of water for irrigation. Though some of these projects were large, they were relatively simple in that they involved only one or a few main structures—in many instances, only a single channel or reservoir.

Today, the Federal Government is already concerned with the multiple-purpose operation of huge works already constructed in the Tennessee Valley, on the Columbia River, and on the lower Colorado River. Many other multiple-purpose projects are under construction, and in the future additional systems of interrelated structures may be expected.

Federal participation in the unified operation of each group of developments should be commensurate with the national investment involved, the national interest in the purposes served, and the national responsibility for the success of the enterprise. State and local interests should also participate, since they are immediately affected, since State laws must be taken into account, and since the State power to tax must be exercised if local beneficiaries are to share directly in the costs. Moreover, local cooperation and support is closely linked with local popular control over the distribution of vendible services.

Financing

Wherever there is a sufficient national interest, either in the furtherance of some national policy such as rural electrification or navigation, because of the project itself, or by reason of the stimulating effects of the work on employment and on business, the Federal Government should stand ready to underwrite or advance the capital necessary for the construction of sound development projects. Federal participation is necessary in

many projects because they affect interstate commerce and because most of the major drainage basins are interstate or international. The benefits that accrue to the Nation as a whole from wise use of its water resources make it appropriate for the Federal Government to supply this banking service as its normal minimum contribution. Joint participation in the advance of capital should be encouraged, however, particularly where local contributions can be made in kind—by providing land or rights-of-way, for example—and where provision has been made for local participation in the administration of the project after completion.

The final actual costs, as distinguished from capital advances, should be repaid as far as possible by the beneficiaries of the projects, with due consideration for the amount of benefits received by each group. The Federal contributions to the ultimate cost should be proportionate to the national benefits derived, including economic stabilization and unemployment relief. Insofar as possible, private and local beneficiaries should be assessed their fair share of the costs of non-vendible benefits, including, for example, the indirect benefits of irrigation to persons other than water users. This will require State action supplementing the tax policies of the Federal Government. Repayment contracts should contain provision for adjustment and some flexibility to allow for fluctuations in the incomes of beneficiaries arising from causes beyond their control, as in the Reclamation Project Act of 1939.

Navigation facilities have heretofore been provided free, but consideration should be given to the desirability of charging tolls for the use of waterway improvements. Where vendible benefits pass through the hands of one or more intermediaries before reaching the ultimate consumer, provision should be made against absorption by middlemen of an undue share of these benefits. Avoidance of speculation in power is no less desirable than avoidance of speculation in land, provision against which was made by statute in connection with the Grand Coulee project.

Costs and Benefits

It is necessary to estimate both the benefits and the costs of a proposed project in order to determine whether it should be constructed. Neither the benefits nor the costs are capable of precise determination, if due weight is given to intangible and indirect effects; and yet some estimate must be made as a basis for decision. In addition, fair and rational allocation of the costs for ultimate repayment requires consideration of all the benefits.

For each major project or group of projects, a comprehensive and explicit evaluation should therefore be made of all benefits and of all costs before construction,

reasonable approximations being used where exact measurement is impossible. Such evaluations should be based on total returns, both tangible and intangible, potential and immediate, indirect as well as direct, that may be anticipated from a project by all beneficiaries, both public and private. To arrive at total costs is perhaps less difficult, but some consistent methods for evaluating in dollar terms the intangible and indirect costs—as well as benefits—of a project should be devised. Allowance for interest should be included in the cost estimates where projects are financed with borrowed funds, regardless of the policy with respect to ultimate repayments of project costs, and this interest should be comparable to the amount the Government must pay on borrowed funds. Amortization over a period not longer than the estimated life of the project should be provided for.

Regulation

In order to encourage better State regulation of water use, Federal contributions to flood control projects might well be made contingent upon the States enacting and enforcing legislation prohibiting further undesirable encroachment upon stream channels. The building of structures that raise the flow line or increase the duration of floods has aggravated an already serious flood hazard in many valleys. Flood plains should be zoned to prevent unnecessary risk and damage. Similarly, Federal expenditures for irrigation projects should be made conditional upon reasonable assurance that the irrigated acreage will not be extended beyond the limits of reliable water supply. This could be enforced through such measures as zoning or the establishment of districts with adequate authority.

Plans for drainage districts should be examined to avoid unnecessary damage to wildlife, recreational resources, or agricultural interests and to prevent disadvantageous overlapping of two or more districts. Moreover, even well-planned districts soon lose their utility if ditches and drains are allowed to fall into disrepair. Federal assistance to land-drainage projects or districts should require provision for State review of new drainage projects and for maintenance of existing ones. Finally, loans or grants to public bodies for pollution abatement or for the purposes of municipal water supply should depend on the existence of adequate State legislation providing for the regulation of pollution and for reasonable withdrawal of underground waters.

Federal Coordination

Adequate planning, programming, and administration under a national water policy can only be achieved through close collaboration between the numerous

Federal agencies charged with the different aspects of water resources' development. Since coordination in the field of water resources to be effective must be tied in with land, minerals, energy, and other resource development, this function has been and is being developed through the Water Resources Committee as one unit of the work of the National Resources Planning Board.

The full job of adequate coordination in the field of water resources involves action, in cooperation with other agencies, for the preparation of plans for the unified regulation and development of the river systems of the country and the programming of actual construction of projects in the order of their urgency, so that the most beneficial sequence may be followed in the realization of these plans. It also involves the formulation of proposals for the integrated operation of projects once constructed.

In order that the plans and programs arrived at may be based on adequate knowledge and analysis of the physical, social, and economic factors involved, it is necessary to correlate and revise basic data relating to water resources and review all water plans; study water problems and the techniques for their investigation and for the formulation of water plans; and from time to time, prepare programs of coordinated investigations and surveys of water problems.

Further, the Board should be in a position to continue the study of water policy problems and to recommend desirable and practicable improvements in such a policy. It should continue to assist in planning and conducting investigations and negotiations designed to settle controversies over interstate streams. Under Executive Order No. 8455, the Board now examines all Federal project proposals in the field of water resources, and makes annual and special reports to the President and the Congress.

(c) Energy Resource Policies

The States and the Federal Government, without much attention to coordination, have introduced various measures aimed to facilitate wise use of energy resources. In the main, each of these efforts has been directed toward a single group of problems—the correction of demoralizing and wasteful practices and conditions in the petroleum and natural gas industries, the relief of economic distress and the promotion of safety in coal mining, or the protection and development of the public interest in water power. It is time to take a broader view. It is time to recognize more fully that these problems interlock, to weigh the conflicting interest and the differing points of view, and to resolve these conflicts in the interest of a national economy based on large-scale use of low-cost energy.

In the immediate foreground are new and heavy demands for energy to drive production for the national

defense. Measures are urgently needed to provide coal, oil, gas, and electric energy in the right places and in sufficient quantities; to guide the necessary expansion, on the one hand, but to avoid over-expansion, waste, and conflict, on the other. Emergency needs of the national defense program must be met, and measures to meet emergency needs will be more effective—not less effective—if they are also steps in long-range plans by resourceful men. Winning the skirmish of immediate needs must not mean losing the long-range battle of fundamental national strength and economic health.

The Conservation Principle

The objective of social policy toward the energy resources of coal, petroleum, natural gas, and water power is "conservation and wise use"—the principle established by Theodore Roosevelt more than 30 years ago. Conservation does not mean abstinence or hoarding; rather, it means wise use. It was expressed by the Energy Resources Committee in 1939 as the *avoidance of unnecessary waste* in the production and utilization of energy resources and the *safeguarding in economic health* of the industries and the people engaged in developing these resources.²

There is agreement on the general objective of conservation and wise use of energy resources because it coincides with the ultimate interests of all groups concerned—labor and capital, producer and consumer, State governments, and the Federal Government.

There is divergence of opinion only with respect to ways and means of attaining this objective. The three main fields of action described in the Committee's report of findings in 1939 were (1) promotion of greater efficiency in the production of energy resources, (2) promotion of greater economy in the use of fuels, (3) placing a larger share of the energy burden on lower-grade fuels and on water power.

The Need for Federal Action

Conservation places a special obligation on the Federal Government. It is clear (1) that parts of the task can be accomplished only by the Federal Government, through which the people as a whole have ultimate jurisdiction over the entire economy, (2) that the Federal Government—as the only agency representing the entire national interest—should insure that the public interest is focussed on the objective of conservation. Industries and producing States have vital roles to play. For the most part, Federal action at the present time is directed toward reinforcing their efforts. There are, however, interstate and inter-enterprise conflicts with which only the Federal Government can cope.

² *Energy Resources and National Policy*, National Resources Committee, January 1939, H. Doc. 160, 76th Cong., 2d sess.

Prevention of waste is primarily an economic problem of competition in the energy-resource industries. With the multiplicity of ownership and operating units and the legal framework within which they must operate, wastes are inevitable.

In the utilization of energy resources, the profit motive has led to increased efficiency because consumers of fuels find it to their interest to make their purchases go further. In production and distribution, however, private gain has not proved an adequate stimulus for all of the needs of conservation and, in fact, may be the chief cause of wasteful exploitation.

In the petroleum industry, for example, public action is apparently compelled because private enterprise, unaided, cannot deal with the problem of waste. Investment capital, reservoir energy, and petroleum reserves have been wasted as a result of efforts to obtain quick profits. Much of the responsibility for corrective action rests upon the Federal Government.

In most of the great river basins, the integrated control of storage and release of water is beyond the scope of private enterprise, local governments, or even of individual States; but a comprehensive development will make available many times as much economical water power as the limited and partial developments of the past. The amount and cost of water power will therefore depend largely on the extent of Federal or regional participation. Similarly, basic research in energy resources may be richly justified for the national interest.

Responsibility for the determination of general policy toward energy resources, therefore, rests primarily with the Federal Government, inasmuch as its duty is to function more broadly than industry or the governments of political subdivisions. The problem is to decide what the Federal Government should do, and also to determine what share of the total responsibility should be held by the industries and by the State governments.

Broad Objectives of the Program

The immediate objective of a prudent national policy in this field is to provide an effective supply of energy to drive the emergency program for national defense, through eliminating bottle-necks and straightening the flow of energy resource materials and through providing the necessary new supplies (including especially electric power) where they are most needed and where their presence will support a better and stronger industrial structure both for the emergency and for the longer view.

The underlying objectives are stated in broad terms as follows:

1. The program should strengthen the national economy for peace or war through greater efficiency

in production and greater economy in the use of mineral fuels; using where possible bituminous coal, of which there is an abundance in the ground and water power which is wasted if not used; reserving where possible the meagre known supplies of petroleum and natural gas for special duties to which they are essential.

2. The program should advance the public welfare and improve the living standards of the people through more efficient production, distribution, and utilization of an increased supply of energy; through the use of fuels and of water power for the purposes to which each is especially adapted; through protecting and improving labor standards and stabilizing employment in the energy resource industries, and guiding into less wasteful channels the inevitable competition of one resource with others.

3. The program should provide for continued investigation and planning by public and private agencies toward these objectives, emphasizing that immediate measures will be most effective for the emergency if they are also permanent foundation stones for long-range plans.

Coal: A Fuel and a Raw Material

For the immediate emergency, the special problems of supply for critical war needs should be attacked—the location of defense industries and fuel resources, the occurrence of raw materials other than coal, the adequacy of transportation facilities to meet emergency demands for coal.

In addition, measures should be adopted to reduce the impact of post-emergency dislocations to improve the means for rehabilitating displaced miners, to reduce short-term fluctuations in production, to provide supplementary employment for slack periods, and to discourage unnecessary over-expansion.

Since freight constitutes about half of the average delivered price of coal, large savings can undoubtedly be made through a coordinated plan for transportation by rail, water, and highway. Studies for this plan should include the quality and location of coal reserves, and the freight rate structure with respect to desirable trends in the location of industry, including the location of new or expanded industries to produce national defense materials.

In the longer view, known methods should be promoted and new methods developed for more complete extraction of coal, and especially of the better portions of the reserve supply, in the realization that these better deposits (as, for example, high grade coking coals) are but a fraction of the total tonnage in the ground.

Improved standards of operation and management should be enforced, including higher safety standards, not only to reduce injury and loss of life but also to prevent wasteful exploitation of reserves. The Federal and State programs should promote more orderly use of manpower in mining, through safety measures, through more regular employment, better standards of education, better living conditions, better working conditions, and better relations between labor and operators.

Investigation should be continued to improve methods for deriving and utilizing better fuels—coke, semi-coke, powdered coal, liquid fuel, and gaseous fuel—from coal and to develop additional by-products.

State and Federal regulation in the coal industry for all of these objectives should be re-examined in the light of recent experience and the new emergency needs of the national defense program.

Petroleum and Natural Gas

Petroleum products are absolutely essential to the national defense. Immediate steps are necessary to establish emergency powers adequate to control the allocation of production and refining among the various districts and to control the prices of petroleum and its products in relation to other fuels. Such emergency powers should be framed after reappraising the powers and forms of organization of the existing regulatory agencies, including those dealing with production, transportation, and marketing.

Creation of a Federal oil conservation body is recommended to administer the interests of the United States as a whole in oil and gas, to cooperate with the States in protecting the Nation against waste, and otherwise to pursue the objectives here stated.

For emergency purposes, there should be up-to-date estimates of requirements for oil and gas, these estimates to be used in controlling the development and extraction of reserves that are suitable for products of special military significance. Attention should be given to the desirability of expanding the military reserves and to their protection from commercial exploitation. The expansion of commercial production to meet emergency needs should be carefully planned to avoid waste and to minimize post-emergency disturbances.

A policy favorable to imports is recommended, particularly for grades of crude oil not readily available in the domestic market.

In the longer view and in designing emergency measures as parts of a long-range plan, the peculiar dependence of transportation motive power on petroleum products should be clearly realized. These mobile uses are compelling reasons for more efficient production and use of oil. The limited quantities of proved reserves in relation to sharply increasing consumption should be emphasized; the danger of an actual lack is

not imminent, but the prospect of definitely higher costs in world trade is not far off.

Over-production and waste of oil should be studied in relation to its distribution and to its consumption for less essential purposes. Those uses of petroleum for which available substitutes are relatively costly—notably lubricants and gasoline—should be protected. The use of oil and natural gas should be discouraged wherever heat or power from other sources is suitable and economic and where the factor of convenience is not important.

In the production field, it is essential for the Federal Government and the States together to devise, adopt, and enforce methods leading to more stability as well as to less waste and conflict. Unit operation of petroleum pools is desirable, and to this end it is recommended that direct and indirect means be adopted for stimulating the pooling of lease and royalty interests. The principle of correlative rights and of ownership-in-place should be substituted for the "rule of capture;" to encourage this, better methods for measuring underground reserves should be found. The problem of regulating production in fields located far from adequate markets should be attacked.

Water Power and Electric Energy

Immediate attention must be directed toward the sharp increase in electric energy requirements that is already taking place through the emerging national defense activity and its stimulating effect on nearly all activities. Insofar as the plants and machinery can be constructed, it will be the part of prudence to maintain enough reserve generating capacity to care for war-time needs without curtailment of essential civilian demand and to avoid the actual storages of power already threatening in various places. Hydroelectric plants at multiple-purpose public reservoirs are particularly adaptable and economical for this purpose.

Where sufficient generating capacity cannot be constructed or cannot be constructed in time, serious attention should be given to planning the inevitable curtailment of usage so as to minimize the dislocation of defense production.

In planning the construction of electric generating capacity for emergency needs, consideration should be given to developing industries in new locations as well as in established industrial centers.

In general, hydroelectric power will supplement steam-electric power—not replace it; power at storage reservoirs is best suited in general to carrying high peak loads of short duration which do not require much fuel but are expensive to carry with steam-electric equipment. Economically sound multiple-purpose water projects should be developed for power as well as other

water uses; water power is wasted if not used, and these projects should take their proper place in meeting the expanding demand for electricity while conserving petroleum, natural gas, and high-rank coals, and reducing the cost of the total energy supply.

Fuel-electric plants should be constructed in conjunction with public hydroelectric plants where necessary to provide the best balance in their combined capacity, and to utilize each energy resource for its most efficient function in a coordinated program of low-cost power supply.

Power production and mainline transmission from multiple-purpose water control projects should be operated under public auspices, following the established policy of preference in distribution to the States, their political subdivisions, and non-profit cooperatives.

Transmission of electric energy is in many social and economic essentials closely akin to transportation of commodities. For the electric requirements of the future, the national interest will be served best by coordinated systems of interconnections that will make available in wider markets energy derived from the most economical sources, whether large-scale hydroelectric plants or efficient steam plants. Transmission systems of the present were integrated from smaller units to meet compelling needs for more energy supply at lower costs. There is no indication that this growth will not continue. For most industrial regions, at least, the outlook is for twice as much demand within the next decade or so. Such greatly increased needs will call for systems of supply based on large efficient steam-electric generating stations in areas of low-cost fuel, coordinated with storage hydroelectric plants by transmission networks extending over several States.

A basic system of publicly operated high-tension lines will speed this necessary development. Transmission links between important load centers and power sources should be planned immediately as elements in such a back-bone system, not only for economy but to protect the power supply of industrial regions vital to the national defense.

Wider use and lower cost of domestic and rural energy supply should be advanced through promotional rate schedules, more progressive service, and extension of lines; through encouraging the development and wider distribution of low-cost efficient electric appliances, designed for the requirements of farm users and of lower-income groups, with financing at low interest rates by manufacturers, utilities, or public credit agencies. In the future as hitherto, public power developments may appropriately take the lead in these policies, particularly through cooperative action with the Rural Electrification Administration.

The influence of electric power costs on the location and growth of industry, including the possibility of pro-

moting balanced industrial development, and on other economic activity should be studied by appropriate local, State, regional, and Federal agencies. Continued study is recommended to improve the methods by which low-cost electric energy can contribute toward a healthy and diversified agriculture, as, for example, through refrigeration, quick freezing methods, and mechanization of farm processes.

(d) Transportation Needs and Principles of Expenditure

The significance of transportation as a tool for national development has long been recognized by the Federal Government. This recognition has been expressed by the construction, maintenance, and operation of physical plant, by financial aid through loans and grants, and by the furnishing of extensive auxiliary transportation services. The history of American transportation has, in fact, been in no small degree the history of Federal activity.

Today, the tremendous expansion of Federal participation in the field of transportation is measured in appropriations aggregating billions of dollars. For highways, continuing substantial grants of monetary aid reenforced by engineering and administrative counsel have been a significant factor in the phenomenal development of an integrated nationwide system of motor transport and the accompanying expansion of vehicle ownership and use. In the development of waterways, accomplishments for the past century have been almost exclusively through Federal action, resulting in the availability to American shipping of adequate harbors and channels on the oceans, the Great Lakes and the inland river systems, as well as in extensive aids to navigation and financial assistance in ship construction and operation. Railroads in pioneering times were the recipients of extensive land grants from the Federal Government, and in recent years aid has been directed in the form of loans. Finally, air transportation, the newest object of Federal support, has been developed by means of Federally owned and operated airways, airport construction, air mail subsidies, and technical research without which current attainments would have been impossible. These promotional activities have been augmented by regulatory policy directed toward preserving all forms of transport.

Although the recent past in Federal sponsorship has been one of intense activity, the future appears to compel an even greater role. Today, increasing rates of technological development and modernization have been joined by the compelling force of national defense to produce unparalleled national responsibility for the achievement of an adequate, efficient, and up-to-date national transportation system. In air transportation, it would be impossible to predict the effect upon airway

and airport facilities of current trends in the development of this new medium. Not only are these facilities to a large extent defective and inadequate in the light of present achievements in commercial and private aviation, but necessity for enormous improvements appears in connection with current phenomenal increases in airplane productive capacity, pilot training, and goals set for the military air force. Today, most of the airports in the United States are classified either as of lowest rating or as failing to meet adequate standards of classification. Plans were recently recommended for a half billion dollar airport program in the attempt to overcome some of these defects in size, lack of paved runways, inadequate lighting, and other equipment needs. Further technical improvements in airplanes are certain to accelerate obsolescence in present facilities, and growing defense requirements may give impetus to mass plane production similar to that provided for motor vehicle production by the last world war. Because of the predominantly national interest in this method of transportation, therefore, it appears that Federal financing and control will continue to be extended.

Needed highway development, as outlined in the master plan of the Public Roads Administration, also suggests a high volume of Federal activity in the future. The unsuccessful attempt of American highways to keep pace with the development of the motor vehicle has resulted in transportation inefficiencies expressed in accidents, congestion, delay, and inconvenience. Not only is there need for modernization of the present Federal-aid system, but also for a system of direct inter-regional highways with connections through and around cities designed to meet the requirements of defense and peacetime traffic. Especially important and costly will be the modernizing of heavy-traffic highways in or about metropolitan centers. In addition, the Federal Government has recently assumed new responsibilities in the secondary road and grade-crossing programs. Adding to this normal plan of development the requirements of national defense resulting from the development of a mechanized and motorized army, and considering the new use of highways in connection with training maneuvers, the future road-building program assumes very considerable proportions. At the present time, there is immediate necessity for bringing 75,000 miles of strategic highways to standards set by the War Department, and additional need for several thousand miles of access roads to military reservations and to the sites of newly located armament plants.

With regard to the promotion of water transport, a far-reaching system of inland and coastal facilities is virtually completed. With few exceptions, the natural streams have been improved and supplemented so as to provide a broad fan of waterways in the Mississippi

basin, a fringe of channels extending inward from the ocean and Gulf coasts, and a major route through the Great Lakes. Their economical use will, however, require expenditures to remove existing bottlenecks, to fill gaps in the network, and to bring all channels to proper project depth. The largest single project immediately before the Nation is the St. Lawrence Waterway project. Further developments may be expected to involve the interconnection of major river systems, the deepening of channels, or the improvement of more small feeders to the major waterways. Other possibilities are the development of certain defense harbor needs, and the construction of additional dams for joint transportation, power, and irrigation purposes.

The outlook for Federal promotion is less clear in the railroad than in other transport fields. Although there appears to be no need for extension of facilities, considerable reconstruction of roadbed and purchase of new equipment will be necessary to modernize rail service, and where such investments may be more compulsory from the viewpoint of national defense or social objectives than from the viewpoint of carrier profitability, Federal action may be deemed advisable. This may take the form of further loans or grants, or even public ownership of certain facilities.

Indication of these extensive and multiplying responsibilities of the Federal Government in future transportation development emphasizes the need for careful formulation of principles to lead away from further unrestricted expansion to careful evaluation of the proper relationships among the several media, and to the requirements of modernization and efficient operation. Vague objectives designed to stimulate the provisions of a greater supply of facilities have, therefore, become of little value in guiding a wise overall development of transportation in the national interest. Such considerations point to the usefulness of directing more attention to the planning of transportation facilities to avoid the unnecessary wastes resulting from haphazard development and from a narrow and short-run viewpoint.

Both Houses of Congress recently called attention once again to the need for a national policy aimed at providing a transportation system adequate to meet the needs of the commerce of the United States, of the Postal Service, and of the national defense. It was further stated to be the purpose of the Congress to recognize and preserve the inherent advantages of each mode of transport. The following principles are accordingly suggested as guides to the realization of these achievements:

1. The present development of each transportation agency through unrelated legislative policies carried out

by independent bureaus should be supplanted in future Federal activity by coordinated action in terms of an over-all transportation objective. This objective should be expressed in terms of the development and preservation of a transportation system representing an optimum combination of economy, speed, safety, and convenience, and designed to further policies of the Federal Government with respect to such factors as resource utilization, industrial location, distribution of population, land-use planning, the diffusion of culture, the maximizing of income, and the national defense.

2. In the light of the established transportation objective, amendments should be directed to the current contradiction in Federal action which seeks the unrelated development of competing facilities, and at the same time, regulates the use of facilities to achieve coordination.

3. Criteria should be established for determining the need and justification for Federal expenditure in order to minimize the influence of special pleadings irrelevant to the expressed transportation objective.

4. Where the provision of transportation facilities is established as a work-relief project designed to conserve human resources as well as to furnish a needed service, there should be a coordination of the two objectives to permit the optimum realization of both.

5. In the programming of expenditures, priority should be granted to projects of demonstrated national defense value, but it must also be realized that, in general, the proper development of peacetime transportation requirements is a primary contribution to adequate defense.

6. There should be more thoughtful definition of the scope of Federal interest in the control and financing of transportation facilities, and of the extent to which direct Federal action, intergovernmental cooperation, or local autonomy is most desirable.

7. Federal action should be directed toward the achievement of greater harmony among the several transport agencies in order to eliminate hostilities and promote greater interagency cooperation.

8. With the current attainment of an extensive transportation plant, emphasis upon the modernization and efficient operation of existing facilities requires the substitution of planning techniques for haphazard growth.

It is believed that in view of the crucial importance of transportation as a facilitating function for the commerce of the Nation, some such principles must be developed to guide future Federal action toward obtaining through our vast transportation investment the optimum results in terms of a progressing American standard of living.

F. RECOMMENDED SIX-YEAR PROGRAM

1. Summary

The six-year program of public works construction and construction financing by the United States Government presented in this section is divided into three parts:

The first part (Table No. I) consists of projects recommended for construction during the fiscal year ending June 30, 1942, by the construction agencies (Class I) as defined by Executive Order No. 8455.¹ These agencies build works and structures that are owned and operated by the Government.

The second part of the program (Table No. II) consists of the estimated volume of construction recommended to be financed during the fiscal year ending June 30, 1942, by the construction agencies (Class II) as defined also by Executive Order No. 8455.² These agencies make grants, loans, or guaranties of loans for construction by both public and private agencies.

The third part of the program (Table No. III) summarizes those projects available for construction by the construction agencies (Class I) for the years following the fiscal year 1942.

The estimated cost of new construction to be built or financed by the United States Government during the fiscal year ending June 30, 1942, is \$3,664,468,000. The actual amount of Federal expenditures or financing involved in that estimated cost is \$3,157,768,000. The difference of \$506,700,000 between the two figures represents the estimated additional expenditures to be made by State and local governments and by private corporations and individuals on construction work for which grants, loans, or guaranties of loans will be provided by the Federal Government.

In comparison, the estimated amount of Federal expenditures for, or financing of, new construction work during the fiscal year 1941 is \$3,935,448,000, and during the fiscal year 1940 it was \$3,127,159,000. The accompanying table shows these amounts for the past ten fiscal years.

Of the \$3,157,768,000 of Federal expenditures for, or financing of, projects, approximately \$1,941,268,000 will be in the form of withdrawals from the Treasury during the fiscal year 1942, while the balance of \$1,216,500,000 will be comprised of disbursements or

Fiscal year	Federal expenditures for new construction	Federal financing of new construction			Total Federal expenditures for and financing of new construction
		Grants and loans	Guaranties of loans	Total	
1933	\$316,603,000	\$195,233,000		\$195,233,000	\$511,736,000
1934	354,901,000	1,090,386,000		1,090,386,000	1,445,287,000
1935	443,197,000	1,060,425,000	\$12,389,000	1,072,814,000	1,516,011,000
1936	545,236,000	1,548,426,000	195,412,000	1,743,838,000	2,289,074,000
1937	660,908,000	1,821,842,000	399,026,000	2,220,868,000	2,881,776,000
1938	564,734,000	1,378,385,000	427,003,000	1,805,388,000	2,370,122,000
1939	584,147,000	2,151,341,000	672,954,000	2,824,295,000	3,408,442,000
1940	664,114,000	1,760,398,000	702,647,000	2,465,045,000	3,127,159,000
1941	1,533,848,000	1,436,600,000	965,000,000	2,401,600,000	3,935,448,000
1942	1,156,768,000	1,166,000,000	836,000,000	2,001,000,000	3,157,768,000

guaranties of loans by some of the loan agencies of the Government which, because of their corporate organization, do not operate from the general fund of the Treasury. Thus, the latter figure of \$1,216,500,000 will not represent Treasury withdrawals.

The estimated cost of \$3,664,468,000 for new construction during the fiscal year 1942 is broken down as follows:

1. An expenditure of \$1,156,768,000 for new construction by the construction agencies (Class I) is recommended in the Budget of the United States for the fiscal year 1942 (Table No. I). This expenditure represents the estimated cash disbursements by the construction agencies (Class I) during the fiscal year by reason of (1) appropriations that are recommended in the Budget, or (2) the unexpended balances of appropriations made for previous fiscal years that will still be available for expenditure in the fiscal year 1942. In comparison, this expenditure during the fiscal year 1941 is estimated to be \$1,533,848,000, and during the fiscal year 1940 it was \$664,114,000. The large increases during the fiscal years 1941 and 1942 are accounted for by the increase in defense construction.

The recommended expenditure of \$1,156,768,000 for the fiscal year 1942 will be for projects serving the following general purposes:

Water use and control	\$273,436,000
Public land development	20,208,000
Transportation	123,949,000
Defense	595,451,000
Government plant	52,624,000
Housing	91,100,000
	1,156,768,000

The largest share of the expenditure recommended for water use and control will be for flood control projects; in the case of transportation, it will be for rivers and harbors work, airport development, and the Panama Canal; and in the case of Government plant, it will be for public building construction.

The total estimated cost of the projects recommended

¹ Construction agencies (Class I) as defined by the Order include those that "plan, initiate, undertake, or engage in construction financed in whole or in part by the Federal Government, by contract, force account, Government plant and hired labor, or other similar procedures."

² Construction agencies (Class II) as defined by the Order include those that "aid construction activity through grants-in-aid, loans, or other forms of financial assistance or through guaranties from the Federal Government."

for construction by the construction agencies (Class I) during the fiscal year 1942 is \$6,155,523,000, of which it is estimated that \$2,921,228,000 will have been spent prior to June 30, 1941, and \$2,077,527,000 will be required to complete the projects in the years following the fiscal year 1942. The distribution of the expenditure of \$2,077,527,000 in the fiscal years following 1942 cannot be forecast with any accuracy, since the amounts to be involved will ultimately depend upon the future decisions of the President and the Congress. However, using the recommended figures for the fiscal year 1942 and the construction agencies' current estimates of the expenditures that they believe will be required for the years thereafter, the following table shows the situation with respect to the projects for which expenditures have been recommended during the fiscal year 1942:

Total estimated cost.....	\$6,155,523,000
Expenditure prior to June 30, 1941.....	2,921,228,000
Recommended expenditure during fiscal year 1942.....	1,156,768,000
Estimated expenditure, fiscal year 1943.....	426,909,000
Estimated expenditure, fiscal year 1944.....	345,469,000
Estimated expenditure, fiscal year 1945.....	239,119,000
Estimated expenditure, fiscal year 1946.....	183,308,000
Estimated expenditure, fiscal year 1947.....	64,363,000
Estimated expenditure for the fiscal years after 1947 to complete the projects.....	818,359,000

It should be made clear, however, that the above estimates of expenditures for the fiscal year 1943 and thereafter do not all represent contractual commitments. A portion of such expenditures are, of course, covered by continuing contracts, while the balance represents a plan on the part of the construction agencies to complete a project subject to the decisions of the President and the Congress. In one sense, such commitments represent something of a "moral" obligation of the Government.

Viewed from another standpoint, the additional expenditures that will be required in the years after 1942 to complete projects recommended for construction in 1942 provide one part of the "reservoir" or "back log" of public works construction required by the Employment Stabilization Act of 1931. Of course, another part of that reservoir consists of those projects upon which construction is not recommended during the fiscal year 1942 but which are available for construction during later years (see Table No. III).

2. The estimated cost of new construction during the fiscal year 1942 that involves recommended Federal financing by means of grants, loans, or guaranties of loans by the construction agencies (Class II) is estimated to be \$2,507,700,000 (Table No. II). Of this amount, the recommended Federal share, upon the basis of estimates contained in the Budget of the United States, is \$2,001,000,000. It is recognized that this estimate

may be in error to the extent that it depends upon the willingness of the prospective recipients of the grants or loans to assume the obligations entailed. The estimate of \$2,001,000,000 for the Federal share is based, however, upon the best estimates of the construction agencies (Class II) concerned.

The Federal share of such construction financing divided among the types involved is approximately as follows:

Type of Financing	Federal financing	Total estimated cost of construction to be financed
Grants-in-aid.....	\$789,000,000	\$1,113,000,000
Loans.....	377,000,000	429,200,000
Guaranties of loans.....	835,000,000	965,500,000
Total.....	2,001,000,000	2,507,700,000

The third part of the program, summarizing those projects proposed for construction by the construction agencies (Class I) for the years following the fiscal year 1942, includes \$2,346,013,000 of projects none of which have been recommended for construction during the fiscal year 1942 (Table No. III). These projects comprise the bulk of the reservoir of Federal public works construction, envisioned by the Employment Stabilization Act of 1931, from which selections may be made in future years.

The total estimated amount of work necessary to complete these projects, distributed according to the purposes the projects will serve when built, is as follows:

Water use and control.....	\$1,679,070,000
Public land development.....	211,611,000
Transportation.....	151,528,000
Government plant.....	303,804,000
Total.....	2,346,013,000

It cannot be assumed that all of these projects could or should be started immediately if the funds were available to undertake them. There are two reasons for this:

1. The plans for these projects are in various stages of preparation. It is estimated that of the total \$2,346,013,000 of projects in the reservoir, plans have not been begun for \$171,718,000 of the work; sketch plans are in preparation for \$271,845,000; sketch plans are completed for \$478,583,000; detailed plans are in preparation for \$401,938,000; and detailed plans are completed for \$265,518,000; the status of the plans for \$757,410,000 has not been reported. Consequently, only approximately \$667,456,000 of projects appear to be ready for undertaking if funds were to become immediately available. The balance of \$1,679,556,000 in the reservoir might require some time to be placed under construction even though the funds were available, since construction must await the preparation of plans. It is estimated that a sum of \$85,000,000 would

be required to provide the necessary plans before construction could begin on projects in the reservoir.

2. Many of the projects as proposed are not in harmony with other national, regional, State, or local developmental plans, and adjustments must be made by study of the apparent conflicts or further investigation of the proposed design or location of the projects. The resolution of these conflicts requires the correlation of the plans of the agencies involved before the projects can be recommended for construction.

Accordingly, the projects have been placed in four groups: (1) *Group A* to be undertaken when funds are available; (2) *Group B* to be deferred because of conflicts with other plans; (3) *Group C* which is indeterminate; and (4) *Unevaluated*—all those projects proposed and now under study but upon which no opinion has yet been placed.

Continuous study will allow an annual revision of the third part of the program (Table No. III) so that projects placed in one group one year may be moved into another group the next year, while those projects now under study and upon which no opinion has been given this year will be placed within one of the other three groups in the next annual revision of the program.

2. Procedures in Developing The Program

The policy of providing for the planning and programming of the public works construction of the Federal Government was first declared by the Congress in the Employment Stabilization Act of 1931. This act provides for the advance planning of public works by the construction agencies of the Federal Government (as defined in the Act) and by the Federal Employment Stabilization Board established by the Act. The Act directs that each construction agency of the Government shall "prepare a six-year advance plan with estimates showing projects allotted to each year," such estimates to show separately "the estimated cost of land, the estimated cost of new construction and the estimated annual cost of operation and of repairs and alterations." Also, each construction agency must keep its six-year plan up to date by an annual revision of the plans and estimates for the unexpired years and by annually estimating the plans and estimates for an additional year. Such programs, plans, and estimates for the six-year period are to be submitted annually to the Board and to the Director of the Bureau of the Budget.

In August 1932, the Federal Employment Stabilization Board collected for the first time from the Federal construction agencies the six-year programs of Federal public works construction prepared by the agencies under the Act. From 1933 to 1934, when the last appro-

priation was made for the Stabilization Board, or Office³ as it was then known, it continued its activities of serving as a central clearing house for the Federal agencies' programs. In 1936, following the cessation of activities of the Stabilization Office due to lack of funds, the President requested the National Resources Committee to assume the responsibility for the annual revision of the Federal six-year program.⁴

Three revisions of the six-year program of public works were made by the National Resources Committee from 1936 to 1938. Each year during this period, consolidated programs based upon the revised programs as submitted by the construction agencies were submitted by the Committee to the President and to the Bureau of the Budget.

Under the terms of the Reorganization Plan No. 1, effective on July 1, 1939, the National Resources Planning Board was created in the Executive Office of the President, and the powers, duties and functions of the National Resources Committee were transferred to the National Resources Planning Board along with the powers, duties and functions of the Federal Employment Stabilization Office. Also, on September 8, 1939, the President, by Executive Order No. 8248, which defined the responsibilities of the divisions of the Executive Office of the President, directed the National Resources Planning Board to consult with the Federal agencies in "developing orderly programs of public works, and to list for the President and the Congress all proposed public works in the order of their relative importance with respect to (1) the greatest good to the greatest number of people, (2) the emergency necessities of the Nation, and (3) the social, economic and cultural advancement of the people of the United States."

Following the issuing of that order, a series of conferences between the staffs of the Board and the Bureau of the Budget was inaugurated for the purpose of developing procedures to assist the President in the operation of his Executive Office so as to facilitate the budgeting, planning, and programming duties for which the President was made responsible under the terms of Reorganization Plan No. 1, and particularly, the programming activities for which the Board was made responsible by the President under the terms of Executive Order No. 8248. As the result of these conferences,

³ Under the authority of the Economy Act of 1933, the President by a series of Executive Orders abolished the Federal Employment Stabilization Board and transferred the powers, duties and functions of the Board to a Federal Employment Stabilization Office established within the Department of Commerce.

⁴ The National Resources Committee had assumed the powers and duties of the National Resources Board, which, in turn, had succeeded to the powers, duties and functions of the National Planning Board established by Administrator Ickes of the Public Works Administration to advise and assist the Administrator in the preparation of the comprehensive plan of public works authorized by sections 201 and 202 of the Recovery Act. Thus, the duties of the Stabilization Office and those of the Resources Committee (as derived from the Resources Board and the Planning Board) were practically the same, i. e., the responsibility for the preparation of comprehensive public works programs.

the President issued Executive Order No. 8455 on June 26, 1940.

Briefly, Executive Order No. 8455 provides for five things:

1. It covers within the provisions of the Employment Stabilization Act all construction agencies of the Government not enumerated by the Act, and groups these agencies into two classes: construction agencies (Class I) which plan or undertake construction directly for the Federal Government; and (2) construction agencies (Class II) which participate in construction indirectly, or which affect construction activity by means of loans, grants or other Federal financial assistance.

2. The construction agencies (Class I) are required to prepare and keep up to date six-year programs of public works construction and to submit such programs to the Bureau of the Budget in September of each year, at the time they submit their budget estimates.

3. Provision is made for the continuous reporting to the Executive Office of the President by the construction agencies (Class I) of surveys or investigations directed toward the preparation of plans or estimates for construction projects and of the preliminary plans or estimates for the construction projects themselves.

4. The construction agencies (Class II) are required to submit such information on their advance plans and programs as the National Resources Planning Board may request.

5. The Director of the Bureau of the Budget and the Chairman of the National Resources Planning Board are empowered jointly to make such rules and regulations as may be necessary to make effective the provisions of the Executive Order.

In accordance with the authority provided in section 9 of the Order, Regulation No. 1 of the rules and regulations to be issued under the authority of the Order was first issued by the Director of the Bureau of the Budget and the Chairman of the Board on July 16, 1940, and the entire planning and programming procedure for the construction agencies (Class I) provided for by the Executive Order was established.

The staff work to carry on this procedure was at once inaugurated jointly by the staffs of the Bureau of the Budget and the Board. It was directed toward the development of a six-year program of public works, coincidental with the preparation of the Budget, which could be reported beginning in January 1941 to the President and to the Congress at the time of or immediately following the annual Budget Message. The President had indicated that such a six-year program should have as its first year the Budget estimates and a developing program for the balance of the six years.

Section 6 of Regulation No. 1 issued under Executive Order No. 8455 provides that the National Resources Planning Board and the Bureau of the Budget will

jointly maintain a record system for the reports on surveys and plans for construction projects required by the Executive Order.

Accordingly, such a project record system was established jointly by the Bureau of the Budget and the Board late in July 1940, immediately following the issuing of Regulation No. 1. The Chairman of the Board established the docket number system, subject to such further modifications as may be required from time to time. When a report on a survey or on plans or estimates for a construction project is submitted to the Executive Office by a construction agency, a docket number is assigned to the survey or the construction project involved, in accordance with the system established by the Chairman of the Board, for use and reference in all actions relating to the survey or construction project.

As a first step in aiding the construction agencies to organize their administrative procedures in order to comply with the provisions of Executive Order No. 8455 and Regulation No. 1, a series of joint conferences attended by representatives of the construction agencies, the Bureau of the Budget, and the National Resources Planning Board was arranged. During these conferences, the provisions of Regulation No. 1 were interpreted in the light of the operating practices and conditions prevailing in each construction agency.

As was made clear at these conferences, the procedure embodied in the Executive Order No. 8455, and the rules and regulations issued thereunder, departs from what was followed in the past years in one important respect. Previously, detailed information on plans and estimates for project proposals and proposed six-year programs of construction expenditures have both been reported by the construction agencies at the same time and on the same form just ahead of the Budget hearings in the fall. Under the new procedure, only the six-year program of proposed construction expenditures is to be reported annually, while information on plans and estimates for project proposals is to be reported throughout the year as projects develop in the construction agencies.

The continuous reporting of project information on proposed projects is designed to provide a complete history of each project from the time of its inception to the time of the completion of its construction. Submission of these reports to the Board and the Bureau of the Budget provides a complete record in the project record system of each proposed construction project. Also, the projects so proposed constitute a reservoir of construction projects as contemplated in the Employment Stabilization Act. This reservoir will be constantly replenished by the accession of new project proposals and will be constantly depleted by the bringing to completion of construction projects reported in the past.

Section 8 of Regulation No. 1 issued under the authority of the Executive Order provides for the procedure to be used in correlating the reports on proposed projects by making possible the forwarding of such reports to each construction agency that may be affected or concerned by the proposed activity reported. As promptly as possible, an agency to which such a report has been referred by the Board is required to report any conflicts with any of its activities then in progress or contemplated, along with its recommendations for suitable adjustment of these conflicts.

The process of planning correlation undertaken by the Board also involves an evaluation of the various project proposals by means of two different types of operations: (1) The representatives in Washington of the Federal agencies that are concerned with particular types of project proposals review and evaluate the proposals. Such evaluations proceed through the technical committees of the Board that deal with the development of the particular resources concerned, such as water resources, land resources, power development, etc.; (2) through its regional offices, the Board also attempts, where practicable, to clear the project proposals with regional, State, and, when necessary, local planning agencies. A number of administrative devices have been used to effect the field correlation: through the drainage basin committee organization maintained by the Board; through regional planning commissions composed of representatives of the Federal and State agencies concerned in the area; and through various temporary areal planning and study groups organized for particular jobs.

The planning correlation is made in terms of the conformance of a project to national, regional, State or local development plans that are affected. For that purpose, the projects are placed in four groups as follows:

(1) *Group A* includes projects that are recommended for early construction. These projects give evidence of being desirable parts of a development plan for a function, area, or activity and do not conflict with any other national, regional, State, or local development plans for the function, area, or activity involved. These projects are of such value that they should be undertaken as soon as possible.

(2) *Group B* includes projects that should be deferred because: (1) as proposed, they conflict with other national, regional, State, or local development plans (or further investigation is needed to demonstrate their freedom from such conflict), but they are of such value that they should be undertaken as soon as possible after the conflict has been resolved; or (2) although as proposed they do not conflict with any other regional, State, or local development plans, they should be deferred to follow projects in Group A.

(3) *Group C* includes projects that are not recom-

mended for construction at the present time or in the immediate future.

(4) *Unevaluated* includes projects for which no evaluation was possible because of the immediate lack of information, or because in the short time involved, the Board was unable to evaluate the project.

As a first step in applying the above evaluation grouping, a classification is made of the proposed projects by dividing them into categories according to the purpose the project will serve after it is built. The categories are: (1) water use and control, (2) public land development, (3) transportation, (4) defense, and (5) Government plant. The evaluations are made prior to the time that the Budget hearings are begun.

Unfortunately, the time allowed for this work during 1940 was very limited, so that the evaluations that were made did not include all of the projects proposed by the construction agencies.

3. Planning, Programming and Budgeting

The relationship between planning, programming, and budgeting for the public works construction of the Government is one of time sequence. Planning of projects precedes the formulation of public works programs. Public works programs comprise a group of planned projects arranged in an order determined by an over-all development plan. Budgeting, in this connection, is the process of selecting well-planned projects from a program in the light of the finances available, with due regard to the future financial commitments that the construction of such projects will involve.

Under the terms of Executive Order No. 8455 and the rules and regulations issued thereunder, the Board is responsible for receiving and correlating plans for public works construction projects proposed by the various construction agencies of the Government. The Board's planning involves close scrutiny, careful analyses, and correlation of the development plans for the activity, functional purpose, or geographic area that may be involved. These plans are studied in advance of any proposals from the Federal agency to include such projects in its program or in its Budget estimates.

Coincidental with the preparation of the Budget in the fall of each year, the Board then develops a six-year program to be reported to the President and to the Congress at the time or immediately following the annual Budget Message. While the annual Budget is in preparation, the Board is then able to advise the President and the Bureau of the Budget as to whether projects included in the construction agencies' six-year programs and budget estimates are in harmony with national, regional, State, or local development plans. The staffs of the Bureau of the Budget and of the Board work together closely during this period.

This process of correlating the many project proposals and organizing them into a program yields a number of byproducts that are invaluable to the improved administration of Federal Government functions. In the first place, potential conflicts between projects are disclosed very early. For illustration, it is possible that two projects proposed by entirely different agencies may compete with each other for a site, or for the use of the same river for incompatible purposes. The proposing agencies are encouraged to resolve conflicts such as these before the projects are submitted to the Bureau of the Budget for an estimate of appropriation needs. Likewise disclosed are the possibilities for supplementation, such as the modification of a proposed project so that it may serve several purposes instead of only one, or that it may aid rather than hinder another related project. The very process of organizing project proposals into a construction program encourages the development by the construction agencies of rational development plans for the functions or geographic areas involved. Project evaluation, as it is participated in by officials from the various construction agencies, tends to induce the proposing agencies to raise the general level of soundness of the projects they submit for Budget Bureau estimates. The Bureau of the Budget in passing on proposals is armed with the considered judgments of experts as to the value of the proposals to the development of the national estate.

The six-year program as reported by the Board has as its first year the Budget estimates (Tables Nos. I and II of this section) and a developing program for the remaining 5 years (Table No. III of this section). The projects contained in the balance of the 5 years of the Board's program are not scheduled by fiscal years but are grouped first according to the purposes the projects will serve after they are built, such as water use and control, public land development, transportation, etc., and second, within each purpose group the projects are placed into four evaluation groups as outlined above: (1) Group A (immediate); (2) Group B (deferred); (3) Group C (indeterminate); or (4) Unevaluated. The reservoir of work envisioned by the Stabilization Act thus comprises both the estimated annual expenditures necessary to complete after the first year those projects that are recommended in the first year of the program, in this case the fiscal year 1942, and the projects in the remaining 5 years of the six-year program.

The reservoir of projects that is maintained in the project record system is constantly being turned over

so that the Board reviews its evaluation of each project annually. There are, of course, many projects in the reservoir that are not contained in the construction agencies' programs but upon which the Board has placed evaluations in anticipation of the time that such a project might be included in the programs.

The method outlined above for presenting the Board's program provides flexibility from three standpoints:

(1) It enables a selection of projects from the reservoir of the Group A projects for construction as soon as funds are made available.

(2) The functional purpose classification of the projects means that the Government may, as its policy dictates, embark upon either a program of public land development, water use and control development, or transportation development and have available a program in any of the functional fields.

(3) By not scheduling the projects according to fiscal year, a flexibility, insofar as financial resources is concerned, is provided, since there is no advance commitment to undertake any of the proposed projects that are available for construction.

4. Lists of Projects

The recommended program for the fiscal year 1942 comprises two tables:

Table No. I.—Projects recommended for construction by the construction agencies (Class I). The projects are arranged according to the agencies responsible for their construction.

Table No. II.—Estimated construction financing by the construction agencies (Class II). The estimates are arranged according to the agencies responsible for the construction financing.

The program for the fiscal years after 1942 comprise one table:

Table No. III.—Projects available for construction in later years as prepared by the construction agencies (Class I). The projects are arranged according to the purpose they will serve when built and in operation.

Table No. III is further divided into four major sections covering projects whose purpose is: water use and control; public land development; transportation; and Government plant.

A detailed explanation of each table and notes and supplementary information concerning the table precede each one.

TABLE NO. I

PROJECTS RECOMMENDED FOR FISCAL YEAR 1942

This table includes the projects recommended for construction by the construction agencies (Class I) during the fiscal year 1942 in the Budget of the United States Government. The expenditure of \$1,156,768,000 that is recommended does not include allotments from work-relief funds, these being reported separately in Table No. II under the work-relief agency involved.

The largest share of the recommended expenditure for construction in 1942 is for defense purposes, in the amount of \$595,451,000. Projects involving water use or control are next largest, the amount being \$273,436,000. For comparative purposes, a classification of the expenditures since 1921 of the construction agencies (Class I) according to the purposes the projects serve is as follows:¹

[All figures in thousands of dollars]

Fiscal Year	Water use and control	Public land development	Transportation	Defense	Government plant	Housing	Total
1921	\$6, 073	\$6, 511	\$91, 552	\$66, 863	\$10, 357		\$181, 356
1922	4, 946	6, 299	61, 391	27, 023	17, 961		117, 620
1923	5, 659	8, 484	63, 509	22, 237	15, 237		113, 126
1924	6, 782	7, 822	91, 448	12, 636	14, 494		133, 182
1925	3, 899	13, 067	92, 247	8, 331	8, 584		126, 128
1926	3, 390	12, 721	72, 352	10, 258	8, 965		107, 676
1927	21, 619	14, 017	54, 292	12, 711	16, 566		119, 205
1928	23, 516	14, 421	61, 683	11, 173	16, 923		127, 716
1929	36, 283	16, 630	62, 244	21, 236	61, 945		188, 338
1930	32, 226	15, 466	61, 295	19, 935	69, 776		198, 696
1931	45, 297	27, 856	70, 624	39, 778	104, 037		287, 092
1932	51, 588	26, 385	75, 491	43, 979	138, 991		335, 334
1933	59, 199	19, 496	64, 185	26, 422	147, 221		316, 503
1934	76, 496	24, 291	90, 495	50, 076	101, 166	\$2, 377	354, 901
1935	109, 519	47, 789	144, 490	48, 377	84, 008	9, 014	443, 197
1936	140, 626	70, 612	159, 702	31, 837	99, 852	33, 607	545, 236
1937	142, 073	96, 039	158, 322	42, 729	123, 753	99, 992	630, 908
1938	175, 668	38, 190	113, 384	49, 354	108, 717	79, 421	564, 734
1939	201, 736	45, 427	105, 024	109, 593	112, 880	9, 487	584, 147
1940	256, 955	31, 910	93, 653	153, 900	121, 672	6, 024	664, 114
1941	281, 632	29, 903	122, 599	899, 162	100, 552	100, 000	1, 533, 848
1942	273, 436	20, 208	123, 949	595, 451	62, 624	91, 100	1, 156, 768

In order to show the relationship of the projects recommended for construction in 1942 to the development plans and programs of the construction agencies, there are presented in the following notes brief explanatory data on the principal features of the projects recommended for construction in 1942, the estimated additional expenditures required to complete such projects in the years after 1942, and the recommended program for 1942 in relation to the agencies' six-year program.²

¹ These expenditures include: (1) "emergency" expenditures for public works from allotments to the construction agencies (Class I) from work-relief funds, but do not include expenditures from allotments to States, municipalities, and other non-Federal public bodies; and (2) construction expenditures of the Inland Waterways Corporation and the Panama Railroad and Steamship Lines, both of which operate outside the Budget. Also, figures shown for years prior to 1941 are actual. Figures for 1941 and 1942 are estimated.

² The programs of the Inland Waterways Corporation and the Panama Railroad and Steamship Lines are omitted from Table No. I, since estimates of their programs for 1942 are not available. These agencies operate outside the Budget, but they are designated as construction agencies (Class I).

Legislative Establishment

Architect of the Capitol

The major work recommended during the fiscal year 1942 consists of major repairs to the Capitol Building and grounds, including the completion of the reconstruction of the roofs over the Senate and House wings of the Capitol Building. Also, some reconstruction at the Library of Congress is involved. These projects comprise part of a continuing program for reconstructing and rebuilding the structures included in the Capitol Building group, in order to maintain them in constant good condition and to replace worn or outmoded equipment.

Botanic Garden

The work recommended for the fiscal year 1942 includes construction of additional greenhouses and other improvements at the Poplar Point Nursery. This is one item in a small construction program maintained by this agency.

Independent Offices and Establishments

National Advisory Committee for Aeronautics

Work will be carried on in installing new equipment and research facilities at Langley Field, Virginia, and at Moffett Field, Calif., as well as in completing the construction of the new airplane engine research laboratory at Cleveland, Ohio. The construction program of the Committee is one of the largest of the research agencies. Facilities at Moffett Field and at Cleveland, Ohio, that are recommended for construction during the fiscal year 1942 will also require additional estimated expenditures of \$1,561,000 thereafter in order to complete the projects.

Smithsonian Institution

As the part of the program for improving the buildings under the Institution's jurisdiction, construction involving \$73,000 is recommended for fiscal year 1942 at the Freer Gallery of Art for the installation of a temperature and humidity control plant.

Tennessee Valley Authority

The program during 1942 involves the continuation of construction on the program of major unified system projects, including Cherokee Dam and Reservoir and Watts Bar Steam Plant, both of which were initiated early in the fiscal year 1941 as special defense projects. The total required to complete this program in the fiscal years after 1942 is \$86,500,000. Substantial amounts of work yet remain to be done on the Ken-

tucky Dam, Hales Bar Dam, Fort Loudoun Dam, and Cherokee Dam. Of these, the greatest amount of work is necessary at the Kentucky and Fort Loudoun Dams, these two projects together requiring a little more than \$75,000,000 in the years following 1942 in order to complete them. Other construction work recommended for the Authority includes the continuation of the program for the installation of transmission and other electric plant and for construction of fertilizer plants.

Thomas Jefferson Memorial Commission

An expenditure of \$75,000 is recommended for the fiscal year 1942, which expenditure will practically complete the construction of the Memorial. The estimated cost of the Memorial is \$3,000,000, so that, after the fiscal year 1942, possibly an expenditure of \$42,000 may be required to complete the minor construction details in and about the Memorial and its surrounding grounds.

U. S. Maritime Commission

As a part of the training program now being undertaken by the Commission, construction work is recommended at the Avery Point Training Station. This project is one of several in the Commission's program which looks toward the establishment of training stations at key points on the Atlantic and Pacific coasts.

Veterans' Administration

The program for the fiscal year 1942 is divided between (1) construction providing additional beds and (2) major conditioning replacements, alterations, and new construction at existing Veterans' facilities. Prominent among the projects in the former part of the Administration's program are the completion of the new hospital at Fort Howard, Md., the construction of an additional hospital at Canandaigua, N. Y., and a new hospital in the Massachusetts-Rhode Island area. The major reconditioning and replacements at existing facilities comprise a large variety of miscellaneous construction, ranging in cost from \$35,000 to \$150,000. No additional expenditures will be required after 1942 to complete such of the projects as are recommended for construction during the fiscal year 1942. The current program of the Veterans' Administration contains projects that are available for construction after 1942, the total cost of which is estimated at \$25,000,000.

Federal Security Administration

St. Elizabeths Hospital

The program consists of construction of continued treatment buildings, necessary storerooms, warehouses, laundries, etc., at the institution and the addition of various structures at the farm of the institution.

Federal Works Agency

Office of the Administrator

The expenditure of \$75,000,000 recommended for construction work covers that required to provide housing for persons engaged in national defense activities, under the authority of the Lanham Defense Housing Act (Public No. 849, 76th Cong.). This is an emergency program brought about by national defense needs rather than a long-term construction program.

Public Buildings Administration

The construction recommended consists of three major programs:

1. A continuation of the construction of public buildings outside the District of Columbia under the authorization of the acts of August 25, 1937, June 21, 1938, and June 27, 1940. The total authorizations contained in these acts amount to \$133,500,000. To date, \$104,000,000 has been made available through appropriations. The expenditures prior to the fiscal year 1942 for this program have totaled approximately \$86,000,000. The \$10,000,000 recommended for expenditure during the fiscal year 1942 will leave approximately \$37,500,000 required in the fiscal years thereafter in order to complete the construction of the buildings authorized in the program.

2. The second program consists of buildings inside the District of Columbia. Foremost among these projects are the completion of the West Central Heating Plant, continuation of construction on the General Accounting Office building, and the acquisition of a site for the State Department Annex building.

3. The third part of the program covers the expenditures required for the construction of housing units at locations on or near military establishments (under the authority of Public No. 781, 76th Cong.). Construction was begun through the transfer of \$45,700,000 from the War Department. This is an emergency program brought about by national defense needs rather than a long-term program.

Public Roads Administration *

The expenditure of \$1,000,000 recommended during the fiscal year 1942 is to continue the construction of highways on unappropriated and unreserved public lands under the provisions of the act of June 24, 1930. The recommended expenditure is a part of a continuing program, subject to the authorizations of the Congress, to provide public land highway facilities. No estimates are immediately available as to the total cost of a complete development program for public land highways.

* Recommended expenditures for the Federal aid highway system, secondary or feeder roads, and grade-crossing elimination are shown in Table No. II since they are regarded as expenditures of construction agencies (Class II).

Department of Agriculture

Office of Experiment Stations

The construction recommended includes miscellaneous small items and improvements at the Federal Experiment Station, Mayaguez, P. R. It is estimated that approximately \$33,600 will be required after the fiscal year 1942 in order to complete the program of improvements to be undertaken at this station.

Special Research Fund

The recommended expenditures include construction work at experiment stations at Ithaca, N. Y., and East Lansing, Mich. These are two items in a program involving a proposed expenditure, over a period of years, of about \$115,000.

Bureau of Animal Industry

The expenditure of \$12,000 that is recommended is for the construction of farm and laboratory buildings. This comprises one item of a small construction program totaling \$93,600 proposed by the Bureau.

Bureau of Dairy Industry

An expenditure of \$12,500 is recommended for the fiscal year 1942 to cover the construction of dairy farm buildings, laboratories, fences, and electric, water, and sewer systems. The recommended expenditure is one part of the small construction program of \$179,700 proposed by the Bureau.

Bureau of Plant Industry

The expenditure of \$17,000 that is recommended is for the construction of farm buildings, greenhouses, shop buildings, garages, and fences in connection with the work of the Bureau. This expenditure is one part of the construction program of \$2,275,000 proposed by the Bureau.

Bureau of Entomology and Plant Quarantine

The expenditure of \$7,000 recommended for the fiscal year 1942 is for the construction of field laboratories and various small buildings for the use of the Bureau in its administrative operations.

Conservation and Use of Agricultural Land Resources

The expenditure of \$449,000 that is currently recommended is for the completion of the construction and equipment of four regional research laboratories now under construction. The current estimates of the total cost of these laboratories is about \$7,800,000, though this estimate may be increased as additional equipment is required.

Beltsville Research Center

An expenditure of \$12,000 is recommended for the construction and improvement of roads at the Research

Center. This item is one part of a construction program of \$1,840,000 directed toward the completion of the general plan at Beltsville.

Forest Service

The recommended construction program is divided into two parts:

1. The first provides for continuing the construction of a system of forest highways and of forest development roads and trails under the authorizations of the Congress. It is currently estimated that the total cost of completing the proposed system of national forest highways is \$636,000,000, of which approximately \$163,000,000 will have been spent prior to the fiscal year 1942; \$6,900,000 is recommended for the fiscal year 1942; and \$466,100,000 will be required in the years thereafter in order to complete the system in line with the proposed plans. The total estimated cost of the system of forest development roads and trails as proposed by the Forest Service is currently estimated at \$206,000,000, of which approximately \$75,000,000 will have been expended prior to the fiscal year 1942; \$29,000,000 is recommended for expenditure in 1942; and \$128,100,000 will be required in the fiscal years thereafter in order to complete the system in line with the proposed plans. Both of these programs will require many years for their completion.

2. The second part of the recommended Forest Service program includes the construction of buildings, structures, and other improvements for the administration and/or use of the national forests. This program includes a large number of items whose individual cost is less than \$7,500, which are scattered throughout the country. These structures and improvements are a part of a proposed program, totaling \$142,775,000, a large part of which, during the past few years, has been carried out with the cooperation of the Civilian Conservation Corps and the other work-relief agencies of the Government.

Soil Conservation Service.

Construction recommended for the fiscal year 1942 is divided among three types of work: (1) soil and moisture conservation "operations" projects with an expenditure of \$27,500; (2) soil and moisture conservation "research" projects with an expenditure of \$60,000; and (3) land utilization projects involving the construction of a dam with a recommended expenditure of \$250,000.

Farm Security Administration

The major construction recommended for the fiscal year 1942 is for additional migratory labor camps. The plans for these camps are not entirely complete, so that their exact location cannot as yet be given. These

projects are a continuation of the program of the Administration to provide these camps at the places where they are badly needed in order to deal with the migratory labor program.

Flood Control

Construction recommended for flood control activities is carried on in cooperation with the Army Corps of Engineers under the flood-control acts of 1936 and 1938, as amended. The Department of Agriculture is responsible for the development of a watershed program of run-off and water-flow retardation and of soil erosion prevention designed to mitigate flood damages. The full development of the projects in the construction program recommended for the fiscal year 1942 is estimated to cost \$9,000,000. In addition to this construction work, the Department, in its flood-control activities on these watersheds, is also concerned with various types of land improvement and protection work involving non-construction activities on these same projects totaling \$31,000,000. These projects are only one part of a proposed flood-control program now being initiated by the Department, which, as currently estimated, will total in its ultimate development \$325,000,000. A major part of the flood control improvement work is carried out by the Soil Conservation Service and the Forest Service. Other agencies of the Department, though not assuming direct responsibility, play an important part in carrying out the remedial measures for the respective water projects.

Department of Commerce

National Bureau of Standards

The two projects recommended include a materials testing laboratory and the replacing, with a new building and equipment, of the station for broadcasting standard frequencies now located at Beltsville, Md. These two projects are a part of a building program to provide research facilities for the Bureau totaling approximately \$2,500,000.

Coast and Geodetic Survey

Construction recommended for 1942 consists of major repairs at the observatory at Sitka, Alaska. This project is part of a program of \$500,000 proposed by the Survey.

Office of the Administrator of Civil Aeronautics

The program as recommended for 1942 is comprised of two parts:

1. The construction and improvement of air navigation facilities for the Federal airway system. This program, involving a recommended expenditure of

\$4,294,700 during 1942, covers several different types of projects, such as the construction of beacons, traffic control systems, radio communication and radio range stations, the installation of lighting equipment, and the enlargement and improvement of existing intermediate landing fields on the Federal airway system in the United States and Alaska. The program for 1942 represents a part of a larger program now being developed by the Administration for the further establishment of air navigation facilities. The rapid growth of air transportation in this country has made difficult the advanced programming of air navigation facilities and of the establishment and improvement of landing fields and airports.

2. The second part of the program is the construction, improvement, and repair of airports and other public landing areas in continental United States, its territories and possessions. This involves a recommended expenditure of \$40,000,000 in 1942. The program, which was initiated through appropriations first made available under the First Supplemental Civil Functions Appropriation Act of 1941, is an emergency one and was made necessary by the expanding defense program and the civilian training program. For some time, the Civil Aeronautics Administration has been studying the problem of developing an adequate system of airports and landing fields in the United States. These studies have been a continuation of the studies made and first reported upon to the Congress by the Civil Aeronautics Administration in January 1939. Surveys for the location of the airports to be selected for this program are currently under way.

Department of the Interior

Bonneville Power Administration

The program as recommended for 1942 is only a part of the larger proposed program for the agency, which ultimately looks toward the interconnection of the Government's major power projects in the Pacific Northwest. Some of the projects recommended for 1942, particularly those in the transmission system of 230-kilovolt lines, were inaugurated through defense appropriations made early in the fiscal year 1941. The present program of the Administration looks toward an expenditure of approximately \$61,000,000 for the 230-kilovolt transmission system and approximately \$22,000,000 for the 115-kilovolt system over the next 6 years. Executive Order No. 8526, dated August 26, 1939, providing for the integration and coordination of the Grand Coulee generating facilities with those at Bonneville, may require some extensions in the Administration's program as now proposed.

Bureau of Indian Affairs

Recommended expenditures during 1942 cover four types of activities: (1) the construction, repair, and rehabilitation of irrigation systems on the Indian reservations; (2) the construction and improvement of Indian reservation roads; (3) the construction, repair, and rehabilitation of buildings and utilities in the various agencies, schools, and hospitals maintained by the Bureau; and (4) the construction, extension, equipment, and improvement of public school facilities in cooperation with public school districts in the State of Minnesota.

It is estimated that in addition to the recommended expenditure of \$1,232,000 for the construction of irrigation systems during the fiscal year 1942, approximately \$31,384,000 will be required in the years thereafter in order to complete these projects. Outstanding among the major projects that will require considerable sums after 1942 in order to complete them are the Colorado River project, the Navajo Reservation project, and the Wapato Dam at the Yakima Reservation.

Outstanding among the projects involved in the construction of buildings and utilities for the Indian Service is the sanitorium at Tacoma, Wash. A complete program for the development of buildings and facilities for the Bureau of Indian Affairs, with estimates as to the total cost of projects included in such a program, is not available.

Bureau of Reclamation

Construction expenditures recommended for 1942 fall into five general groups:

1. *Those that will be financed from the reclamation fund.*—Outstanding among these are the Gila project in Arizona, the Colorado-Big Thompson project in Colorado, the Provo River project in Utah, and the Anderson Ranch Reservoir (Boise project) in Idaho. Following the fiscal year 1942, approximately \$111,900,000 will be required to complete those projects for which expenditures have been recommended for 1942. Outstanding among these larger projects is the Colorado-Big Thompson project which, in its ultimate development, will involve a total cost of \$54,288,000. Three sections of this project, the Green Mountain Dam and power plant, the Continental Divide tunnel, and the Granby Dam and reservoir, will be under construction in 1942, the balance going under construction during the following fiscal years.

2. *Those projects financed from the general fund of the Treasury.*—These include two large projects: Central Valley, which consists of six different project units, and the Columbia Basin project (Grand Coulee Dam). An expenditure of \$25,000,000 is recommended for 1942 for Central Valley, with an additional expenditure of \$134,838,000 required thereafter to complete the project, and an expenditure of \$10,000,000 is recommended

for 1942 for Grand Coulee, with an expenditure of \$289,093,000 required thereafter to complete the project. The dam itself will be essentially completed during the fiscal year 1942, and after that, work will be initiated on the upper reservoir and the pumping and distribution systems. Also, an expenditure of \$2,000,000 is recommended to undertake the Valley Gravity Canal and Storage project along the Rio Grande in Texas. This project will cost ultimately \$54,600,000.

3. *Those projects constructed from advances to the Colorado River Dam fund.*—These consist of two main projects, the All-American Canal System and the installation of additional generating facilities at Boulder Dam. In addition to the expenditures recommended for 1942 on the All-American Canal, an expenditure of \$32,493,000 will be required thereafter to complete the project.

4. *The Great Plains projects.*—Work will be continued through 1942 on the projects previously undertaken, and an additional expenditure of \$1,735,000 will be required after 1942 to complete five of the projects located in Montana, Nebraska, North Dakota, and Wyoming.

5. *Those projects undertaken under the Wheeler-Case Act, as amended.*—These include a large number of small projects that are being constructed from advances made to these projects from the general fund of the Treasury (such advances being repayable) and by work-relief activities under the Work Projects Administration. Studies that were made by the National Resources Committee through its Northern Great Plains Committee provided, in large measure, the basis upon which the final plan for undertaking these projects was developed. The projects are essentially designed to rehabilitate the lands they affect, as well as to provide work-relief employment during the period of their construction.

Bureau of Mines

The item of construction recommended involves the construction of an electric furnace laboratory building in the Tennessee Valley. This project is a part of a proposed construction program of the Bureau totaling about \$500,000.

National Park Service

Construction recommended covers three types of work: (1) The construction, repair, or rehabilitation of buildings on areas administered by the Park Service; (2) the construction of roads and trails in national parks, monuments, and other areas administered by the Park Service; and (3) continuing the construction of the Natchez Trace and Blue Ridge parkways and

the initiation of construction on the George Washington Memorial Parkway.

The Park Service has a proposed program for the construction of buildings and utilities looking toward an ultimate expenditure of \$65,000,000 in order to carry out the development plans for the areas under its administration. This program is built in terms of one or more unit developments within each park or monument area, and the program is so planned as to provide for a developing plan, insofar as construction is concerned, for each unit area. A large part of this work has gone forward during recent years with the cooperation of the Civilian Conservation Corps and the Work Projects Administration.

Under current authorizations of the Congress, the roads and trails development of the Park Service will require a total over-all expenditure of approximately \$120,600,000, of which about \$95,600,000 will have been spent prior to 1942 and about \$22,000,000 will be required in the years after 1942.

The three parkways for which construction expenditures are recommended in 1942 will require an expenditure of \$43,900,000 to complete them in the years thereafter. These parkways are being built in sections in accordance with a prearranged plan, so that parts of them may be made available for the public use without requiring the completion of the entire parkway system.

Fish and Wildlife Service

A large part of the construction operations necessary for the improvement and establishment of wildlife refuges has been undertaken by the various work-relief agencies. Consequently, expenditures that are recommended for the fiscal year 1942 are relatively small, although these expenditures may be increased by reason of work-relief projects or the cooperation of the Civilian Conservation Corps.

The proposed program of development for the Fish and Wildlife Service currently consists of more than \$7,900,000, of which \$5,600,000 is for wildlife protection and preservation and \$2,300,000 is for the establishment, improvement, and extension of fish cultural stations.

Alaska Road Commission

Projects recommended for 1942 are a part of the present program of the Commission, totaling \$12,000,000. This program may, of necessity, be increased at a later date either because of the defense requirements in Alaska or because of the influx of population that is anticipated by reason of the placing of new military and naval establishments in the Territory.

Alaska Railroad

Construction work recommended consists largely of the replacing of wooden bridges with steel bridges and

the construction or improvement of station buildings along the railroad. Depending upon the national defense requirements in the Territory, additional roadway improvements, realignment, and general improvements may be necessary to care for increased traffic in future years.

Government of the Virgin Islands

An expenditure of \$12,165 is recommended for the fiscal year 1942 for the improvement and alteration of buildings and highways under the jurisdiction of the Government of the Islands. This is a part of a program of current construction undertaken by the Government which recently has been financed largely from emergency relief funds.

Puerto Rico Reconstruction Administration

The expenditure of \$8,000 that is recommended for the fiscal year 1942 is for the completion of the construction of farmers' houses on the Islands. Additional expenditures for 1942 may be recommended later depending upon supplemental appropriations, since the construction work of the Administration has recently been financed largely from emergency relief funds, and in later years has been as large as \$2,500,000.

Department of Justice

Bureau of Prisons

Construction recommended for 1942 consists of extensions of facilities at existing penal and correctional institutions. The proposed program for future years for new institutions is estimated at approximately \$21,000,000, and the program proposed for extensions at existing institutions is \$7,000,000.

Navy Department

Bureau of Yards and Docks

The program of construction as recommended for 1942 provides for the continuation of construction on projects begun during the fiscal year 1941 or previously, and for projects to be placed under construction during the fiscal year 1942. In the case of the former projects, an expenditure of \$216,000,000 is recommended for the fiscal year 1942. For the latter projects, an expenditure of \$44,500,000 will be required during the fiscal year 1942 and \$38,000,000 to complete them in the years thereafter.

The full program for the Bureau of Yards and Docks, as considered by the Shore Station Development Board this year, comprises approximately \$590,000,000, of which \$83,000,000 is recommended for construction for the first time during 1942.

Department of State

Office of the Secretary.

The expenditure of \$500,000 that is recommended for the fiscal year 1942 is for the Trans-Isthmian Highway. This is an emergency program undertaken because of the defense situation and has been inaugurated through allotments made by the President from national-defense emergency funds.

Foreign Service Buildings Office

Continuation of projects previously undertaken is recommended for the fiscal year 1942, as well as the inauguration of new projects, largely at foreign service posts in Latin America. These projects are part of a program approved by the Foreign Service Buildings Commission and authorized by acts of the Congress. No program is available to indicate the relationship of the projects recommended for 1942 to the proposed work for future years.

International Boundary Commission, U. S. and Mexico

Construction recommended for 1942 includes continuing the work on the Lower Rio Grande Flood Control project and the Rio Grande Canalization project.

The proposed program for the years following 1942 totals \$20,000,000.

Treasury Department

Coast Guard

The program of construction that is recommended for the fiscal year 1942 can be divided into two parts: first, those projects that involve the construction of additional shore facilities, and, second, those projects that involve the establishment or improvement of aids to navigation. Outstanding among the former is the construction at the Avery Point Training Station.

The program of aids to navigation has among its larger items the construction of light stations and the establishment of naval defense aids to navigation in Alaskan waters and in the Pacific islands. The latter projects are required by the expansion of national defense operations in those areas.

The foregoing projects are a part of a complete construction program of the Coast Guard, which proposes the construction of projects costing \$38,500,000.

War Department

Office of the Secretary

The expenditure of \$64,000,000 recommended for the fiscal year 1942 covers the construction of emergency housing for persons on or near military posts and for the construction of industrial plants in order to expedite the manufacture of armaments. No estimates are im-

mediately available as to the ultimate cost of the construction of such industrial plants. This is an emergency program brought about by the defense situation, rather than being a part of a long-term Government construction program.

Quartermaster Corps

Like the program for the Bureau of Yards and Docks, the program of construction for the Quartermaster Corps for the fiscal year 1942 is divided between (1) the expenditures recommended to continue those projects placed under construction by reason of appropriations made available prior to the fiscal year 1942, and (2) those projects recommended to be placed under construction through appropriations to be made available for the first time in the fiscal year 1942. The work involved in the continuation of construction projects previously started is, in large measure, devoted to the construction of cantonments, reception centers, etc., in order to care for the increased strength of the Army under the Selective Service Act of 1940. A complete program of army construction for future years is not available at this time, in as much as the requirements of national defense may change the magnitude of the program and the proposed location of such works as may be involved.

Signal Corps

The expenditure of \$402,000 that is recommended for the fiscal year 1942 covers the construction of buildings, including appurtenances thereto, and roads. This is a part of an emergency defense program to provide facilities for the Corps.

Seacoast Defenses

The expenditure of \$37,811,000 that is recommended for the fiscal year 1942 is for the construction of various types of fortifications along the seacoasts of the country. This is, in large measure, an emergency program brought about by the defense situation.

Corps of Engineers

River and Harbor Improvements.—Construction recommended includes, among the larger projects, the work around New York Harbor, the Sabine-Neches Waterway, Tex., the Mississippi River between the Missouri River and Minneapolis, and the Missouri River from Kansas City to Sioux City, Iowa. To complete the projects that are recommended for construction in 1942 will require a total expenditure of \$85,500,000 in the years thereafter. Apart from these projects, the proposed program of authorized river and harbor improvements for the years after 1942 totals \$75,000,000.

Flood Control.—The program of construction recommended for 1942 involves an expenditure of \$80,000,000. Outstanding among the projects on which construction will be continued in 1942 are the Dennison Reservoir in Texas and Oklahoma; the Canton Reservoir in the Arkansas River Basin, Okla.; the Blue Stone Reservoir, W. Va.; and flood control work on the Los Angeles River, Calif. The total estimated cost in the complete program of authorized flood control projects upon which construction during 1942 is not recommended but which will be available for construction in later years is estimated to be about \$275,000,000.

Mississippi River Flood Control.—The recommended expenditure for 1942 is \$25,000,000. The total cost of the entire works in the alluvial valley is estimated to be \$637,000,000, of which \$420,000,000 will have been spent prior to 1942 and approximately \$191,000,000 will be required in the years thereafter in order to complete the work. This large system of control works involves expenditures at many points in the valley, and the total estimated cost of the work may be increased as the program is ultimately developed, depending upon future authorizations of the Congress.

Power Plant Installations.—Expenditures are recommended for installations at Fort Peck Dam and at the Bonneville Dam. It is estimated that approximately \$6,500,000 will be required in the years after 1942 to complete the installation of the units now under construction at Bonneville.

Sacramento River Flood Control.—An expenditure of

\$300,000 is recommended for dredging channels, building levees, bank protection, etc.

Panama Canal

Outstanding among the projects recommended for the Panama Canal in 1942 is the continuation of the construction of a third set of locks. The total estimated cost of these locks is approximately \$277,000,000. An expenditure of \$30,000,000 is recommended for the fiscal year 1942, and approximately \$237,000,000 will be required in the years thereafter to complete these additional facilities. In addition, improvements, replacements, and reconstruction of other works and facilities in the Canal Zone totaling \$7,170,000 are recommended for the fiscal year 1942. These include such things as school buildings, offices, water supply systems, hospitals, special protective works, etc.

District of Columbia Government

An expenditure of \$7,500,000 is recommended for general public works construction in the District of Columbia during the fiscal year 1942. These works will be constructed under the administration of the District Government and will be financed partly through a contribution from the Federal Government to the funds of the District. The projects comprise all types of public works construction necessary for a modern city government and include streets, schools, government buildings, etc.

FEDERAL SIX-YEAR PROGRAM OF PUBLIC WORKS

TABLE NO. I.—Projects recommended for fiscal year 1942

Docket No.	Name and location of project	Total estimated cost	Estimated expenditure to June 30, 1941	Recommended expenditure for fiscal year 1942	Additional expenditure required thereafter to complete
LEGISLATIVE ESTABLISHMENT					
Architect of the Capitol:					
	Reconstruction of roofs over Senate and House chamber wings in the Capitol Building.....	\$585,000	\$125,000	\$460,000	
	Reconstruction and repair of the Capitol Building terraces and the space underneath.....	365,000		365,000	
	Reconstruction of plaza driveways including sewer work.....	390,000		390,000	
	Air conditioning and structural and other improvements in the book stacks, Main Building, Library of Congress.....	500,000		500,000	
	Elimination of fire hazards, Library of Congress.....	68,012		68,012	
	Total, Architect of the Capitol.....	1,908,012	125,000	1,783,012	
	Botanic Garden:				
	Construction of additional greenhouses and other improvements, Poplar Point Nursery.....	90,000		90,000	
	Total, Botanic Garden.....	90,000		90,000	
INDEPENDENT OFFICES AND ESTABLISHMENTS					
	National Advisory Committee for Aeronautics:				
(9)	Langley Memorial Aeronautical Laboratory, Langley Field, Va.: Construction and equipment.....	1,850,463	650,463	700,000	
	Total, Langley Field.....	1,850,463	650,463	700,000	
(9)	Ames Aeronautical Laboratory, Moffett Field, Calif.: Construction and equipment.....	5,670,000	1,209,000	3,700,000	\$761,000
	Total, Moffett Field.....	5,670,000	1,209,000	3,700,000	761,000
(9)	Airplane Engine Research Laboratory, Cleveland, Ohio: Construction and equipment of new laboratory buildings.....	8,000,000	1,700,000	5,500,000	800,000
	Total, Cleveland Laboratory.....	8,000,000	1,700,000	5,500,000	800,000
	Total, National Advisory Committee for Aeronautics.....	15,020,463	3,559,463	9,900,000	1,561,000
(9)	Smithsonian Institution: Installation of mechanical equipment, Freer Gallery of Art.....	73,000		73,000	
	Total, Smithsonian Institution.....	73,000		73,000	
	Tennessee Valley Authority:				
	Major unified system projects:				
2100-31-1	Kentucky Dam and Reservoir.....	105,000,000	31,135,909	17,000,000	56,864,091
2100-31-2	Pickwick Landing Dam and Reservoir.....	35,760,687	34,780,687	873,000	107,000
2100-31-3	Wilson Dam and Reservoir.....	36,192,221	34,018,221	1,789,000	385,000
2100-31-4	Wheeler Dam and Reservoir.....	35,770,136	35,751,136	8,000	11,000
2100-31-5	Guntersville Dam and Reservoir.....	31,605,425	31,577,425	17,000	11,000
2100-31-6	Hales Bar Dam and Reservoir.....	7,000,000	817,816	1,747,000	4,435,184
2100-31-7	Chickamauga Dam and Reservoir.....	34,791,836	34,127,836	633,000	31,000
2100-31-8	Watts Bar Dam and Reservoir.....	35,000,000	22,946,014	10,508,000	1,545,986
2100-31-9	Fort Loudoun Dam and Reservoir.....	29,000,000	2,478,595	5,925,000	20,596,405
2100-31-10	Hwassee Dam and Reservoir.....	17,384,619	17,312,619	12,000	60,000
2100-31-11	Norris Dam and Reservoir.....	30,937,348	30,899,348	21,000	17,000
2100-31-12	Cherokee Dam and Reservoir.....	34,600,000	15,224,000	16,825,000	2,451,000
2100-31-13	Watts Bar steam plant.....	10,000,000	5,467,000	4,557,000	124,000
	Total, major unified system projects.....	442,942,272	296,636,606	59,915,000	86,490,666
	Transmission and other electric plant:				
(9)	Normal program.....	48,687,291	36,622,291	6,868,000	5,097,000
(9)	Emergency program.....	16,630,000	3,936,000	6,454,000	6,140,000
(9)	Bond fund program.....	63,768,965	62,133,965	1,635,000	0
	Total, transmission and other electric plant.....	128,886,256	102,692,256	14,957,000	11,237,000
(9)	Miscellaneous construction: Fertilizer plant, Muscle Shoals, Ala. and vicinity of Columbia, Tenn.....	9,224,441	7,117,441	823,000	1,284,000
	Total, miscellaneous.....	9,224,441	7,117,441	823,000	1,284,000
	Total, Tennessee Valley Authority.....	681,052,959	406,346,303	75,695,000	99,011,666
(9)	Thomas Jefferson Memorial Commission: Construction of memorial, District of Columbia.....	3,000,000	2,883,000	75,000	42,000
	Total, Thomas Jefferson Memorial Commission.....	3,000,000	2,883,000	75,000	42,000
(9)	U. S. Maritime Commission: Construction of training stations: Buildings, Point Avery, Conn.....	750,000		750,000	
	Total, U. S. Maritime Commission.....	750,000		750,000	
	Veterans' Administration:				
	Construction providing additional beds:				
2000-14-1	Canandaigua, N. Y., construction providing 164 additional N. P. beds.....	350,000		350,000	
2000-31-1	Fort Howard, Md., erection of new hospital, central heating plant, extension of services to existing facilities.....	925,000	822,000	103,000	
2000-86-1	Massachusetts-Rhode Island area, construction of new 300-beds G. M. Hospital.....	1,575,000	28,000	1,547,000	
	Total, construction providing additional beds.....	2,850,000	850,000	2,000,000	

¹ Credit.
² Blanket project consisting of several items. No docket number assigned.

TABLE NO. I.—Projects recommended for fiscal year 1942—Continued

Docket No.	Name and location of project	Total estimated cost	Estimated expenditure to June 30, 1941	Recommended expenditure for fiscal year 1942	Additional expenditure required thereafter to complete
INDEPENDENT OFFICES AND ESTABLISHMENTS—Continued					
Veterans' Administration—Continued.					
Major reconditioning, replacements, alterations, and new construction at existing facilities:					
2000-9-1	Bedford, Mass., dining hall and kitchen, Building No. 7	\$35,000		\$35,000	
2000-12-2	Bronx, N. Y., addition to laundry, including equipment	35,000		25,000	
2000-12-1	Bronx, N. Y., alterations to existing buildings	200,000	\$100,000	100,000	
2000-13-1	Camp Custer, Mich., alterations to kitchen and dining hall, Building No. 5	35,000		35,000	
2000-18-1	Cleveland, Ohio, manager's and duplex quarters	49,000		49,000	
2000-21-2	Danville, Ill., water softener and distribution lines	50,000		50,000	
2000-21-1	Danville, Ill., alterations to building No. 15	65,000		65,000	
2000-22-1	Dayton, Ohio, garage building	50,000		50,000	
2000-22-2	Dayton, Ohio, replacement of pump house and reservoir	35,000		35,000	
2000-25-1	Downey, Ill., dining hall and kitchen building No. 9	35,000		35,000	
2000-35-1	Hines, Ill., continuation of renovation of main building	352,000	200,000	152,000	
2000-43-1	Legion, Tex., operating suite	45,000		45,000	
2000-47-1	Los Angeles, Calif., guard house	40,000		40,000	
2000-47-2	Los Angeles, Calif., completion of mess improvements, building No. 13	100,000	60,000	40,000	
2000-47-3	Los Angeles, Calif., dining hall, building No. 116	60,000		60,000	
2000-47-6	Los Angeles, Calif., alterations to diet kitchen and main kitchen in Wadsworth Hospital for centralized tray service	50,000		50,000	
2000-53-1	Marion, Ind., underground electric distribution system	30,000		30,000	
2000-54-1	Mountain Home, Tenn., alterations barracks No. 1	50,000		50,000	
2000-57-1	Muskogee, Okla., continued alterations, hospital buildings	127,500	62,500	65,000	
2000-57-2	North Little Rock, Ark., space for regional office activities	90,000		90,000	
2000-60-1	North Little Rock, Ark., recondition nurses' quarters	30,000		30,000	
2000-61-1	Outwood, Ky., diet kitchens and connecting corridors	60,000		60,000	
2000-72-1	Palo Alto, Calif., replacement of sewer outfall	35,000		35,000	
2000-73-1	St. Cloud, Minn., addition to subsistence building	75,000		75,000	
2000-79-1	Wadsworth, Kans., recondition buildings Nos. 7, 8, and 14	105,000		105,000	
2000-79-2	Wadsworth, Kans., complete reconditioning hotel and theater building No. 68	35,000		35,000	
2000-83-1	White River Junction, Vt., manager's and duplex quarters	49,000		49,000	
	Total, at existing Veterans' facilities	1,922,500	422,500	1,500,000	
	Total, Veterans' Administration	4,772,500	1,272,500	3,500,000	
Federal Security Agency:					
1108-49-1	Continued treatment buildings, St. Elizabeths Hospital, Washington, D. C.	700,000		400,000	\$300,000
1108-49-2	Storeroom, warehouse, laundry, and industrial shops, St. Elizabeths Hospital, Washington, D. C.	635,000		300,000	335,000
1108-49-3	Farm land, dairy, barns, poultry houses, smokehouse, and cottages within 20 miles of St. Elizabeths Hospital, Washington, D. C.	785,000		200,000	585,000
	Total, St. Elizabeths Hospital	2,120,000		900,000	1,220,000
	Total, Federal Security Agency	2,120,000		900,000	1,220,000
Federal Works Agency:					
(¹)	Office of the Administrator:				
	Construction of housing for persons engaged in national defense activities (Public, No. 849, 76th Cong.)	140,000,000	65,000,000	75,000,000	
	Total, Office of the Administrator	140,000,000	65,000,000	75,000,000	
(²)	Public Buildings Administration:				
	Construction of public buildings outside District of Columbia:				
	Construction of, and acquisition of sites for, public buildings outside of the District of Columbia	\$ 133,500,000	86,000,000	10,000,000	37,500,000
	Total, public buildings outside District of Columbia	133,500,000	86,000,000	10,000,000	37,500,000
	Construction of public buildings within District of Columbia:				
	First unit, War Department buildings	2,800,000	2,800,000	1,000,000	
	Sites and buildings, Federal office buildings Nos. 2 and 3	6,400,000	5,000,000	1,400,000	
1201-49-1	Site and building, West Central Heating Plant	2,900,000	1,400,000	2,200,000	300,000
1201-49-2	Site and building, General Accounting Office	2,850,000	1,700,000	4,500,000	2,650,000
	Annex buildings, Government Printing Office	7,700,000	7,500,000	200,000	
1201-49-4	Extension and remodeling, Bureau of Agricultural Economics Building	1,000,000		700,000	300,000
	Acquisition of land	1,700,000		800,000	100,000
1201-49-3	Elite, State Department Annex Building	1,920,000		800,000	120,000
1201-49-5	Changes, remodeling, installation of mechanical equipment, National Archives Building	849,700		800,000	49,700
	Total, public buildings, within District of Columbia	41,719,700	24,400,000	12,200,000	5,119,700
(³)	Construction of housing units at locations on or near military establishments (Public, No. 781, 76th Cong., transferred from the Office of the Secretary of War	45,700,000	33,500,000	12,200,000	
	Total, defense housing units	45,700,000	33,500,000	12,200,000	
	Total, Public Buildings Administration	220,919,700	143,900,000	24,400,000	42,619,700
(⁴)	Public Roads Administration:				
	Construction of roads through unappropriated or unreserved public lands, nontarable Indian lands, or Federal reservations other than the forest reservations	\$ 1,000,000	(⁵)	1,000,000	(⁵)
	Total, Public Roads Administration			1,000,000	
	Total, Federal Works Agency	361,919,700	208,900,000	110,400,000	42,619,700

¹ No docket numbers yet assigned to the individual projects.² Authorized limit of costs in acts of Aug. 25, 1937, June 21, 1938, and June 27, 1940.³ Estimates of construction costs for buildings to be placed on such sites not yet available.⁴ Blanket project consisting of several items. No docket number assigned.⁵ No estimates immediately available of total cost.

TABLE NO. I.—*Projects recommended for fiscal year 1942—Continued*

Docket No.	Name and location of project	Total estimated cost	Estimated expenditure to June 30, 1941	Recommended expenditure for fiscal year 1942	Additional expenditure required thereafter to complete
DEPARTMENT OF AGRICULTURE					
812-54-5	Office of Experiment Stations: Construction and improvements to land, Federal experiment station, Mayaguez, P. R.	\$40,100		\$6,500	\$33,600
	Total, Office of Experiment Stations	40,100		6,500	33,600
803-30-2	Special Research Fund: United States regional plant, soil, and nutrition laboratory, Ithaca, N. Y. (construction of greenhouse and extension of head house)	25,000		25,000	
802-20-1	United States regional poultry research laboratory, East Lansing, Mich. (additions to west breeding house)	12,000		12,000	
	Total, special research fund	37,000		37,000	
(1)	Bureau of Animal Industry: Construction of farm and laboratory buildings	12,000		12,000	
	Total, Bureau of Animal Industry	12,000		12,000	
(1)	Bureau of Dairy Industry: Construction of miscellaneous buildings	12,500		12,500	
	Total, Bureau of Dairy Industry	12,500		12,500	
(1)	Bureau of Plant Industry: Construction of buildings, greenhouses, etc.	17,000		17,000	
	Total, Bureau of Plant Industry	17,000		17,000	
(1)	Bureau of Entomology and Plant Quarantine: Construction of field laboratories, etc.	7,000		7,000	
	Total, Bureau of Entomology and Plant Quarantine	7,000		7,000	
(1)	Conservation and Use of Agricultural Land Resources: Construction and equipment of four regional research laboratories	7,800,000	\$7,351,000	449,000	
	Total, Conservation and Use of Land Resources	7,800,000	7,351,000	449,000	
(1)	Beltsville Research Center: Construction and improvement of roads	12,000		12,000	
	Total, Beltsville Research Center	12,000		12,000	
805-318-2	Forest Service: Construction of forest highways	636,028,635	162,910,235	6,900,000	466,218,400
	Total, forest highways	636,028,635	162,910,235	6,900,000	466,218,400
805-318-2	Construction of forest development roads and trails	206,439,382	75,279,281	2,900,000	128,260,101
	Total, roads and trails	206,439,382	75,279,281	2,900,000	128,260,101
(1)	Construction of buildings, structures and other improvements for the administration and/or use of the national forests	591,000		591,000	
	Total, structures in national forests	591,000		591,000	
	Total, Forest Service	843,059,017	238,189,516	10,391,000	594,478,501
808-32-1	Soil Conservation Service: Soil and moisture conservation "operations" projects:				
808-36-1	Office and field laboratory, Mandan, N. Dak.	5,000		5,000	
808-14-2	Office and field laboratory, Milesburg, Pa.	5,000		5,000	
808-36-2	Garage, Manhattan, Kans.	5,000		5,000	
808-14-1	Residence, Milesburg, Pa.	7,500		7,500	
	Residence, Manhattan, Kans.	7,500		7,500	
	Total, "operations"	27,500		27,500	
808-30-1	Soil and moisture conservation "research" projects:				
808-23-1	Office and laboratory building, Marcellus, N. Y.	15,000		15,000	
808-11-1	Office and laboratory building, McOredie, Mo.	15,000		15,000	
808-9-1	Office and laboratory building, Dixon Springs, Ill.	15,000		15,000	
	Office and laboratory building, Watkinsville, Ga.	15,000		15,000	
	Total, "research"	60,000		60,000	
808-29-1	Land utilization and retirement of submarginal land projects: Impounding dam, Running Water Draw Project, Clovis, Curry County, N. Mex.	353,640	\$3,900	250,000	69,740
	Total, land utilization	353,640	33,900	250,000	69,740
	Total, Soil Conservation Service	441,140	33,900	337,500	69,740
(1)	Farm Security Administration: Rural rehabilitation projects:				
	Land development and minor construction work	250,000		250,000	
(2)	Migratory labor camps: Construction of additional standard camps	2,850,000		2,850,000	
	Total, Farm Security Administration	3,100,000		3,100,000	

¹ Blanket project consisting of a number of individual items. No docket number assigned.
² No docket numbers yet assigned to the individual projects.

TABLE No. I.—Projects recommended for fiscal year 1942—Continued

Docket No.	Name and location of project	Total estimated cost	Estimated expenditure to June 30, 1941	Recommended expenditure for fiscal year 1942	Additional expenditure required thereafter to complete
DEPARTMENT OF AGRICULTURE—Continued					
Flood control:					
Construction costs for improvement works for run-off and water-flow retardation measures and soil erosion prevention on watersheds of flood control projects:					
809-108-1	Los Angeles River, Calif.	\$2,500,000	\$125,000	\$315,000	\$2,090,000
809-95-1	Trinity River, Tex.	3,379,635	688,575	721,425	6,960,635
809-86-1	Washita River, Okla. and Tex.	3,500,000	100,000	150,000	3,250,000
809-91-1	Little Tallahatchie River, Miss.	31,895,724	621,956	849,044	30,424,724
809-26-1	Coosa River, Ga. and Tenn.	1,050,000	75,000	75,000	900,000
		2,319,520	203,810	296,100	1,819,520
		950,000	30,000	120,000	800,000
		1,734,253	60,000	190,000	1,484,253
		1,000,000	15,000	125,000	860,000
		1,916,514	79,560	260,440	1,576,514
	Total, flood control	9,000,000	345,000	785,000	7,870,000
	Total, Department of Agriculture	863,537,757	245,919,416	18,166,500	602,451,841
DEPARTMENT OF COMMERCE					
National Bureau of Standards:					
903-49-1	Materials Testing Laboratory, Washington, D. C.	600,000		600,000	
	Replacement of station for broadcasting standard frequencies, Washington, D. C.	240,000		240,000	
	Total, National Bureau of Standards	840,000		840,000	
Coast and Geodetic Survey:					
901-50-1	New construction and major repairs at magnetic and seismological observatory, Sitka, Alaska	21,500		3,900	17,600
	Total, Coast and Geodetic Survey	21,500		3,900	17,600
Office of the Administrator of Civil Aeronautics:					
Construction of new Federal airways to provide facilities for additional scheduled operations:					
904-17-1	Bangor-Caribou	19,000		19,000	
904-32-1	Bismark-Minot	66,300		66,300	
904-20-1	Grand Rapids-Traverse City	23,400		23,400	
904-23-1	St. Louis-Des Moines	64,700		64,700	
904-23-2	St. Louis-Louisville	38,700		38,700	
	Total, new Federal airways	212,100		212,100	
904-0-1	Installation of fan markers for traffic control, etc., at key points on existing airways	406,000		175,000	231,000
	Total, fan markers	406,000		175,000	231,000
904-0-2	Construction of Z markers at key points near existing major airports	245,000		70,000	175,000
	Total, Z markers	245,000		70,000	175,000
904-45-3	Construction of simultaneous radio range and broadcast station: Cape Flattery, Wash.	50,000		50,000	
	Total, range and broadcast station	50,000		50,000	
904-0-5	Construction of airport radio landing systems: Oakland, Calif.	30,000		30,000	
	Atlanta, Ga.	30,000		30,000	
	Total, radio landing systems	60,000		60,000	
904-50-1	Establishment of radio range stations in Alaska: Boundary	200,000		200,000	
	Total, Alaska radio range stations	200,000		200,000	
904-50-2	Establishment of radio communication stations in Alaska: Anchorage	60,000		60,000	
	Total, Alaska radio communication stations	60,000		60,000	
904-50-3	Construction of ML radio stations at fields on Alaska airways:				
	Petersburg	60,000		60,000	
	Haines (or Skagway)	70,000		70,000	
	Yakataga	60,000		60,000	
	Copper Center	70,000		70,000	
	Summit	60,000		60,000	
	Tanana	70,000		70,000	
	Moses Point	60,000		60,000	
	Hiamna	80,000		80,000	
	Seward	60,000		60,000	
	Tanana Crossing	80,000		80,000	
	King Cove	70,000		70,000	
	Total, Alaska ML radio stations	740,000		740,000	
904-50-4	Construction of intermediate fields on Alaska Airways:				
	Copper Center	70,000		70,000	
	Tanana Crossing	70,000		70,000	
	Naknek	70,000		70,000	
	Petersburg (or Wrangell)	100,000		100,000	
	Haines (or Skagway)	100,000		100,000	
	Seward	100,000		100,000	

¹ Construction costs for improvement works for run-off and water retardation measures and soil erosion prevention on watersheds with flood-control projects.

² Estimated total costs of flood control in the watersheds by the Department of Agriculture. These amounts are not included in the totals of the table.

TABLE NO. I.—Projects recommended for fiscal year 1942—Continued

Docket No.	Name and location of project	Total estimated cost	Estimated expenditure to June 30, 1941	Recommended expenditure for fiscal year 1942	Additional expenditure required thereafter to complete
DEPARTMENT OF COMMERCE—Continued					
Office of the Administrator of Civil Aeronautics—Continued.					
Construction of intermediate fields on Alaska Airways—Continued.					
	King Cove.....	\$100,000		\$100,000	
	Chignik.....	100,000		100,000	
	Total, Alaska intermediate fields.....	710,000		710,000	
904-50-5	Install lighting equipment at intermediate fields on Alaska Airways:				
	Moses Point.....	25,000		25,000	
	Yakataga.....	25,000		25,000	
	Talkeetna.....	25,000		25,000	
	Summit.....	25,000		25,000	
	Tanana.....	30,000		30,000	
	Farwell.....	30,000		30,000	
	Lake Minchumina.....	30,000		30,000	
	Petersburg (or Wrangell).....	25,000		25,000	
	Haines (or Skagway).....	25,000		25,000	
	Seward.....	25,000		25,000	
	Ilamna.....	30,000		30,000	
	Aniak.....	30,000		30,000	
	Copper Center.....	25,000		25,000	
	Tanana Crossing.....	30,000		30,000	
	Naknek.....	25,000		25,000	
	Chignik.....	25,000		25,000	
	King Cove.....	25,000		25,000	
	Total, lighting Alaska fields.....	455,000		455,000	
904-0-7	Enlargement and improvement of existing intermediate landing fields on Federal airways system, and construction of hard-surface runways:				
	Anniston, Ala.....	90,600		90,600	
	Anthony, Kans.....	53,200		53,200	
	Ardmore, Okla.....	68,200		68,200	
	Brinkley, Ark.....	47,300		47,300	
	Daggett, Calif.....	59,400		59,400	
	Elmira, N. Y.....	52,000		52,000	
	Evergreen, Ala.....	45,100		45,100	
	Kirkville, Mo.....	55,700		55,700	
	Laramie, Wyo.....	106,900		106,900	
	Livermore, Calif.....	49,100		49,100	
	Livingston, Mont.....	69,900		69,900	
	Morse, Ill.....	35,000		35,000	
	New Florence, Mo.....	58,200		58,200	
	Newhall, Calif.....	57,400		57,400	
	Oceanside, Calif.....	41,100		41,100	
	Palmdale, Calif.....	58,400		58,400	
	Tucuman, N. Mex.....	76,200		76,200	
	Victory, Ohio.....	73,500		73,500	
	Williams, Calif.....	56,100		56,100	
	Yoakum, Tex.....	61,300		61,300	
	Fields to be selected later.....	300,000		300,000	
	Total, improving intermediate fields on Federal airways.....	1,514,600		1,514,600	
904-0-9	Miscellaneous improvements to lighting facilities, relocation of beacons, etc., on Federal Airways:				
	El Paso-Fort Worth.....	48,000		48,000	
	Total, miscellaneous improvements to lighting facilities.....	48,000		48,000	
(1)	Washington National Airport: Construction of hangars and necessary appurtenances.....	2,700,000	\$1,600,000	1,100,000	
	Total, Washington National Airport.....	2,700,000	1,600,000	1,100,000	
(2)	Construction, improvement and repair of public airports for defense purposes.....	73,500,000	25,000,000	40,000,000	\$8,500,000
	Total, construction of airports.....	73,500,000	25,000,000	40,000,000	8,500,000
	Total, Office of Administrator of Civil Aeronautics.....	80,900,700	26,600,000	45,394,700	8,906,000
	Total, Department of Commerce.....	81,782,200	28,000,000	46,239,600	8,923,600
DEPARTMENT OF THE INTERIOR					
Bonneville Power Administration:					
Transmission system of 230-kilovolt lines:					
711-45-1	Grand Coulee-Covington, Wash., No. 1 line.....	4,471,000	2,741,000	1,730,000	
711-45-2	Bonneville-North Vancouver, Wash., No. 3 line.....	1,518,000	284,000	1,219,000	
711-45-3	Covington-Seattle, Wash.....	300,000	232,000	68,000	
711-45-7	Substation construction and additions at various points.....	5,554,900	1,600,000	3,954,900	
	Total, 230-kilovolt transmission system.....	11,844,900	4,857,000	6,972,900	
Transmission system of 115-kilovolt lines:					
711-45-8	St. Johns-Oregon City, Oreg., No. 2 line.....	255,960	2,960	253,000	
711-45-9	Substation construction or additions at various points.....	845,000		845,000	
	Total, 115-kilovolt transmission system.....	1,103,960	2,960	1,101,000	
711-45-10	Feeder lines, service connections to load areas, industrial customers, etc.....	2,000,000	500,000	1,500,000	
	Total, feeder lines, etc.....	2,000,000	500,000	1,500,000	
	Total, Bonneville Power Administration.....	14,944,860	5,371,960	9,572,900	

¹ Blanket project consisting of a number of individual items. No docket number assigned.
² No docket numbers yet assigned to all the individual projects.

TABLE No. I.—Projects recommended for fiscal year 1942—Continued

Docket No.	Name and location of project	Total estimated cost	Estimated expenditure to June 30, 1941	Recommended expenditure for fiscal year 1942	Additional expenditure required thereafter to complete
DEPARTMENT OF THE INTERIOR—Continued					
Bureau of Indian Affairs:					
Construction, repair and rehabilitation of irrigation systems on Indian reservations:					
706-8-1	Colorado River.....	\$14,022,911	\$5,772,911	\$110,000	\$8,140,000
706-35-1	Navajo Reservation.....	6,385,719	2,643,426	255,000	3,587,293
706-17-1	Salt River Reservation.....	1,815,360	1,310,360	40,000	465,000
706-34-1	Mission Agency, Southern California, miscellaneous projects.....	844,658	674,658	8,000	162,000
706-52-2	Sacramento Agency, northern and central California, miscellaneous projects.....	621,239	220,739	26,700	373,800
706-52-1	Owens Valley.....	261,148	235,948	10,000	15,200
706-16-1	Flathead.....	9,927,480	9,352,480	250,000	325,000
706-18-1	Fort Belknap.....	715,300	428,300	6,250	280,750
706-21-1	Fort Peck.....	4,078,779	1,825,879	25,000	2,727,900
706-2-3	Carson.....	228,233	61,733	17,000	149,500
706-77-1	Western Shoshone.....	1,181,381	703,951	25,000	452,430
706-2-2	Walker River.....	431,291	353,791	5,000	42,500
706-2-1	Pyramid Lake.....	507,227	346,227	125,000	36,000
706-74-1	Pueblos, miscellaneous.....	4,634,985	3,375,985	60,000	1,199,000
706-76-1	Warm Springs.....	121,935	49,935	5,000	67,000
706-80-1	Yakima (Wapato).....	17,483,192	5,783,192	210,000	11,490,000
706-78-1	Wind River.....	3,780,061	2,343,891	10,000	1,426,170
706-0-1	Various States, miscellaneous garden tracts and stock water development.....	1,129,375	639,375	45,000	445,000
	Total, irrigation projects.....	68,170,274	35,552,771	1,232,950	31,394,553
706-0-3	Construction, improvement, etc., of Indian reservation roads.....	27,500,000	17,750,000	2,000,000	7,750,000
	Total, Indian roads.....	27,500,000	17,750,000	2,000,000	7,750,000
Construction, repair or rehabilitation of buildings and utilities:					
Alaska:					
706-81-2	3-classroom school and quarters, Kaki.....	12,000		12,000	
706-81-2	Teacherage, Walaklut.....				
Blackfeet, Mont.:					
706-1-2	Farm agent's dwelling.....	7,500		7,500	
Colorado River, Ariz.:					
706-8-3	Farm dwellings.....	14,000		14,000	
Crow Creek, S. Dak.:					
706-13-4	Utility system improvement.....	28,000		28,000	
706-13-1	Quarters.....	14,000		14,000	
706-13-3	Warehouse.....	3,600		3,600	
706-13-5	Remodel school.....				
706-13-5	School shop building.....	10,000		10,000	
706-13-5	General repairs.....				
Flathead, Mont.:					
706-16-3	Improvements to water and sewer system.....	13,000		13,000	
Fort Apache:					
706-17-2	Dining hall, laundry, baking and kitchen facilities, Theodore Roosevelt School.....	28,000		28,000	
Fort Berthold, N. Dak.:					
706-19-1	Improvements to power system.....	22,000		22,000	
706-19-2	Dwelling for farm agent.....	7,500		7,500	
Hoopa Valley, Calif.:					
706-26-1	Improvements to utilities.....	25,000		25,000	
Hopli, Ariz.:					
706-27-2	Improvements to utilities.....	24,000		24,000	
Klamath, Oreg.:					
706-31-1	Employees' quarters.....	15,000		15,000	
Navajo, Ariz.:					
706-35-2	Headquarters buildings at 2 stations.....	35,000		35,000	
Pima, Ariz.:					
706-43-3	Employees' quarters.....	9,000		9,000	
Red Lake, Minn.:					
706-48-1	Employee's cottage.....	7,500		7,500	
Sherman Institute, California:					
706-61-1	Improvements to utilities.....	25,000		25,000	
Tacoma Sanatorium, Washington:					
706-65-1	Completion of sanatorium.....	895,000		895,000	
Warm Springs, Oreg.:					
706-76-2	Employees' quarters.....	15,000		15,000	
Winnebago, Nebr.:					
706-79-1	Employees' quarters.....	29,900		29,900	
	Total, construction of buildings and utilities.....	1,240,000		1,240,000	
Construction, extension, equipment, and improvement of public school facilities in cooperation with public school districts in the State of Minnesota:					
	Independent school district No. 5, Cass County.....	\$65,000		\$65,000	
	Naytahwaush, Indian school district No. 29, Mahnomon County.....	19,000		19,000	
	Inger, district No. 6, Itaska County.....	7,000		7,000	
	Lake Lena, district No. 2, Pine County.....	12,500		12,500	
	Vermillion Lake, tower, Soudan district, St. Louis County.....	7,000		7,000	
	Beaulieu, unorganized district, Mahnomon County.....	12,500		12,500	
	Jack Pine, unorganized district, Clearwater County.....	7,000		7,000	
	Nett Lake, unorganized district, St. Louis, Koochiching Counties.....	37,500		37,500	
	Pine Point, unorganized district, Becker County.....	3,000		3,000	
	Squaw Point, unorganized district, Cass County.....	15,000		15,000	
	Total, construction of schools in Minnesota.....	185,500		185,500	
	Total, Bureau of Indian Affairs.....	97,095,774	53,302,771	4,668,450	39,124,553
Bureau of Reclamation:					
Reclamation Projects, Payable from Reclamation Fund:					
702-103-7	Gila project, Arizona.....	20,500,000	7,610,000	850,000	12,040,000
702-105-1	Modoc unit, Klamath project, California-Oregon.....	884,000	180,000	200,000	504,000
702-102-1	Colorado-Big Thompson project, Colorado.....	54,288,000	7,681,000	2,500,000	43,107,000
702-110-2	Payette division, Boise project, Idaho.....	8,847,000	4,454,000	700,000	3,693,000
702-81-1	Tucumcari project, New Mexico.....	8,155,000	796,000	425,000	6,934,000
702-112-1	Deschutes project, Oregon.....	7,430,000	1,572,000	450,000	5,408,000

TABLE NO. I.—Projects recommended for fiscal year 1942—Continued

Docket No.	Name and location of project	Total estimated cost	Estimated expenditure to June 30, 1941	Recommended expenditure for fiscal year 1942	Additional expenditure required thereafter to complete
DEPARTMENT OF THE INTERIOR—Continued					
Bureau of Reclamation—Continued:					
Reclamation Projects, Payable from Reclamation Fund—Continued:					
702-110-4	Owyhee project, Oregon.....	\$18,500,000	\$18,190,000	\$140,000	\$170,000
702-104-1	Provo River project, Utah.....	16,129,000	5,043,000	1,800,000	9,286,000
702-111-1	Roza Division, Yakima project, Washington.....	18,065,000	11,739,000	400,000	5,946,000
702-72-1	Kendrick project, Wyoming.....	20,000,000	18,381,000	200,000	1,319,000
702-67-4	Riverton project, Wyoming.....	9,466,000	6,118,000	20,000	2,328,000
702-102-3	Heart Mountain division, Shoshone project, Wyoming.....	6,509,000	4,153,000	280,000	2,067,000
702-102-6	Paonia project, Colorado.....	994,000	9,000	250,000	735,000
702-110-1	Anderson Ranch Reservoir, Boise project, Idaho.....	13,100,000	822,000	850,000	11,728,000
702-100-1	Sun River project, Montana.....	9,500,000	9,029,143	60,000	410,857
702-85-1	Carlsbad (supplemental) project, New Mexico.....	2,500,000	2,410,000	55,000	35,000
702-102-2	Uncompahgre project, Colorado.....	5,568,000	282,000	250,000	5,036,000
702-104-3	Ogden River project, Utah.....	2,600,000	2,417,000	80,000	103,000
702-67-6	Shoshone power division, Wyoming.....	4,426,000	4,288,000	120,000	5,000
702-67-5	Shoshone-Willwood division, Wyoming.....	300,000	250,000	250,000	50,000
702-110-3	Orlando project, Calif.....	1,127,000	1,060,000	20,000	47,000
	Minidoka project, Idaho.....	35,000	17,000	15,000	
	Humboldt project, Nev.....	600,000	450,000	150,000	
	Rio Grande project, N. M. and Calif.....	100,000	95,000	5,000	
		2,065,000	1,615,000	450,000	
	Total, reclamation fund.....	231,699,000	108,111,143	11,633,000	111,954,857
Reclamation Projects Payable from General Fund:					
702-103-6	Parker Dam power project, Arizona-California.....	14,860,000	7,282,000	6,000,000	1,578,000
702-106-1	Central Valley project, California.....	228,010,000	68,172,000	25,000,000	124,838,000
702-97-1	Marshall Ford Dam, Colorado River project, Texas.....	23,780,000	22,780,000	1,000,000	
702-111-2	Columbia Basin project (Grand Coulee Dam), Washington.....	435,734,000	136,641,000	10,000,000	289,093,000
702-101-1	San Luis Valley project, Colorado.....	17,887,000	140,000	100,000	17,647,000
702-66-2	Fort Peck Power project, Montana-North Dakota.....	5,050,000	450,000	450,000	4,600,000
702-102-6	Pine River project, Colorado.....	1,800,000	1,700,000	100,000	
104-41-5	Valley Gravity Canal and Storage project, Texas.....	54,600,000		2,000,000	52,600,000
	Total, general fund.....	781,721,000	236,715,000	44,650,000	500,356,000
Advances to Colorado River dam fund:					
702-103-1	All-American Canal System, California.....	65,000,000	30,507,000	2,000,000	32,493,000
702-103-6	Boulder Dam and power plant, Boulder Canyon project, Arizona-California-Nevada.....	140,000,000	129,408,000	6,500,000	4,092,000
	Total, Colorado River Dam fund.....	205,000,000	159,915,000	8,500,000	36,585,000
Great Plains projects:¹					
702-67-1	First division, Buffalo Rapids project, Montana.....	330,000	212,000	118,000	
702-67-2	Second division, Buffalo Rapids project, Montana.....	740,000	495,000	125,000	120,000
702-70-1	Mirage Flats project, Nebraska.....	985,000	320,000	335,000	330,000
702-68-2	Buford-Trenton project, North Dakota.....	630,000	220,000	210,000	200,000
702-68-1	Bismarck project, North Dakota.....	250,000	180,000	70,000	
702-102-7	Eden project, Wyoming.....	1,300,000	200,000	330,000	770,000
	Projects to be selected later.....	785,000	100,000	350,000	315,000
	Total, Great Plains.....	5,000,000	1,727,000	1,538,000	1,735,000
Projects under Wheeler-Case Act:²					
702-102-9	Mancoes project, Colorado.....	600,000	200,000	300,000	100,000
702-104-2	Newton project, Utah.....	215,000	100,000	100,000	15,000
702-69-2	Rapid Valley project, South Dakota.....	1,100,000	200,000	350,000	550,000
	Projects to be selected later.....	5,085,000	473,000	1,712,000	2,900,000
	Total, Wheeler-Case Act.....	7,000,000	973,000	2,462,000	2,565,000
	Total, Bureau of Reclamation.....	1,230,420,000	507,441,143	68,783,000	654,195,857
Bureau of Mines:					
705-40-1	Construction of electric furnace laboratory building, Norris, Tenn.....	10,000		10,000	
	Total, Bureau of Mines.....	10,000		10,000	
National Park Service:					
Construction and rehabilitation of buildings and utilities:					
707-20-2	Ski lodge completion at Paradise, Mount Rainier National Park, Wash.....	5,000		5,000	
707-20-3	Completion of campers' shelter and blockhouse, Mount Rainier National Park, Wash.....	12,000		12,000	
707-28-1	Utilities development, Yosemite Valley, Yosemite National Park, Calif.....	15,000		15,000	
707-20-1	Dormitory and mess hall, Narada Falls area, Mount Rainier National Park, Wash.....	16,500		16,500	
707-20-2	Community building alterations at Paradise, Mount Rainier National Park, Wash.....	12,000		12,000	
707-28-1	Utility services to Tecoya residence extension, Yosemite Valley, Yosemite National Park, Calif.....	22,900		22,900	
707-42-1	Electric generating unit at monument headquarters, Bandelier National Monument, New Mexico.....	2,000		2,000	
707-27-1	Electrical system, Canyon area, Yellowstone National Park, Wyo.....	110,000		60,000	50,000
707-27-2	Comfort station in museum, Mammoth area, Yellowstone National Park, Wyo.....	9,000		9,000	
707-18-1	Water-supply line, Mesa Verde National Park, Colo.....	75,000		75,000	
707-107-1	Heating plant and underground utilities, Statue of Liberty National Monument, New York.....	20,000		20,000	
707-107-1	General landscape development, Statue of Liberty National Monument, New York.....	25,000		3,000	22,000
707-9-4	Water system at Rainbow Point, Bryce Canyon National Park, Utah.....	5,100		5,100	
707-64-1	Completion of comfort station, Fort Jefferson National Monument, Florida.....	1,500		1,500	
707-15-1	Two employees' residences, Grant Grove section, Kings Canyon National Park, Calif.....	16,000		16,000	
	Total, buildings and utilities.....	347,000		275,000	72,000

¹ Department of Agriculture costs are not included in the total estimated costs.
² WPA and CCC costs are not included in the total estimated cost.

TABLE No. I.—Projects recommended for fiscal year 1949—Continued

Project No.	Name and location of project	Total estimated cost	Estimated expenditure for June 30, 1941	Recommended expenditure for fiscal year 1949	Additional expenditure required therefor to complete	
DEPARTMENT OF THE INTERIOR—Continued						
National Park Service—Continued:						
	Parkways:					
707-173-1	Nichols Trace Parkway (Tennessee, Alabama, Mississippi)	\$34,700,000	\$4,304,400	\$1,000,000	\$28,395,600	
707-173-1	Blue Ridge Parkway (Virginia, North Carolina)	28,538,473	20,674,473	1,638,000	14,214,000	
707-173-1	George Washington Memorial Parkway (Virginia)	4,608,400	1,383,239	750,000	2,645,171	
	Total parkways.....	78,345,873	26,361,911	4,000,000	43,000,471	
	Roads and trails:					
707-9-1	Construction, reconstruction, and improvement of roads and trails in national parks, monuments, etc.....	129,615,327	95,615,327	2,000,000	22,000,000	
	Total, park roads and trails.....	129,615,327	95,615,327	2,000,000	22,000,000	
	Total, National Park Service.....	199,268,200	124,608,639	4,270,000	65,074,471	
	Fish and Wildlife Service:					
(9)	Mammal and bird reservations:					
	Structures and improvements.....	125,000		125,000		
	Total, mammal and bird reservations.....	125,000		125,000		
(9)	Migratory bird conservation:					
	Structures and improvements.....	30,000		30,000		
	Total, migratory bird.....	30,000		30,000		
	Repairs, alterations, and improvements of fish cultural stations:					
	Mines Cay station, Alaska, water supply and pond.....	2,000		2,000		
	Total, improvements of fish cultural stations.....	2,000		2,000		
	Construction of fish screens:					
706-45-1	Fish screens and lockers in irrigation works, Washington, Oregon, Idaho, and Montana	695,700	363,300	11,500	421,000	
	Total fish screens.....	695,700	363,300	11,500	421,000	
706-49-7	Repairs, alterations, improvements, etc., Alaska fisheries service:					
706-49-7	Construction of four additional salmon-counting weirs.....	55,000		5,000	50,000	
706-49-7	Replacing water mains on St. Paul and St. Georges Islands, Alaska	12,000		12,000		
	Total, improvements, Alaska fisheries.....	67,000		17,000	50,000	
706-47-3	Upper Mississippi River fish refuge:					
	Fish cultural ponds.....	170,000	10,000	10,000	150,000	
	Total, upper Mississippi refuge.....	170,000	10,000	10,000	150,000	
	Total, Fish and Wildlife Service.....	1,208,700	474,300	304,500	621,000	
	Alaska Road Commission:					
	Construction of roads, bridges, and trails in Alaska.....	70,000		70,000		
	Total, Alaska Road Commission.....	70,000		70,000		
	Alaska Railroad:					
	Road way and structures:					
712-39-3	Ballast and patch ballast method.....	100,400		100,400		
712-39-4	Turnup at points on line.....	20,300		20,300		
	Purchase and place culvert pipe.....	20,000		20,000		
	Replace wooden bridge mile 367.7 with steel.....	60,000		60,000		
	Replace wooden bridge mile 270.0 with steel.....	55,000		55,000		
	Replace wooden bridge mile 317.4 with steel.....	54,300		54,300		
	Full bridge mile 332.8.....	7,500		7,500		
	Station and office building, Anchorage.....	200,000		200,000		
	Water station coche, improvement.....	2,000		2,000		
	Water station standard.....	15,000		15,000		
	Menshouse, Willow.....	4,500		4,500		
	Demolitory, Broad Pass.....	15,000		15,000		
	Demolitory, Garner.....	15,000		15,000		
	Depot, Broad Pass.....	4,000		4,000		
	Mainline ways, Noman.....	4,200		4,200		
	Inspector, McKinley Park.....	1,200		1,200		
712-39-12	Total, Alaska Railroad.....	590,200		590,200		
	Government of the Virgin Islands:					
(9)	Improvements and alterations in buildings, highways, etc.....	12,165		12,165		
	Total, Government of the Virgin Islands.....	12,165		12,165		
	Puerto Rico Reconstruction Administration:					
(9)	Construction of farm's houses.....	2,000		2,000		
	Total, Puerto Rico Reconstruction Administration.....	2,000		2,000		
	Total, Department of the Interior.....	1,542,573,993	604,447,902	61,194,315	726,974,902	
	DEPARTMENT OF JUSTICE					
	Bureau of Prisons:					
404-9-1	Extensions to facilities of the existing institutions:					
	McNeil Island, Wash.....	70,000		70,000		
	Atlanta, Ga.....	47,500		47,500		
	Levensworth, Pa.....	11,200		11,200		
	Levensworth, Kans. (newly).....	12,000		12,000		
	Alcatraz, W. Va.....	22,300		22,300		

¹ Blanket project consisting of several items. No docket number assigned.

TABLE No. I.—Projects recommended for fiscal year 1948—Continued

Docket No.	Name and location of project	Total estimated cost	Estimated expenditure to June 30, 1941	Recommended expenditure for fiscal year 1942	Additional expenditure required thereafter to complete
DEPARTMENT OF JUSTICE—Continued					
Bureau of Prisons—Continued.					
Extensions to facilities of the existing institutions—Continued.					
	Chillicothe, Ohio.....	\$27,500		\$27,500	
	El Reno, Okla.....	17,500		17,500	
	Petersburg, Va.....	25,000		25,000	
	Washington, D. O. (training school).....	100,000		100,000	
	Springfield, Mo.....	25,000		25,000	
	Denver, Colo.....	5,000		5,000	
	La Tuna, Texas.....	31,000		31,000	
	Milan, Mich.....	5,000		5,000	
	Sandstone, Minn.....	12,500		12,500	
	Tallahassee, Fla.....	30,000		30,000	
	Texarkana, Texas.....	5,000		5,000	
	Prison camps (Montgomery).....	1,250		1,250	
	Total, Bureau of Prisons.....	450,750		450,750	
	Total, Department of Justice.....	450,750		450,750	
NAVY DEPARTMENT					
Bureau of Yards and Docks:					
	Projects placed under construction under appropriations available prior to June 30, 1941.....	1 216,008,660		216,008,660	
	Total, prior to June 30, 1941.....	1 216,008,660		216,008,660	
	Projects to be placed under construction during the fiscal year 1942:				
601-9	Navy Yard, Boston, Mass.....	420,000		280,000	\$140,000
601-19	Navy Yard, Charleston, S. C.....	210,000		160,000	50,000
601-46	Navy Yard, Mare Island, Calif.....	500,000		340,000	160,000
601-59	Navy Yard, Norfolk, Va.....	800,000		480,000	320,000
601-32	Navy Yard, Pearl Harbor, Hawaii.....	6,778,500		2,372,500	4,406,000
601-66	Navy Yard, Philadelphia, Pa.....	200,000		200,000	
601-72	Navy Yard, Portsmouth, N. H.....	375,000		275,000	100,000
601-74	Navy Yard, Puget Sound, Wash.....	6,705,000		3,690,000	3,015,000
601-63	Navy Yard, Washington, D. C.....	475,000		260,000	215,000
601-31	Naval station, Guam.....	1,437,500		825,000	612,500
601-23	Naval station, Guantanamo, Cuba.....	170,000		110,000	60,000
601-79	Naval station, Tutuila, Samoa.....	250,000		215,000	35,000
601-71	Naval station, Olongapo, P. I.....	150,000		150,000	
601-61	Naval operating base, Norfolk, Va.....	3,150,000		1,675,000	1,475,000
601-16	Submarine base, Coco Solo, C. Z.....	706,000		490,000	216,000
601-56	Submarine base, New London, Conn.....	51,000		51,000	
601-32	Submarine base, Pearl Harbor, Hawaii.....	380,000		200,000	180,000
601-82	Destroyer base, San Diego, Calif.....	1,510,000		910,000	600,000
601-4	Naval Academy, Annapolis, Md.....	1,360,000		830,000	530,000
601-29	Naval training station, Great Lakes, Ill.....	260,000		260,000	
601-55	Naval training station, Newport, R. I.....	750,000		400,000	350,000
601-61	Naval training station, Norfolk, Va.....	35,000		35,000	
601-80	Fleet training base, San Clemente Island, Calif.....	550,000		300,000	250,000
601-33	Naval ammunition depot, Hawthorne, Nev.....	1,995,000		1,493,000	502,000
601-27	Naval ammunition depot, Fort Mifflin, Pa.....	643,000		393,000	250,000
601-34	Naval ammunition depot, Hingham, Mass.....	304,000		234,000	70,000
601-36	Naval ammunition depot, Iona Island, N. Y.....	128,000		128,000	
601-47	Naval ammunition depot, Mare Island, Calif.....	345,000		258,000	87,000
601-32	Naval ammunition depot, Oahu, Hawaii.....	815,000		685,000	130,000
601-75	Naval ammunition depot, Puget Sound, Wash.....	112,000		112,000	
601-73	Naval ammunition depot, St. Juliens Creek, Va.....	482,000		412,000	70,000
	East coast ammunition depot.....	3,759,000		1,500,000	2,259,000
601-39	Naval torpedo station, Keyport, Wash.....	45,000		45,000	
601-97	Naval mine depot, Yorktown, Va.....	100,000		100,000	
601-24	Naval proving grounds, Dahlgren, Va.....	70,000		70,000	
601-4	Naval hospital, Annapolis, Md.....	485,000		210,000	275,000
601-9	Naval hospital, Chelsea, Mass.....	250,000		175,000	75,000
601-60	Naval hospital, Norfolk, Va.....	285,000		285,000	
601-74	Naval hospital, Puget Sound, Wash.....	250,000		250,000	
601-1	Naval air station, Alameda, Calif.....	300,000		200,000	100,000
601-2	Naval air station, Anacostia, D. C.....	100,000		100,000	
601-16	Naval air station, Coco Solo, C. Z.....	474,000		330,000	144,000
601-98	Naval air station, Jacksonville, Fla.....	2,753,500		1,603,500	1,150,000
601-37	Naval air station, Johnston Island.....	168,500		100,000	68,500
601-32	Naval air station, Kaneohe Bay, Hawaii.....	1,347,846		750,000	597,846
601-41	Naval air station, Kodiak, Alaska.....	1,015,000		715,000	300,000
601-49	Naval air station, Midway Island.....	741,753		400,000	341,753
601-61	Naval air station, Norfolk, Va.....	169,500		200,000	100,000
601-102	Naval air station, Palmyra Island.....	169,500		100,000	69,500
601-32	Naval air station, Pearl Harbor, Hawaii.....	2,985,785		1,870,000	1,115,785
601-65	Naval air station, Pensacola, Fla.....	1,100,000		510,000	590,000
601-84	Naval air station, San Juan, P. R.....	1,108,000		650,000	458,000
601-85	Naval air station, San Pedro, Calif.....	375,000		375,000	
601-86	Naval air station, Seattle, Wash.....	50,000		50,000	
601-87	Naval air station, Sitka, Alaska.....	1,491,700		753,700	738,000
601-90	Naval air station, Unalaska.....	295,000		195,000	100,000
601-76	Marine Corps flying field, Quantico, Va.....	405,000		305,000	100,000
601-10	Naval Reserve aviation base, Squantum, Mass.....	95,000		95,000	
601-61	Naval fuel depot annex (Crane Island) Norfolk, Va.....	977,500		602,500	375,000
601-82	Naval fuel depot, San Diego, Calif.....	680,000		420,000	260,000
601-71	Naval fuel depot, Sangley Point, P. I.....	65,000		65,000	
601-83	Naval supply depot, Oakland, Calif.....	3,500,000		4,000,000	4,500,000
601-32	Naval supply depot, Pearl Harbor, Hawaii.....	1,250,000		850,000	400,000
601-82	Naval supply depot, San Diego, Calif.....	230,000		230,000	
601-82	Marine Corps base, San Diego, Calif.....	1,205,000		855,000	350,000
601-63	Marine Barracks, Parris Island, S. C.....	375,000		275,000	100,000
601-76	Marine Barracks, Quantico, Va.....	987,000		637,000	350,000
601-60	Marine Corps depot of supplies, Philadelphia, Pa.....	700,000		400,000	300,000

1 Includes only construction costs for which expenditures will be made during fiscal year 1942. Estimated total construction costs of the projects involved not immediately available.

TABLE No. I.—Projects recommended for fiscal year 1942—Continued

Docket No.	Name and location of project	Total estimated cost	Estimated expenditure to June 30, 1941	Recommended expenditure for fiscal year 1942	Additional expenditure required thereafter to complete
NAVY DEPARTMENT—Continued					
Bureau of Yards and Docks—Continued.					
Projects to be placed under construction during the fiscal year 1942—Continued.					
601-83	Marine Corps depot of supplies, San Francisco, Calif.	\$800,000		\$300,000	\$300,000
	Eleventh naval district, San Diego, Calif.	1,225,000		800,000	425,000
	Fourteenth naval district, Pearl Harbor, Hawaii	6,266,000		1,766,000	4,500,000
	Fifteenth naval district, Canal Zone	7,500,000		3,000,000	4,500,000
	Total, during 1942	83,164,094		44,491,200	38,672,894
	Total, Bureau of Yards and Docks	299,172,754		260,499,860	38,672,894
	Total, Navy Department	299,172,754		260,499,860	38,672,894
DEPARTMENT OF STATE					
Office of the Secretary:					
	Trans-Isthmian Highway	\$3,400,000	\$2,900,000	500,000	
	Total, Office of the Secretary	\$3,400,000	2,900,000	500,000	
Foreign Service Buildings Office:					
	Residence and office for Minister, Canberra	225,000		150,000	75,000
	Legation residence, Pretoria	65,000		50,000	15,000
	Minister's residence and office, Quito	110,000		80,000	30,000
	Consular office and residence, Para	40,000		30,000	10,000
	Minister's residence and office, Asuncion	110,000		90,000	20,000
	Office building, Lima	40,000		40,000	
	Secretary's residence, Managua	35,000		35,000	
	Office building, Port-au-Prince	75,000		75,000	
	Total, Foreign Service Building Office	700,000		550,000	150,000
International Boundary Commission, United States and Mexico:					
104-41-1	Rio Grande Rectification Project, El Paso Valley, Tex.	4,070,000	4,045,000	25,000	
104-41-2	Lower Rio Grande flood control project, along Rio Grande from Penitas, Tex., to the Gulf	9,390,000	6,610,000	1,000,000	1,780,000
104-41-3	Rio Grande canalization project, along Rio Grande from El Paso, Tex., to Caballo Dam in New Mexico	4,270,000	3,346,500	650,900	272,600
104-41-4	Rio Grande canalization bridge project, on Rio Grande between El Paso and Caballo Dam	350,000	310,000	40,000	
104-41-6	Cordova Island boundary fence project, near El Paso, Tex.	6,500		6,500	
	Total, International Boundary Commission	18,086,500	14,311,500	1,722,400	2,052,600
	Total, Department of State	22,186,500	17,211,500	2,772,400	2,202,600
TREASURY DEPARTMENT					
Coast Guard:					
Construction of additional shore facilities:					
202-6-1	Avery Point Training School, New London, Conn.	3,000,000		3,000,000	
	Primary radio station, Boston district	218,000		218,000	
	Total, shore facilities	3,218,000		3,218,000	
Aids to navigation:					
(1)	Necessary because of extension and improvement of inland waterways	251,370		251,370	
(1)	Buoyage, for replacements, spares and extension of the buoyage system	155,200		155,200	
(1)	Modernization and extension of the system of radio beacons	45,500		45,500	
(1)	Renewal and modernization of fog signal equipment	37,000		37,000	
(1)	Structural repairs, renewals, and improvements	92,535		92,535	
(1)	Riprap stone protection for structures	53,500		53,500	
(1)	Shore protection work	15,000		15,000	
(1)	Electrification of aids to navigation and stations	61,710		61,710	
(1)	Modernization of housing facilities at stations	7,500		7,500	
202-50-4	Enlarge district office building, Ketchikan Base, Alaska	50,000		50,000	
202-50-5	Rebuild Cape Sarichef Light Station, Unimak Pass, Alaska	90,000		90,000	60,000
(1)	Establishment of national defense aids to navigation, Pacific Islands	204,835		204,835	
(1)	Extension and improvement of national defense aids to navigation in Alaskan waters	495,850		495,850	
	Total, aids to navigation	1,560,000		1,500,000	60,000
	Total, Coast Guard	4,778,000		4,718,000	60,000
	Total, Treasury Department	4,778,000		4,718,000	60,000
WAR DEPARTMENT					
Office of the Secretary:					
Expediting production of supplies and equipment:					
(2)	Construction of buildings, etc.	\$113,796,631	50,000,000	63,796,631	
	Total, expediting production	113,796,631	50,000,000	63,796,631	
National defense housing:					
(2)	Construction of houses and facilities for defense employees	\$2,800,000	2,000,000	800,000	
	Total, defense housing	2,800,000	2,000,000	800,000	
	Total, Office of the Secretary of War	116,596,631	52,000,000	64,596,631	

¹ Blanket project consisting of a large number of individual items. No docket number assigned.

² Includes only construction costs for which expenditures will be made during fiscal years 1941 and 1942. Estimated total construction costs not immediately available.

³ Blanket project consisting of a large number of individual items. Docket numbers will be assigned to the projects later.

⁴ In addition, Public Buildings Administration is constructing \$45,700,000 of defense housing.

TABLE NO. I.—Projects recommended for fiscal year 1942—Continued

Docket No.	Name and location of project	Total estimated cost	Estimated expenditure to June 30, 1941	Recommended expenditure for fiscal year 1942	Additional expenditure required thereafter to complete
WAR DEPARTMENT—Continued					
(1)	Quartermaster Corps: Construction of buildings, utilities, etc., at military posts.....	\$ 232,440,000		232,440,000	
	Total, Quartermaster Corps.....	232,440,000		232,440,000	
(1)	Signal Corps: Construction of buildings, roads, etc.....	\$ 402,550		402,550	
	Total, Signal Corps.....	402,550		402,550	
(7)	Seacoast Defenses: Construction of seacoast defenses.....	\$ 37,811,562		37,811,562	
	Total, seacoast defenses.....	37,811,562		37,811,562	
Corps of Engineers:					
River and harbor projects:					
302-5-2	Connecticut River below Hartford, Conn., regulating works.....	950,010	\$740,010	50,000	\$160,000
302-7-4	New York Harbor, N. Y., dredge anchorage areas and deepen channels.....	13,300,056	9,051,056	1,662,250	2,686,750
302-6-3	Great Lakes to Hudson River waterway, deepening to 14 feet and bridge alterations.....	27,000,039	21,303,039	700,000	4,997,000
302-7-8	New York and New Jersey Channels, dredging and rock removal to enlarge channels.....	37,629,290	16,119,290	2,350,000	19,160,000
302-121-2	Arecibo Harbor, P. R., dredging and breakwaters.....	427,000	468,000	19,000	
302-8-2	Inland waterway from Delaware River to Chesapeake Bay, Del. and Md., jetty extension, dredging, and bank stabilization.....	15,088,779	13,053,779	300,000	1,735,000
302-29-1	Caloosahatchee River and Lake Okeechobee drainage areas, Fla., remove old locks and spillway in St. Lucie Canal.....	17,649,398	17,609,398	40,000	
302-90-10	Southwest Pass and South Pass, Mississippi River, La., dredging and regulating works.....	26,161,267	24,237,267	490,000	434,000
302-94-1	Sabine-Naches waterway, Texas, Beaumont and Orange, Tex., to the Gulf of Mexico, enlarge channels and turning basins.....	12,543,853	9,457,353	1,066,500	2,020,000
302-90-13	Louisiana-Texas intracoastal waterway, Sabine River to Corpus Christi, Tex., dredge 9-foot waterway.....	7,920,339	4,377,339	1,000,000	2,543,000
302-65-4	Mississippi River between Ohio and Missouri Rivers, regulating works.....	43,000,004	34,600,004	700,000	7,700,000
302-54-2	Mississippi River between Missouri River and Minneapolis, locks, guard and guide walls and miscellaneous work.....	169,960,339	148,908,339	4,200,000	16,852,000
302-60-17	Illinois waterway, Illinois, mouth of Illinois River to Chicago, Ill., dredging.....	30,189,509	25,494,509	350,000	4,345,000
302-77-3	Missouri River, Kansas City to mouth, dredging and regulating works.....	79,998,834	75,523,834	1,500,000	2,975,000
302-71-1	Missouri River, Kansas City to Sioux City, Ia., dredging and regulating works.....	91,999,350	79,767,350	1,700,000	10,532,000
302-66-3	Missouri River, Fort Peck, Mont., earth dam.....	115,950,135	115,030,135	350,000	670,000
302-33-4	Ohio River, lock and dam construction, miscellaneous work at various structures.....	130,849,600	128,789,600	100,000	1,960,000
302-33-5	Ohio River, open channel (dredging and bank protection).....	17,049,742	13,212,742	600,000	3,337,000
302-44-1	Keweenaw waterway, Michigan (across Keweenaw Point), dredging and breakwaters.....	6,626,695	5,943,695	302,000	381,000
302-45-1	Sturgeon Bay and Lake Michigan Ship Canal, Wis., dredging.....	1,200,587	650,587	275,000	275,000
302-47-3a	Cleveland Harbor, Ohio, dredging Cuyahoga River.....	6,607,823	6,192,123	200,000	115,700
302-47-8	Buffalo Harbor, N. Y., dredging outer harbor.....	3,291,209	2,479,209	202,000	610,000
302-106-1	San Francisco Harbor, Calif., rock removal and dredging main ship channel.....	1,330,801	1,180,801	160,000	
302-112-8	Columbia River between Vancouver, Wash., and Bonneville, Oreg., dredging 27-foot channel.....	2,849,050	2,306,550	542,500	
302-112-3	Columbia River at Bonneville, Oreg., lock and dam construction.....	41,676,539	41,480,539	47,750	48,500
302-112-2	Columbia River and tributaries above Celilo Falls to mouth of Snake River, Wash. and Oreg., dredging and rock removal.....	1,474,706	1,044,706	50,000	380,000
302-110-1	SNAKE RIVER, OREG., WASH. AND IDAHO, DREDGING, ROCK REMOVAL AND SNAGGING.....	832,873	215,873	50,000	616,000
302-1-5	Portland Harbor, Maine, rock removal.....	1,790,129	1,573,129	100,000	112,000
302-3-7	New Bedford and Fairhaven Harbor, Mass., dredging.....	1,696,758	1,684,758	12,000	
302-5-3	Bridgeport Harbor, Conn., dredging Black Rock Channel.....	1,257,034	1,216,034	41,000	
302-10-6	Baltimore Harbor and Channels, Md., complete dredging of York Spit section of channel.....	3,265,237	3,215,237	50,000	
302-115-1	Neah Bay, Wash., south side of Strait of Juan de Fuca, breakwater.....	1,500,000		800,000	700,000
302-45-3	Indiana Harbor, Indiana.....	4,039,918	3,571,918	100,000	368,000
	Projects previously under way.....	\$ 15,000,000		15,000,000	
	Total, rivers and harbors.....	931,017,103	810,504,153	35,000,000	85,512,950
(9)	Flood Control Projects, general: Construction of levees, revetments, and reservoirs.....	\$ 80,000,000		80,000,000	
	Total, flood control projects, general.....	80,000,000		80,000,000	
302-89-1	Mississippi River flood control projects: Mississippi River flood control in the Alluvial Valley, Ill., Ky., Mo., Tenn., Ark., Miss., and La.....	637,000,000	420,153,400	25,000,000	191,846,600
	Total, Mississippi River flood control.....	637,000,000	420,153,400	25,000,000	191,846,600
302-66-3	Power installation projects: Missouri River at Fort Peck, Mont., hydroelectric plant.....	5,845,000	3,000,000	2,845,000	
302-112-3	Columbia River at Bonneville, Oreg., hydroelectric plant.....	26,272,000	22,305,000	7,500,000	6,467,000
	Total, power installation projects.....	42,117,000	25,305,000	10,345,000	6,467,000
	Flood Control, Sacramento River, Calif.: Dredging channels, building levees, bank protection, etc.....	\$ 300,000		300,000	
	Total, flood control, Sacramento River.....	300,000		300,000	
	Total, Corps of Engineers.....	1,690,434,103	1,255,962,563	150,645,000	283,826,550

¹ Blanket project consisting of a large number of individual items. Docket numbers will be assigned to the projects later.
² Includes only construction costs for which expenditures will be made during fiscal year 1942. Estimated total construction costs of the projects involved not immediately available.

³ Blanket project consisting of a large number of individual items. No docket numbers assigned.
⁴ List of projects to be constructed during fiscal year 1942 not immediately available.

TABLE NO. I.—Projects recommended for fiscal year 1942—Continued

Docket No.	Name and location of project	Total estimated cost	Estimated expenditure to June 30, 1941	Recommended expenditure for fiscal year 1942	Additional expenditure required thereafter to complete
	WAR DEPARTMENT—Continued				
(1) (1)	Panama Canal:				
	Improvements, betterments, and replacements of facilities.....	\$ 2,500,000		\$2,500,000	
	Construction of special protective works.....	4,670,000		4,670,000	
	Improvement and enlargement of the capacity of the Panama Canal.....	277,000,000	\$10,000,000	30,000,000	\$237,000,000
	Total, Panama Canal.....	284,170,000	10,000,000	37,170,000	237,000,000
	Total, War Department.....	2,361,854,846	1,317,962,553	523,065,743	520,826,550
	DISTRICT OF COLUMBIA				
(2)	Public Works:				
	Construction of public school buildings, highways, water and sewer systems, institutions, etc.....	7,500,000		7,500,000	
	Total, District of Columbia.....	7,500,000		7,500,000	
	Grand total, Construction Agencies (Class I).....	6,155,623,449	2,921,227,637	1,156,768,060	2,077,527,732

¹ Blanket project consisting of a large number of individual items. No docket numbers assigned.

² Includes only construction costs for which expenditures will be made during fiscal year 1942. Estimated total construction costs of the projects involved not im-

mediately available.

³ Blanket project consisting of a large number of individual items. Docket numbers will be assigned to the projects later.

TABLE NO. II

ESTIMATED CONSTRUCTION FINANCING BY THE FEDERAL GOVERNMENT FOR FISCAL YEAR 1942

This table includes estimates of construction to be financed by the construction agencies (Class II) during the fiscal year 1942 and the Federal share of such financing as recommended in the Budget of the United States Government.¹ The estimated cost of construction to be so financed is \$2,507,700,000, and the Federal share provided by means of loans, grants, or guaranties of loans is \$2,001,000,000. The estimated Federal share of such financing since 1932, classified according to the type of financing, is as follows:²

Fiscal year	Grants-in-aid	Loans	Guaranties of loans	Total, Federal share
1932.....	\$188,717,000			\$188,717,000
1933.....	165,735,000	\$29,498,000		195,233,000
1934.....	881,613,000	208,773,000		1,090,386,000
1935.....	738,592,000	321,833,000	12,389,000	1,072,814,000
1936.....	1,314,962,000	233,464,000	195,412,000	1,743,838,000
1937.....	1,696,613,000	125,229,000	399,028,000	2,220,869,000
1938.....	1,255,785,000	122,600,000	427,003,000	1,805,388,000
1939.....	1,918,833,000	232,508,000	672,954,000	2,824,295,000
1940.....	1,307,925,000	452,473,000	702,647,000	2,463,045,000
1941.....	1,032,000,000	354,600,000	965,000,000	2,401,600,000
1942.....	789,000,000	377,000,000	835,000,000	2,001,000,000

The largest share, approximately \$1,059,000,000, of recommended Federal financing of construction in 1942 will be for housing. The total estimated cost of such housing, including the funds provided by non-Federal sources, is \$1,217,500,000.

It should be recognized that the estimates of construction to be financed as presented in this table may be less or greater than the amount finally financed, depending entirely on the willingness of public or private agencies or individuals to assume the obligations required. However, the estimates presented reflect the best judgments of the agencies involved.

In order to explain in more detail the significance of the estimates, there are presented in the following notes brief explanatory data on the types of construction and financing that are involved.

Federal Loan Agency

Reconstruction Finance Corporation

The estimated amount of construction financing to be undertaken by the Corporation during the fiscal year 1942 has been divided into three groups:

(1) Loans to public agencies to aid in financing projects authorized under Federal, State, or municipal laws;

(2) Loans to be made by the R. F. C. Mortgage Co. for building construction;

¹ In some cases, the actual amount of the Federal share is recommended. In other cases, the estimated Federal share is determined by the Budget estimates of the administrative expenses required.

² Figures shown for years prior to 1941 are actual. Figures for 1941 and 1942 are estimated.

(3) Loans for the construction of defense plants under the recent amendment to Section 5 of the Reconstruction Finance Corporation Act.

It is difficult to estimate accurately the amount of construction that will ultimately be financed from all loans made available by the Corporation, since many of its general business loans, which are not made specifically for construction purposes, may, in the end, be so used. The estimates of \$185,000,000 of construction to be financed and of the Federal share of \$150,000,000 are based, however, on construction loans alone.

None of the Federal financing involved will be represented by disbursements from the Treasury.

Federal Housing Administration

The estimated volume of insurance to be written during the fiscal year 1942 will not represent a disbursement by the Federal Government. Rather, it will be an assumption of an obligation through the insurance fund that is maintained by the Federal Housing Administration. In general, the insurance written by the Federal Housing Administration covers two general types of loans: (1) Those for financing repairs, alterations, and improvements upon or in connection with existing structures; and (2) those for the building of new structures upon urban, suburban, or rural property.

The total volume of loans insured under the first type noted above is not included in the estimate of \$835,000,000, since these largely fall within the category of current repair and modernization operations and are thus excluded from consideration as new construction. Also, under the present law, the authority to insure such loans expires June 30, 1941.

The second type of financing described above is represented in the estimated total of \$835,000,000 shown in the table, and is provided for under Title II of the National Housing Act. The total insurance liability under this type of loan is \$4,000,000,000. The law provided for a \$3,000,000,000 limitation, and in November 1939, the President, under the authority given him in the National Housing Act, increased the liability to \$4,000,000,000. The difference between the amount of insurance written and the total estimated cost of \$965,500,000 for the construction to be financed is, of course, provided from the funds of the private individuals and corporations who assume the mortgages upon which the insurance is written.

It is currently estimated that the Federal Housing Administration is insuring loans on approximately 40 percent of the single-family and multiple-family buildings being constructed in the United States.

None of the Federal financing involved will consist of disbursements from the Treasury.

Federal Security Agency

National Youth Administration

No estimates are immediately available as to the part of the \$92,000,000 recommended for expenditure by the National Youth Administration during the fiscal year 1942 that will be used as grants-in-aid for the construction of training quarters, shops, camps, etc., for the work program of the Administration.

Civilian Conservation Corps

No estimates are immediately available as to the part of the \$265,000,000 recommended for expenditure by the Civilian Conservation Corps during the fiscal year 1942 that will be used for the construction of buildings, structures, roads, etc., under the work program of the Corps.

Federal Works Agency

Public Roads Administration

The amount of Federal financing that is recommended for the fiscal year 1942 under the Public Roads Administration will be for three purposes:

(1) The grants provided for highway construction under the regular Federal Aid Highway System acts will total \$110,000,000. These funds will be provided from the Treasury and will be accompanied by an expenditure from State funds of \$114,000,000, making a total estimated cost of the construction to be financed of \$224,000,000.

(2) The construction of secondary or feeder roads out of the regular authorized appropriations, involving a recommended expenditure of \$20,000,000 from the Treasury and a concurrent expenditure of \$21,000,000 from State funds, making a total of \$41,000,000.

(3) Construction expenditures for the elimination of hazardous railroad grade crossings under authorizations of the Congress. Recommended expenditures from the Treasury are set at \$30,000,000, and \$1,000,000 of State funds will be spent concurrently, making a total estimated expenditure of \$31,000,000.

Public Works Administration

The expenditures recommended during 1942 are for two types of financing operations: (1) An expenditure of \$3,000,000 is recommended to provide for disbursements on loans to States and municipalities for public works construction; (2) an expenditure of \$35,000,000 is recommended for grants to States and municipalities for public works construction. Both these expenditures will be in the form of Treasury withdrawals.

Thus, the Federal financing undertaken by the Public Works Administration during the fiscal year 1942 will

involve \$38,000,000, but the total estimated cost of construction to be financed will be only \$27,200,000. The difference is explained by the fact that the grant payments follow the completion of construction operations, and while on many of the projects financed by the Public Works Administration construction has been completed, or at least nearly so, the grant and loan payments are in many cases being held up until final settlement is made to the satisfaction of the Administration.

U. S. Housing Authority

The figure of \$162,000,000 for the Federal financing of construction expenditures by the Authority during 1942 under loans to public housing agencies does not include the annual contributions that are made to the housing authorities by the Federal Government. The total estimated cost of \$180,000,000 for the construction to be financed includes the contributions by the local housing authorities that are spent with the funds from the United States Housing Authority.

The Federal share of \$162,000,000 for construction financing is not a Treasury disbursement. It is disbursed from funds made available through special obligations issued by the Authority and guaranteed by the United States.

Work Projects Administration

The expenditure of \$594,000,000 that is recommended for 1942 is a part of the supplemental work relief appropriation of \$990,000,000 contained in the Budget. These funds will be withdrawn from the general fund of the Treasury during the year. The total cost of the construction to be undertaken is estimated to be \$792,000,000, which, under the present law, would involve an estimated expenditure of approximately \$198,000,000 by the State and local governments concerned from their own funds concurrently with the grant-in-aid by the Work Projects Administration. The construction projects undertaken will include all types of State and local public works.

Department of Agriculture

Rural Electrification Administration

The estimated \$50,000,000 of Federal financing for 1942 is equal to the total estimated cost of the construction to be financed, since the Federal Government finances practically 100 percent of the construction undertaken by means of the Rural Electrification loans. These funds are made available to the Rural Electrification Administration from a loan advanced to the Rural Electrification Administration by the Reconstruction Finance Corporation. None of these estimates are duplicated in the estimates shown for the Reconstruction Finance Corporation.

Farm Security Administration

Construction to be financed by the Farm Security Administration during the fiscal year 1942 is of two types: (1) that undertaken under the rural rehabilitation loans; and (2) that undertaken under loans through the Bankhead-Jones Farm Tenancy Act. For the first type, it is estimated that \$4,000,000 will be used

for construction; and that \$8,000,000 will be used for construction under the farm tenancy loans. These disbursements will be made from loans advanced to the Farm Security Administration by the Reconstruction Finance Corporation. The estimates are not duplicated in the estimates shown for the Reconstruction Finance Corporation.

FEDERAL SIX-YEAR PROGRAM OF PUBLIC WORKS

TABLE II.—Estimated construction financing by Federal Government for fiscal year 1942

Name of agency	Type of financing	Total estimated cost of construction to be undertaken or financed	Amount of Federal financing
FEDERAL LOAN AGENCY			
Reconstruction Finance Corporation:			
Loans to public agencies to aid in financing projects authorized under Federal, State, or municipal law under section 5 (d) of the Reconstruction Finance Corporation Act, as amended.	Loan.....	\$75,000,000	\$60,000,000
Loans by R. F. C. Mortgage Co.	do.....	60,000,000	50,000,000
Loans for construction under act of June 25, 1940 (Public, 664, 78th Cong.), amending section 5 (a) of the R. F. C. Act.	do.....	50,000,000	40,000,000
Total, Reconstruction Finance Corporation.....		185,000,000	150,000,000
Federal Housing Administration:			
Small home mortgages and rental and group housing mortgages (exclusive of modernization and property improvement notes insured).	Insurance of loan.....	1,965,500,000	1,835,000,000
Total, Federal Housing Administration.....		965,500,000	835,000,000
Total, Federal Loan Agency.....		1,150,500,000	985,000,000
FEDERAL SECURITY AGENCY			
National Youth Administration:			
Aid in the construction of training quarters, shops, camps, etc., for the work program.....	Grant-in-aid.....	(¹)	(¹)
Total, National Youth Administration.....		(¹)	(¹)
Civilian Conservation Corps:			
Construction of buildings, structures, roads, etc., under the work program of the corps.....	Grant-in-aid.....	(¹)	(¹)
Total, Civilian Conservation Corps.....		(¹)	(¹)
Total, Federal Security Agency.....		(¹)	(¹)
FEDERAL WORKS AGENCY			
Public Roads Administration:			
Federal-aid highway system.....	Grant-in-aid.....	224,000,000	110,000,000
Federal-aid secondary or feeder roads.....	do.....	41,000,000	20,000,000
Elimination of grade crossings.....	do.....	31,000,000	30,000,000
Total, Public Roads Administration.....		296,000,000	160,000,000
Public Works Administration:			
Loans to States and municipalities for public works construction.....	Loan.....	27,200,000	3,000,000
Grants to States and municipalities for public works construction.....	Grant-in-aid.....			35,000,000
Total, Public Works Administration.....		27,200,000	38,000,000
U. S. Housing Authority:			
Loans to public housing agencies.....	Loan.....	180,000,000	162,000,000
Total, U. S. Housing Authority.....		180,000,000	162,000,000
Work Projects Administration:			
Work relief construction (excluding work-relief nonconstruction) for State and local public works construction.....	Grant-in-aid.....	792,000,000	694,000,000
Total, Work Projects Administration.....		792,000,000	694,000,000
Total, Federal Works Agency.....		1,295,200,000	954,000,000
DEPARTMENT OF AGRICULTURE			
Rural Electrification Administration:			
Loans under Rural Electrification Act of 1936, as amended.....	Loans.....	50,000,000	50,000,000
Total, Rural Electrification Administration.....		50,000,000	50,000,000
Farm Security Administration:			
Construction of buildings, structures, etc., under rural rehabilitation loans.....	Loans.....	4,000,000	4,000,000
Construction of buildings, structures, etc., under loans pursuant to Bankhead-Jones Farm Tenant Act.....	do.....	8,000,000	8,000,000
Total, Farm Security Administration.....		12,000,000	12,000,000
Total, Department of Agriculture.....		62,000,000	62,000,000
Grand total, Construction Agencies (Class II).....		2,807,700,000	2,001,000,000

¹ Total value of construction of the housing upon which mortgages are insured.
² Total volume of insurance written.
³ No estimates immediately available.
⁴ No separation possible between grants and loans.

TABLE NO. III

PROJECTS AVAILABLE FOR CONSTRUCTION IN LATER YEARS

This table summarizes projects available for construction in later years as proposed by the construction agencies (Class I). Ultimately, this table will also include projects that are proposed for Federal financing by the construction agencies (Class II), but in the short time available, it was not practicable to include them at this time.

The projects summarized in this table have been classified within each purpose classification into four groups: *Group A*—Immediate, when funds are available; *Group B*—Deferred; *Group C*—Indeterminate; and *Unevaluated*.

The total amount necessary to complete the projects reported, according to the purpose classification, is as follows:¹

TABLE III.—*Projects for future construction*

<i>Purpose classification</i>	<i>Amount necessary to complete</i>
Water Use and Control:	
Flood control.....	\$561, 569, 300
Irrigation.....	188, 218, 546
Hydroelectric power and transmission facilities.....	² 929, 207, 500
Sanitation systems.....	75, 000
Total, water use and control...	1, 679, 070, 346
Public Land Development:	
Parks.....	67, 174, 093
Forests.....	142, 617, 950
Wildlife.....	1, 818, 350
Total, public land development...	211, 610, 393
Transportation:	
Rivers and harbors.....	77, 846, 765
Aids and assistance to navigation...	38, 556, 990
Airports and airways.....	21, 121, 600
Roads.....	14, 003, 000
Total, transportation.....	151, 528, 355
Government Plant:	
Public buildings.....	219, 121, 000
Research facilities.....	11, 376, 984
Construction for surveys and investigations.....	178, 500

¹ The classification of defense projects is omitted from the table. Ordinarily, the defense classification would include projects of the Navy Bureau of Yards and Docks and the Army Quartermaster Corps. Because of the many questions of national defense policy involved, such projects are omitted entirely.

² This estimate excludes hydroelectric power projects listed in other purpose classifications.

Government Plant—Continued.

Welfare and health.....	\$56, 611, 700
Law enforcement.....	8, 802, 000
Education.....	7, 713, 812

Total, Government plant..... 303, 803, 996

Total, all classifications.....2, 346, 013, 090

A summary of Federal expenditures for construction and of the Federal share of construction financing during the period from 1931 to 1942 inclusive according to the above general purpose classification is shown in the following table for comparison. These data, of course, include construction undertaken by the construction agencies (Class I) and that aided by the construction agencies (Class II). Therefore, the following table is not directly comparable to the one presented above.

[All figures in thousands]

Fiscal year	Water use and control	Public land development	Transportation	Defense	Government plant	Housing	Miscellaneous	Total
1931.....	\$45, 297	\$27, 356	\$226, 513	\$39, 778	\$104, 037	-----	-----	\$442, 981
1932.....	51, 588	25, 385	264, 208	43, 879	138, 991	-----	-----	524, 051
1933.....	71, 602	19, 496	245, 938	26, 422	147, 438	-----	\$840	511, 736
1934.....	175, 220	116, 737	715, 793	50, 076	342, 916	\$7, 089	36, 856	1, 445, 287
1935.....	260, 971	53, 875	742, 049	53, 895	366, 934	32, 066	6, 221	1, 516, 011
1936.....	457, 757	102, 843	905, 213	38, 381	542, 180	233, 801	8, 899	2, 289, 074
1937.....	420, 661	125, 291	1, 106, 993	59, 063	657, 972	505, 149	6, 627	2, 881, 776
1938.....	380, 935	44, 199	840, 263	60, 910	531, 334	510, 622	1, 859	2, 370, 122
1939.....	488, 912	63, 824	1, 212, 657	144, 463	738, 285	744, 111	16, 190	3, 408, 442
1940.....	440, 830	48, 401	881, 235	175, 942	624, 557	910, 015	46, 179	3, 127, 159
1941.....	418, 548	39, 053	771, 677	987, 462	458, 528	1, 234, 500	25, 680	3, 935, 448
1942.....	371, 576	26, 498	622, 379	648, 031	313, 994	1, 150, 100	25, 190	3, 157, 768

It should be made clear that many of the projects included in Table No. III are being evaluated as rapidly as possible. This is particularly true of the large group of projects listed under "Hydroelectric power and transmission facilities." Also, projects now included within one of the three evaluation groups will be re-evaluated during the course of the coming year.

Therefore, it should be borne in mind that the process of grouping the projects is a dynamic one, and evaluations will change as policies, conditions, and plans change. Projects may move back and forth between the evaluation groups, and this, in itself, is the essence of a continuous planning and programming process. Plans and programs must be flexible.

APPENDIX

STATISTICAL TABLES COVERING THE HISTORICAL DEVELOPMENT AND DISTRIBUTION OF FEDERAL CONSTRUCTION EXPENDITURES, 1921-1941

During the past 20 years, the United States Government has directly influenced construction activity in the United States in a number of different ways. These have included:

1. *Expenditures made by regular Government departments* for the Federal account. The construction financed by these expenditures is carried on directly by the Federal Government and the completed works and structures are owned and operated by it.

2. *Expenditures made by Government corporations* for the Federal account.

3. *Grants-in-aid to State and local governments*.—The construction (including work relief) so financed is carried on (or sponsored) by the State and local governments to which the grants are made, and the completed works and structures are owned and operated by them.

4. *Loans to non-Federal public agencies*.—The construction financed by these expenditures is carried on by the agencies to which the loans are made, and the completed works and structures are owned and operated by these agencies.

5. *Loans to private agencies and guaranties of private loans*.—As in the case of loans to public agencies, responsibility for construction, ownership, and operation is outside the Federal Government. The Government underwrites certain types of private construction loans, principally for housing, and the guaranties of these loans represent contingent liabilities of the Government. Consequently, the construction expenditures made by private agencies under these loan-guaranty arrangements must be considered as a part of the construction activity in which the Government is a participant.

The tables in this Appendix have been compiled to show the expenditures made by the Federal Government since 1921 in each of the categories listed above, classified as to purpose.

In addition to this classification of construction expenditures according to the character of the outlays, many different methods might be used to classify such expenditures according to the purpose for which they were made.

From 1921 to 1932, the bulk of Federal construction expenditures was made for roads, river and harbor improvements (including some flood-control work), public buildings, and irrigation works. Beginning in 1932, these expenditures were extended to include—by

means of grants or loans—practically all types of public and private construction. In considering all the purposes for which Federal construction expenditures are now being made, the expenditures have been divided into six major functional classes in these tables:

1. *Water use and control*.—Including flood control, irrigation, hydroelectric plant and transmission systems, public water-supply systems, and public sewerage systems.

2. *Public land development*.—Including park and forest development, wildlife conservation, and soil erosion control.

3. *Transportation*.—Including roads, river and harbor improvements, aids and assistance to navigation, airports and airways, railroads, canals, and various structures such as wharves, docks, bridges, etc.

4. *Defense*.—Including Army and Navy flying fields, military and naval posts, supply depots, and navy yards.

5. *Government plant*.—Including administrative buildings, post offices, research facilities, hospitals, prisons, and educational buildings.

6. *Housing*.

It is recognized, of course, that this classification is very general, and for that reason each major classification has been in turn further subdivided into several additional classifications. The entire classification scheme in general outline is as follows:

1. *Water use and control:*

- a. Flood control.
- b. Tennessee Valley Authority.
- c. Reclamation and irrigation.
- d. Transmission and hydroelectric plant.
- e. Public water supply systems.
- f. Public sewerage systems.
- g. Miscellaneous water use and control.

2. *Public land development:*

- a. Parks.
- b. Forests.
- c. Wildlife.
- d. Soil erosion control.
- e. Miscellaneous land development.

3. *Transportation:*

- a. Roads, streets, and highways.
- b. Rivers and harbors.
- c. Aids and assistance to navigation.

3. *Transportation—Continued.*
 - d. Airports and airways.
 - e. Canals.
 - f. Railroads.
 - g. Miscellaneous transportation.
4. *Defense:*
 - a. Naval.
 - b. Military.
 - c. Miscellaneous defense.
5. *Government plant:*
 - a. Public buildings.
 - b. Research facilities.
 - c. Surveys and investigations.
 - d. Welfare and health.
 - e. Law enforcement.
 - f. Education.
 - g. Recreation.
 - h. Utilities.
 - i. Miscellaneous general facilities.

In addition to the five groups listed above, there is a general over-all "Miscellaneous" group which is included in some of the tables because the data from which these tables were compiled did not, in some instances, permit more specific identification of purpose.

The tables in this Appendix are divided into five groups, corresponding to the character-of-outlay classification described in the first paragraph of this appendix. In addition, there is a sixth table summarizing all expenditures shown on the other five tables.

Each group of tables has a summary table which classifies the expenditures within that group according to purpose, and within each group of tables there is a table for each major purpose category which details the amounts spent by each Federal agency for each item listed within that purpose.

These tables must be used in the light of the following considerations:

1. The expenditures shown within each fiscal year do not correspond precisely to the total volume of construction activity for which the Federal Government was responsible *in that year*, because Federal procedures (with few exceptions) are such that the actual construction work must be performed before payment can be made. Consequently, construction activity financed by the Federal Government generally precedes actual payment. These tables show expenditures in terms of cash payments from the United States Treasury or from funds of Government corporations, with the exception of private construction loans for which the Federal Government has provided a guaranty. These guaranties are included as of the date they are assumed by the Federal Government.

2. The data from which these tables have been compiled are such that it is not possible in all instances to permit a complete classification of the expenditures involved. For instance, all construction expenditures of the Bureau of Reclamation are shown under "Reclamation and irrigation" although some of such expenditures were for hydroelectric plant and transmission lines. However, the nature of the data available did not permit a separation. Consequently, the compilations presented in these tables are not completely precise insofar as the classifications are concerned.

3. All expenditure data shown are for *new* construction only. Major repairs that are, virtually, new construction are also included. Current maintenance and repair work necessary for the preservation of any works, building, or other structure has been excluded.

4. The data shown for the fiscal year 1941 are preliminary and are subject to further revision.

TABLE No. 1.—Summary of expenditures for construction of Federal

[All figures

Function	1921	1922	1923	1924	1925	1926	1927
1. Water use and control:							
a. Flood control ¹							\$11,891
b. TVA.....							2,752
c. Reclamation and irrigation.....	\$6,073	\$4,946	\$5,650	\$6,782	\$3,899	\$3,390	7,276
d. Transmission and electric plant.....							
Total.....	6,073	4,946	5,650	6,782	3,899	3,390	21,619
2. Public land development:							
a. Parks.....							1,842
b. Forests.....	6,382	6,263	6,459	7,817	13,066	12,714	12,151
c. Wildlife.....	129	26	25	5	1	7	24
d. Soil erosion control.....							
Total.....	6,511	6,299	6,484	7,822	13,067	12,721	14,017
3. Transportation:							
a. Roads.....	1,225		2,811	4,678			
b. Rivers and harbors ²	58,820	43,317	51,393	75,662	79,429	69,004	61,041
c. Aids and assistance to navigation.....	808	1,185	607	786	543	997	74
d. Airports and airways.....							
e. Panama Canal ³	16,461	11,062	3,621	7,142	9,093		
f. Nicaragua Canal.....							
g. Alaska R. R.	9,561	4,358	4,446	2,838	2,074	1,464	1,572
i. Miscellaneous.....	575						
Total.....	87,450	59,922	62,878	91,136	91,139	71,465	62,687
4. Defense:							
a. Navy Department.....	14,212	10,454	10,073	6,177	3,750	3,257	3,027
b. War Department.....	52,461	16,569	12,164	6,459	4,581	7,001	9,684
c. War Department—nonmilitary.....	190						
Total.....	66,863	27,023	22,237	12,636	8,331	10,258	12,711
5. Government plant:							
a. Public buildings.....	9,714	5,299	3,454	2,450	2,756	1,940	8,736
b. Research facilities.....							
c. Surveys and investigations.....							
d. Welfare and health.....	285	12,054	10,291	11,611	5,091	5,981	5,976
e. Law enforcement.....	311	80	174	141	410	73	61
f. Education.....	47	528	24	3	47	150	233
g. Housing.....							
h. District of Columbia.....							
i. Facilities outside continental United States.....				45	27		
Total.....	10,357	17,961	13,943	14,250	8,331	8,144	15,006
6. Miscellaneous.....			1,294	244	253	811	1,560
Grand total.....	177,254	116,151	112,495	132,870	125,020	106,789	117,600

¹ Estimated expenditures for fiscal year 1941 estimated as of January 1941.² Up to the end of the fiscal year 1926, expenditures for flood control are included under the item "Rivers and harbors." Some maintenance is included.³ Credits of \$29,000 deducted in Budget statement.⁴ Credits of \$32,000 deducted in Budget statement.⁵ Credits of \$30,000 deducted in Budget statement.⁶ Includes maintenance and operating expenses.⁷ Credits of \$96,000 deducted in Budget statement.⁸ Difference between statement No. 2 and statement No. 4 of the Budget is \$1,146,000.⁹ Difference between statement No. 2 and statement No. 5 of the Budget is \$2,435,000.¹⁰ Difference between statement No. 2 and statement No. 5 of the Budget is \$19,875,000.

TABLE No. 1-A.—1.

[All figures

Agency	1921	1922	1923	1924	1925	1926	1927
a. Flood control:							
1. Corps of Engineers ¹							\$11,591
2. International Boundary Commission, United States and Mexico.....							
Total.....							11,591
b. Tennessee Valley Authority:							
1. Corps of Engineers ¹							2,752
2. Tennessee Valley Authority.....							
Total.....							2,752
c. Reclamation and irrigation:							
1. Bureau of Reclamation.....	\$6,073	\$4,946	\$5,650	\$6,782	\$3,899	\$3,390	7,276
2. Boulder Dam.....							
3. All-American Canal.....							
4. Bureau of Indian Affairs ⁴							
5. Small water conservation—Department of the Interior.....							
Total.....	6,073	4,946	5,650	6,782	3,899	3,390	7,276
d. Transmission and electric plant:							
1. Corps of Engineers ⁵							
2. TVA.....							
3. Bonneville project.....							
Total.....							
Grand total.....	6,073	4,946	5,650	6,782	3,899	3,390	21,619

See footnotes on pp. 84 to 87.

public works classified according to function, fiscal years 1921-1941, inclusive

[in thousands]

1928	1929	1930	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940	1941
\$13,271	\$25,340	\$22,805	\$35,844	\$27,996	\$35,118	\$41,862	\$34,403	\$41,474	\$50,280	\$64,979	\$76,444	\$105,749	\$114,281
711	330					8,020	31,179	41,565	35,545	36,538	31,543	39,136	60,000
9,534	10,613	9,398	9,442	23,577	24,067	25,170	42,548	50,947	51,648	66,982	82,099	98,690	84,351
		22	11	15	14	1,444	1,389	6,640	4,600	7,169	11,650	13,380	23,000
23,516	36,283	32,225	45,297	51,588	59,199	76,496	109,519	140,626	142,073	175,668	201,736	256,955	281,632
8,416	4,149	4,077	6,252	6,913	6,537	8,675	13,826	14,538	23,190	18,023	21,158	16,072	17,728
11,001	12,462	11,087	20,041	18,117	12,799	26,048	22,784	20,900	22,913	18,462	18,703	12,911	10,658
4	19	282	463	350	168	568	843	1,995	1,987	1,490	2,747	1,088	765
				5	2		10,334	24,080	300	215	2,819	1,824	767
14,421	16,630	15,466	27,856	25,385	19,496	84,291	47,787	61,513	48,390	38,190	45,427	31,906	29,903
	1,993	2,983	6,719	8,342	5,617	3,754	4,096	2,741	2,026	1,941	1,917	2,129	1,500
58,870	57,718	47,437	53,698	55,842	49,123	79,115	133,036	152,185	147,470	99,047	76,779	61,573	45,115
290	900	876	1,488	2,955	2,644	1,990	2,261	992	2,165	1,815	8,633	5,094	9,148
	1,678	3,028	2,657	628	342	1,784	828	766	2,216	4,232	8,789	34,000	
	1,418	1,280	2,220	5,276	4,582	1,956	2,478	2,520	2,223	2,457	15,700	32,271	
	51	65											
	198	198	255	157	353	325	329	438	528	482	358	565	
	2,749	1,073	1,581	354	30	1	5	23	25				
59,160	60,611	57,456	67,447	73,852	63,799	90,166	144,459	159,568	155,408	107,795	94,500	93,653	122,599
4,885	7,314	8,103	12,941	13,246	12,626	14,110	13,686	14,463	19,053	14,979	48,094	81,652	248,561
10,628	13,338	11,585	25,655	29,718	13,796	35,542	34,280	17,374	23,676	24,375	61,499	72,248	647,701
	684	247	1,182	916		424	411						2,900
11,173	21,236	19,935	39,778	43,879	26,422	50,076	48,377	31,837	42,729	49,354	309,593	153,900	899,162
7,194	30,785	44,294	73,002	100,621	118,177	80,648	60,054	69,028	78,594	79,927	53,506	58,079	57,221
	51	1,333	1,196	632	109	2,656	2,624	1,312	908	838	3,034	6,757	16,182
			3	3	4	778	801	253	488	2,041	1,842	1,230	1,570
6,609	4,606	12,817	15,369	19,237	19,866	9,397	9,068	11,902	22,540	15,391	25,099	31,503	13,545
30	183		28			1,219	117	272	99	148	105		
149	9	121	727	801	633	533	782	764	515	1,249	3,212	1,667	1,462
						2,372	312	312	13	65			100,000
		7,637	10,410	12,875	7,736	4,205	8,000	12,345	6,871	7,183	20,495	19,661	8,880
		3,573	3,303	4,822	707	1,731	2,642	3,976	13,738	1,940	6,087	3,745	1,692
13,982	35,636	69,775	104,037	138,991	147,221	103,538	84,008	100,164	123,753	108,730	112,945	121,672	200,552
2,941	16,309												
125,193	186,705	194,857	283,915	333,695	316,137	354,567	434,150	493,708	512,353	479,737	564,201	658,065	1,533,848

Source: Compiled from statements of Federal expenditures for public works construction published annually in *The Budget of the United States Government*. See *The Budget* from 1923-42, inclusive. This statement does not include emergency expenditures from allotments for public works to States, municipalities and other public bodies. However, it does include expenditures from allotments for public works construction (including work relief construction) made to the regular Federal

construction agencies from emergency funds. The sites for construction are included as are vessels for the Coast Guard and Lighthouse Service. All figures on this table and the supporting tables are on a fiscal year basis. In the years up to the end of 1932 it was necessary to supplement the table of public works or construction expenditures with statement No. 2 of the Budget, since that contained information not available in the former.

Water use and control

[in thousands]

1928	1929	1930	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940	1941
\$13,271	\$25,340	\$22,805	\$35,844	\$27,996	\$35,118	\$41,078	\$31,807	\$41,303	\$49,221	\$63,680	\$75,454	\$103,789	\$112,200
						786	2,596	171	1,059	1,299	990	1,960	2,081
13,271	25,340	22,805	35,844	27,996	35,118	41,862	34,403	41,474	50,280	64,979	76,444	105,749	114,281
711	330					8,020	31,179	41,565	35,545	36,538	31,543	39,136	60,000
711	330					8,020	31,179	41,565	35,545	36,538	31,543	39,136	60,000
9,534	10,613	8,611	6,357	5,424	3,488	3,368	15,731	25,486	38,463	47,640	64,394	93,642	81,211
			1,686	17,019	19,709	19,534	22,180	18,913	5,688	7,354	9,093		
						39	1,725	4,864	8,550	7,651	3,550		
		787	1,399	1,134	870	2,229	2,912	1,684	1,047	4,337	5,062	5,048	3,140
9,534	10,613	9,398	9,442	23,577	24,067	25,170	42,548	50,947	51,648	66,982	82,099	98,690	84,351
		22	11	15	14	2						2,529	10,000
						1,442	1,389	6,640	4,600	7,154	6,745	10,851	13,000
										15	4,905		
		22	11	15	14	1,444	1,389	6,640	4,600	7,169	11,650	13,380	23,000
23,516	36,283	32,225	45,297	51,588	59,199	76,496	109,519	140,626	142,073	175,668	201,736	256,955	281,632

TABLE No. 1-B.—

[All figures

Agency	1921	1922	1923	1924	1925	1926	1927
a. Parks:							
1. National Park Service							\$1,842
2. Other public parks							
Total							1,842
b. Forests:							
1. Forest Service, ^a total	\$6,332	\$6,263	\$6,459	\$7,817	\$13,006	\$12,714	12,151
c. Wildlife:							
1. Bureau of Biological Survey							
2. Bureau of Fisheries	129	36	25	5	1	7	24
Total	129	36	25	5	1	7	24
d. Soil erosion control:							
1. Soil Conservation Service							
2. Extension Service							
3. General, Department of Agriculture							
Total							
Grand total	6,511	6,299	6,484	7,822	13,067	12,721	14,017

TABLE No. 1-C.—

[All figures

Agency	1921	1922	1923	1924	1925	1926	1927
a. Roads:							
1. Bureau of Public Roads ^a , total	\$1,225		\$2,811	\$4,678			
b. Rivers and harbors:							
1. Corps of Engineers ^a , total	58,820	\$43,317	51,368	75,092	\$79,429	\$69,004	\$51,041
c. Aids and assistance to navigation:							
1. Lighthouse Service	808	1,185	607	786	543	997	74
2. Coast Guard							
Total	808	1,185	607	786	543	997	74
d. Airports and airways:							
1. Bureau of Air Commerce							
2. Civil Aeronautics Authority							
Total							
e. Panama Canal:							
1. Panama Canal ^a , total	16,461	11,062	3,621	7,142	9,093		
f. Nicaragua Canal:							
1. Nicaragua Canal, total							
g. Alaska R. R.:							
1. Alaska R. R., total	9,561	4,358	^b 4,446	2,838	2,074	1,464	1,572
i. Miscellaneous:							
1. War Department	575						
2. Arlington Memorial Bridge							
Total	575						
Grand total	87,450	59,922	62,878	91,136	91,130	71,465	52,667

TABLE No. 1-D.—

[All figures

Agency	1921	1922	1923	1924	1925	1926	1927
a. Navy:							
1. Bureau of Yards and Docks, total	\$14,212	^c \$10,454	\$10,073	\$6,177	\$3,750	\$3,257	\$3,027
b. Army:							
1. Quartermaster Corps	52,461	16,569	12,164	6,459	4,561	7,001	9,684
2. Nonmilitary ^d	190						
Total	52,651	16,569	12,164	6,459	4,561	7,001	9,684
Grand total	66,863	27,023	22,237	12,636	8,311	10,258	12,711

¹ Up to the end of the fiscal year 1926, flood control expenditures were reported under rivers and harbors work. Also includes funds allotted to the Department of Agriculture.

² This item covers dam No. 2 at Muscle Shoals, a project of the Corps of Engineers which is now part of TVA. The original objectives were navigation and the generation of power for nitrates in time of war and fertilizers in time of peace. In the years following 1929 the construction expenditures at dam No. 2 are listed in the Budget

as hydroelectric plant and appear under "Transmission and electric plant" in the analyses.

³ In 1926 credits deducted in Budget Statement amounted to \$29,000, in 1927 to \$29,000, in 1928 to \$32,000, and in 1929 to \$30,000.

⁴ In the years up to the end of 1929 the expenditures for irrigation projects in the Bureau of Indian Affairs were not separated from the general public works expenditures for this Bureau.

2. Public Land development

in thousands]

1928	1929	1930	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940	1941
\$3,416	\$4,149	\$4,077	\$6,246 6	\$6,900 13	\$6,537	\$8,675	\$13,826	\$14,538	\$23,190	\$19,023	\$21,168	\$16,072	\$17,723
3,416	4,149	4,077	6,252	6,913	6,537	8,675	13,826	14,538	23,190	18,023	21,168	16,072	17,723
11,001	12,462	11,097	20,641	18,117	12,799	25,048	22,784	20,900	22,913	18,462	18,703	12,911	10,658
4	19	161 131	169 294	16 334	6 152	300 268	667 176	1,861 134	1,939 48	1,248 242	1,140 1,607	1,098	765
4	19	392	463	360	158	568	843	1,995	1,987	1,490	2,747	1,098	765
							10,334	22,130 1,950	300	215	2,819	1,824	767
				5	2								
				5	2		10,334	24,080	300	215	2,819	1,824	767
14,421	16,630	18,466	27,356	25,385	19,496	34,291	47,787	61,513	48,390	38,190	45,427	31,905	29,903

3. Transportation

in thousands]

1928	1929	1930	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940	1941
	\$1,993	\$2,983	\$6,719	\$8,342	\$5,617	\$3,754	\$4,096	\$2,741	\$2,026	\$1,941	\$1,917	\$2,129	\$1,500
\$58,870	57,718	47,437	53,598	55,842	49,123	79,115	133,036	152,195	147,470	99,047	76,779	61,573	45,115
290	900	790 86	1,096 392	1,165 1,790	1,451 1,193	1,520 470	2,471 790	368 624	1,611 554	1,510 305	3,633	5,094	9,148
290	900	876	1,488	2,955	2,644	1,990	3,261	992	2,165	1,815	8,633	5,094	9,148
		1,678	3,026	2,657	628	342	1,784	828	766				
										2,216	4,232	8,799	34,000
		1,678	3,026	2,657	628	342	1,784	828	766	2,216	4,232	8,799	34,000
		1,418	1,280	2,220	5,276	4,582	1,956	2,478	2,520	2,223	2,457	15,700	32,271
		51	65										
		264	198	255	157	353	325	329	438	528	482	358	565
		2,749	1,073	1,581	354	30	1	5	23	25			
		2,749	1,073	1,581	354	30	1	5	23	25			
59,160	60,611	57,456	67,447	73,852	63,799	90,166	144,459	159,568	155,406	107,795	94,500	93,653	122,599

4. Defense

in thousands]

1928	1929	1930	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940	1941
\$4,885	\$7,314	\$8,103	\$12,941	\$13,246	\$12,626	\$14,110	\$13,686	\$14,463	\$19,053	\$14,979	\$48,094	\$81,652	\$248,561
6,288	13,338 684	11,585 247	25,655 1,182	29,718 915	13,796	35,542 424	34,280 411	17,374	23,676	34,375	61,499	72,248	647,701
6,288	13,922	11,832	26,837	30,633	13,796	35,966	34,691	17,374	23,676	34,375	61,499	72,248	647,701
11,173	21,236	19,935	39,778	43,879	26,422	50,076	48,377	31,837	42,729	49,354	109,593	153,900	1,899,162

* Certain items representing construction expenditures from special funds (co-operative work, Forest Service and roads and trails for States, National Forest funds) have not been included in the Bureau of the Budget's Statement of public works expenditures from 1921-32 (fiscal years). These amounts, which appear in statement No. 2 of the Budget have been included in the above schedule in order to make the Budget statement of public works expenditures consistent within itself for the entire

period from 1921 through 1941. The following expenditures have been added to the amounts appearing in the Budget statement of public works expenditures: \$3,382,000 in 1921, \$2,001,000 in 1922, \$1,411,000 in 1923, \$2,814,000 in 1924, \$2,938,000 in 1925, \$2,793,000 in 1926, \$1,909,000 in 1927, \$1,168,000 in 1928, \$2,234,000 in 1929, \$2,234,000 in 1930, \$2,965,000 in 1931, and \$2,760,000 in 1932.

TABLE No. 1-E.—
[All figures]

Agency	1921	1922	1923	1924	1925	1926	1927
a. Public buildings:							
1. Architect of the Capitol.....							
2. White House.....							
3. Procurement Division.....	\$8,134	\$5,299	\$3,454	\$2,450	\$2,756	\$1,940	\$8,736
4. Public Buildings Administration.....							
5. Supreme Court.....							
6. Federal Security Agency.....							
7. U. S. Maritime Commission.....							
8. Department of Agriculture, Government Island, Calif.....							
9. American Red Cross.....							
10. Warehouse, Washington, D. C.....							
11. War Department.....	898						
12. Legislative buildings and grounds, Interior Department.....	679						
13. Courthouse, Interior Department.....	3						
Total.....	9,714	5,299	3,454	2,450	2,756	1,940	8,736
b. Research facilities:							
1. Bureau of Animal Industry.....							
2. Bureau of Dairy Industry.....							
3. Bureau of Plant Industry.....							
4. Bureau of Entomology and Plant Quarantine.....							
5. Bureau of Agricultural Engineering.....							
6. Weather Bureau.....							
7. Beltsville.....							
8. Agricultural Research Stations.....							
9. Miscellaneous agricultural research facilities.....							
10. National Advisory Committee for Aeronautics.....							
11. Bureau of Standards.....							
12. Bureau of Mines.....							
13. Bureau of the Census.....							
Total.....							
c. Surveys and investigations:							
1. Geological Survey.....							
2. International Boundary Commission, United States, Canada, Alaska.....							
3. Coast and Geodetic Survey.....							
Total.....							
d. Welfare and health:							
1. Bureau of Indian Affairs.....							
2. Veterans' Administration.....		11,853	10,060	11,238	4,673	5,150	4,599
3. Bureau of Prisons.....	182	190	112	99	178	618	1,261
4. Department of Interior, hospitals.....	103	11	119	274	240	213	116
5. Department of State, sanitation.....							
Total.....	285	12,054	10,291	11,611	5,091	5,981	5,976
e. Law enforcement:							
1. Immigration and Naturalization Service.....	311	80	174	141	410	73	61
2. Department of Commerce.....							
Total.....	311	80	174	141	410	73	61
Education:							
1. Howard University.....		177	24	3	47	150	233
2. Smithsonian Institution.....							
3. Expositions and memorials, miscellaneous agencies.....	47	351					
Total.....	47	528	24	3	47	150	233
g. Housing:							
1. Interior, subsistence homesteads.....							
2. District of Columbia Alley Dwelling Authority.....							
Total.....							
h. District of Columbia, total.....							
i. Facilities outside continental United States:							
1. Foreign Service buildings office.....							
2. American Battle Monuments Commission.....							
3. Alaska, miscellaneous agencies.....				45	27		
4. Puerto Rico, miscellaneous agencies.....							
5. Philippine Islands, miscellaneous agencies.....							
6. Virgin Islands—miscellaneous agencies.....							
Total.....				45	27		
Grand total.....	10,357	17,961	13,943	14,250	8,331	8,144	15,006

TABLE No. 1-F.—
[All figures]

Agency	1921	1922	1923	1924	1925	1926	1927
6. Miscellaneous: Various agencies, total.....			1,294	244	253	811	1,560

* The figures from 1934 to 1940, inclusive, represent residual amounts after the Department of Commerce figures on Federal grants for highways were deducted from the total grants and expenditures of the Bureau of Public Roads as reflected in table No. 3 of the Budget.

† Appears in statement No. 2 but not in statement No. 6 of the Budget.

‡ Appears in statement No. 2 but not in statement No. 5 of the Budget.

* Up to the end of the fiscal year 1926 expenditures for flood control are included under "Rivers and harbors." Maintenance is included.

† Maintenance and operation included.

‡ There is a discrepancy between Budget statements Nos. 2 and 6 which evidently arose from a transposition of numbers in the item listed for the Alaska R. R. (\$4,446,000 in statement No. 6 and \$4,473,000 in statement No. 2.)

5. Government plant
(in thousands)

1928	1929	1930	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940	1941
		\$1,143	\$3,367	\$8,201	\$5,237	\$1,563	\$1,650	\$1,594	\$3,505	\$4,950	\$1,142	\$328	\$202
\$7,194	\$30,785	158 42,803	9 60,014	3 90,603	108,800	76,408	56,631	66,708	75,047	74,857	51,127	56,940	55,890
			297	487	3,645	2,640	1,773	726	42	120	10	811	1,129
				125	595	37					862		
		161	43	608							365		
			272	594									
7,194	30,785	44,294	73,002	100,621	118,177	80,649	60,054	69,028	78,594	79,927	53,506	58,079	57,221
		28	80	28	30	995	683	15	205	153	70	54	52
		43	75	38	23	131	130	29		10	10	15	12
		198	181	81	21	820	580	262	41	338	35	33	87
		21	20	4	11	72	106	57	6	7	492	16	10
		43		4	4	95	121	26	17	3	21	40	16
			43	43	3	75	90					18	230
		24	21	13	1	6	96	423	37	33	1,641	2,029	1,139
		26	26	31	6	80	152	1	89	202	251	3,062	4,182
		51	757	236		179	349	8	2	53		165	75
			82	510	389	5	202	178	293	6	24	998	10,160
			95	46	4			313	218	33	31	337	229
			42								440		
	51	1,333	1,195	632	108	2,655	2,624	1,312	908	838	3,034	6,757	16,182
						751	797	123	202	110	730	73	67
					1	23	1	130	285	1,931	56	110	528
			3	3	3	4	3		1		556		
			3	3	4	778	801	253	488	2,041	1,342	1 ¹⁷ 230	1 ¹⁸ 1,570
5,222	4,044	1,737	2,891	2,769	2,237	4,694	5,626	7,234	10,708	3,489	6,587	5,171	5,435
1,251	524	9,948	10,613	12,048	14,303	3,309	2,864	3,808	9,218	9,634	11,715	14,546	7,020
136	40	471	1,478	3,915	2,563	602	65	525	2,403	2,013	6,408	8,651	255
		661	387	515	753	892	533	335	71	255	391	819	535
									145				
6,609	4,608	12,817	15,360	19,237	19,856	9,397	9,088	11,902	22,540	15,391	25,099	1 ¹⁷ 31,503	1 ¹⁸ 13,545
30	183					1,219	117	272	99	148	105		
			28										
30	183		28			1,219	117	272	99	148	105		
149	9	14	488	309		227	668	680	388	801	473	189	79
			30							2	270	270	
		107	209	492	633	306	114	84	127	446	2,739	1,238	1,353
149	9	121	727	801	633	633	782	764	515	1,249	3,212	1,697	1,482
						2,372							
							312			13	65		
						2,372		312		13	65		1 ¹⁹ 100,000
		7,637	10,410	12,875	7,736	4,205	8,000	12,345	6,871	7,183	20,495	19,661	8,880
		1,939	617	2,402	11	201	17	552	17	69	367	485	705
		1,195	1,180	656	285	257	112	16	12				
		429	479	555	86	834	734	664	296	421	158	133	29
		10	1,027	1,209	177	239	1,061	1,966	12,204	928	4,765	2,523	752
						148	200	15	43	43	294	312	
							718	763	1,256	481	513	292	206
		3,573	3,303	4,822	707	1,731	2,642	3,976	13,738	1,940	6,087	3,745	1,692
13,982	35,636	69,776	104,037	138,991	147,221	103,638	84,008	100,164	123,753	108,730	112,945	121,672	200,552

6. Miscellaneous

(in thousands of dollars)

1928	1929	1930	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940	1941
2,941	16,309												

¹³ Credit of \$96,000.00 deducted in Budget statement No. 2.
¹⁴ Cemeterial and parks.
¹⁵ Includes \$2,900,000 of miscellaneous defense construction by the Department of State not itemized in the table.
¹⁶ Includes \$47,000 of construction by Bureau of Mines not itemized in the table.
¹⁷ Includes \$975,000 of construction by Bureau of Mines not itemized in the table.

¹⁸ Includes \$2,316,000 of construction by the Public Health Service not itemized in the table.
¹⁹ Includes \$300,000 of construction by the Public Health Service not itemized in the table.
²⁰ Consists of \$100,000.00 of national defense housing construction by the Federal Works Agency not itemized in the table.

TABLE No. 2.—Summary of expenditures for construction by Federal corporate and

[All figures

Function	1921	1922	1923	1924	1925	1926	1927
2. Public land development:							
e. Miscellaneous, total							
3. Transportation:							
i. Miscellaneous, ¹ total	\$4,102	\$1,469	\$631	\$312	\$1,108	\$887	\$1,605
5. Government plant:							
g. Housing, total							
Grand total	4,102	1,469	631	312	1,108	887	1,605

TABLE

[All figures

Agency	1921	1922	1923	1924	1925	1926	1927
2. Public land development:							
e. Miscellaneous:							
1. Farm Security Administration, ² total							
3. Transportation:							
i. Miscellaneous:							
1. Inland Waterways Corporation ³	\$2,335	\$1,459	\$604	\$114	\$824	\$476	\$1,139
2. Panama R. R. Co. ⁴	1,767	10	27	198	284	411	466
Total	4,102	1,469	631	312	1,108	887	1,605
5. Government plant:							
g. Housing:							
1. Farm Security Administration ²							
2. U. S. Housing Authority ⁴ (P. W. A. Housing Division)							
Total							

¹ Includes vessels.² Source is U. S. Department of Agriculture Report on the financial status and operations of the Farm Security Administration from inception to June 30, 1939, statement of reconciliation of changes in net worth with statement of revenues and expenditures for each fiscal year from 1935 to 1939, inclusive. 1940 figures represent special tabulation. The real properties (including land) purchased and constructed

by the Farm Security Administration and its predecessors include rehabilitation projects of several types, community or contiguous farm projects, separate farms subsistence homestead projects, suburban housing projects and migratory labor camps. Subsistence homestead projects acquired from the Department of the Interior have been excluded. The land utilization projects cover conservation of all kinds, forestation, terracing, check dams, soil conservation, etc. The cost of land

TABLE No. 3.—Summary of expenditures for Federal grants for public construction

[All figures

Function	1921	1922	1923	1924	1925	1926	1927
1. Water use and control:							
a. Flood control							
c. Reclamation and irrigation							
d. Transmission and electric plant							
e. Public water supply systems							
f. Public sewer systems							
g. Miscellaneous							
Total							
2. Public land development:							
b. Forests							
d. Soil erosion control							
e. Miscellaneous							
Total							
3. Transportation:							
a. Roads	\$57,452	\$91,653	\$72,148	\$80,969	\$95,337	\$88,480	\$82,975
c. Aids and assistance to navigation							
d. Airports and airways							
h. Railroads							
i. Miscellaneous							
Total	57,452	91,653	72,148	80,969	95,337	88,480	82,975
4. Defense, total							
5. Government plant:							
a. Public buildings							
d. Welfare and health							
f. Education							
g. Housing							
j. Recreation							
k. Utilities							
l. Miscellaneous							
Total							
6. Miscellaneous, total							
Grand total ²	57,452	91,653	72,148	80,969	95,337	88,480	82,975

See footnotes on pages 92 and 93.

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quasi-corporate agencies classified according to function, fiscal years 1921-40 inclusive

In thousands]

1928	1929	1930	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940
							\$2	\$18,099	\$47,649			\$5
\$2,523	\$1,633	\$3,839	\$3,177	\$1,639	\$366	\$329	31	134	914	\$5,589	\$10,524	
						5	9,014	33,295	99,992	79,408	9,422	6,024
2,523	1,633	3,839	3,177	1,639	366	324	9,047	51,528	148,555	84,997	19,946	6,029

No. 2-A

In thousands]

1928	1929	1930	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940
							\$2	\$18,099	\$47,649			\$5
\$1,566 957	\$1,151 482	\$3,201 638	\$2,709 468	\$1,000 649	\$324 42	\$312 17	31	1	305 609	\$1,754 3,835	\$1,250 9,274	(0) (0)
2,523	1,633	3,839	3,177	1,639	366	329	31	134	914	5,589	10,524	
							212	11,668	49,930	33,128	5,970	5,803
						5	8,802	21,627	50,062	22,744	3,452	221
						5	9,014	33,295	99,992	79,408	9,422	6,024

and equipment is included.

* Source is special statement of Inland Waterways Corporation. 1940 data not available; books kept on calendar year basis.

* Estimated.

* Source is special statement of Panama R. R. Co. 1940 data not available. From 1937 to 1939 expenditures of the Panama R. R. Steamship Line are included.

* The P. W. A. Housing Division projects were turned over to the United States Housing Authority in November 1937.

classified according to function, fiscal years 1921-40, inclusive 1

In thousands]

1928	1929	1930	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940
						\$29,514	\$140	\$9,152	\$494	\$530		
						4,085	24,101	44,319	57,786	37,175	\$45,646	\$25,352
						62	85	13,723	9,133	1,130	1,130	310
						200	17,494	30,497	44,386	39,623	62,768	43,124
						419	34,769	101,165	103,883	88,849	138,330	90,511
						18	349	1,248	1,728	1,942	2,260	1,619
						34,301	76,888	206,109	217,410	168,119	248,134	161,416
							351	2,032	2,134	981	7,839	4,613
							81,774	2,194	4,050	6,367	1,012	2,644
							321	1,880	17,047	21,904	3,382	7,226
							82,446	6,066	28,231	29,262	5,810	17,700
												15,340
\$82,516	\$84,007	\$77,891	\$155,889	\$188,717	\$165,735	494,846	446,916	625,608	873,269	670,595	1,009,419	697,456
						524	2,975	4,450	6,274	5,122	6,013	4,166
						11,856	10,329	18,150	35,107	21,320	34,381	19,441
							252	1,347	1,258	1,428	1,551	1,676
								18,113	12,433	19,208	34,561	24,581
82,516	84,007	77,891	155,889	188,717	165,735	507,478	462,734	662,668	933,340	717,678	1,083,925	747,319
							5,618	6,544	16,354	11,556	34,870	22,042
							122,153	19,000	37,901	57,910	39,825	51,835
							37,083	22,217	65,104	77,689	45,312	63,464
							830	35,923	110,504	124,365	104,436	181,912
								2,468	5,809	249	3,970	944
							35,359	86,376	168,016	186,403	130,647	166,983
							29,224	4,981	8,414	26,958	11,919	33,179
							35	17,891	15,891	18,161	28,578	23,631
						224,184	186,388	408,298	497,295	351,216	526,921	368,030
							33,204	978	8,112	2,962	1,412	5,274
												3,778
82,516	84,007	77,891	155,889	188,717	165,735	881,618	738,592	1,314,962	1,696,613	1,255,785	1,918,833	1,307,925

TABLE NO. 3-A.—1. Water use and control

[All figures in thousands]

Agency	1934	1935	1936	1937	1938	1939	1940
a. Flood control:							
1. PWA.....	\$11	\$140	\$9,152	\$494	\$530		
2. WPA.....	29,503						
Total.....	29,514	140	9,152	494	530		
c. Reclamation and irrigation:							
1. PWA.....	25	594	416	1,481	353	\$377	\$270
2. WPA.....	4,063	23,507	43,903	56,305	36,822	45,269	25,082
Total.....	4,088	24,101	44,319	57,786	37,175	45,646	25,352
d. Transmission and electric plant:							
1. PWA, total.....	62	35	13,728	9,133		1,130	810
e. Public water supply systems:							
1. PWA.....	200	3,142	12,896	15,057	12,004	29,383	21,048
2. WPA.....	(*)	14,352	23,601	29,329	27,619	33,385	22,076
Total.....	200	17,494	36,497	44,386	39,623	62,768	43,124
f. Public sewer systems:							
1. PWA.....	419	3,107	29,950	14,070	15,359	28,630	20,508
2. WPA.....	(*)	31,662	71,215	89,813	73,490	107,700	70,003
Total.....	419	34,769	101,165	103,883	88,849	136,330	90,511
g. Miscellaneous:							
1. PWA, total.....	18	349	1,248	1,728	1,942	2,260	1,619
Grand total.....	34,301	76,888	206,109	217,410	168,110	248,134	161,416

TABLE NO. 3-B.—2. Public land development ¹

[All figures in thousands]

Agency	1934	1935	1936	1937	1938	1939	1940
b. Forests:							
1. WPA, total.....	\$351	\$2,032	\$2,124	\$981	\$1,416	\$7,839	\$4,613
d. Soil erosion control:							
1. PWA.....				(*)	176	(*)	(*)
2. WPA.....	*81,774	2,194	4,050	6,367	836	2,644	1,797
Total.....	81,774	2,194	4,050	6,367	1,012	2,644	1,797
e. Miscellaneous:							
1. WPA, total.....	321	1,860	17,047	21,904	3,382	7,226	8,930
Grand total.....	82,446	6,086	23,231	29,252	5,810	17,709	15,340

See footnotes on pages 92 and 93.

TABLE No. 3-C.—

[All figures

Agency	1921	1922	1923	1924	1925	1926	1927
a. Roads:							
1. PWA.....							
2. WPA.....							
3. Bureau of Public Roads.....	\$57,452	\$91,653	\$72,148	\$80,969	\$95,337	\$88,480	\$82,975
Total.....	57,452	91,653	72,148	80,969	95,337	88,480	82,975
c. Aids and Assistance to Navigation:							
1. PWA.....							
2. WPA.....							
Total.....							
d. Airports and Airways:							
1. PWA.....							
2. WPA.....							
Total.....							
e. Railroads:							
1. WPA.....							
f. Miscellaneous:							
1. PWA.....							
2. WPA.....							
Total.....							
Grand total.....	57,452	91,653	72,148	80,969	95,337	88,480	82,975

TABLE No. 3-D.—

[All figures

Agency	1921	1922	1923	1924	1925	1926	1927
1. WPA,¹ total.....							

¹ WPA figures derived from report Showing the Financial Status of Funds Provided in the Emergency Relief Appropriation Acts of 1935, 1936, 1937, 1938, and 1939 published by the U. S. Treasury Department as of June 30, 1936, 1937, 1938, 1939, and 1940. The figures for 1934 represent CWA and FERA Expenditures. CWA data were drawn from Analysis of Civil Works Program Statistics published by the Works Progress Administration in June 1939 with certain adjustments made to exclude non-Federal contributions. The source of the FERA material was a mimeographed pamphlet issued by the Federal Emergency Relief Administration, Estimated Total Costs of Projects Conducted Under the Emergency Work Relief Program, Continental United States. Data for construction outside continental United States could not be obtained. The FERA figures were distributed over the fiscal years 1934, 1935, and 1936 in accordance with a special tabulation of earnings on FERA projects prepared by the Work Projects Administration. The 1935 figures appearing under WPA in the supporting tables represent FERA expenditures, while the

amounts given for 1936 include both WPA and FERA expenditures. All CWA, FERA, and WPA expenditures were reduced by 15 percent at the suggestion of WPA to exclude maintenance. Cumulative expenditures of \$27,786,000 for land utilization and rural rehabilitation programs administered by the Farm Security Administration could not be excluded from the WPA figures. They are not included in the Farm Security Administration totals. However, transfers to all other Federal agencies are not included under WPA. The Bureau of Public Roads (now Public Roads Administration) figures are those reported by the Department of Commerce. The project type distribution of PWA grants was estimated by applying the percentage which each project type was of the total grant allotment for each fiscal year to the grant payments made within each year. Since grant allotments by project type were not available for 1940 the 1939 percentages were applied to the 1940 grant payment data.

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3. Transportation

(in thousands)

1928	1929	1930	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940
						\$157	\$6,518	\$17,897	\$27,153	\$13,770	\$67,054	\$48,033
\$82,515	\$84,007	\$77,891	\$155,889	\$188,717	\$165,735	270,879	158,882	377,364	504,876	426,136	749,231	482,141
						223,810	281,516	220,357	346,540	230,659	193,134	167,262
82,515	84,007	77,891	155,889	188,717	165,735	494,846	448,916	625,608	878,268	670,565	1,009,419	607,456
						11	10	187	247	1,599	2,637	1,889
						513	2,965	4,263	6,027	3,533	3,376	2,277
						624	2,975	4,450	6,274	5,122	6,013	4,166
						2		21	247	177	377	270
						11,854	10,329	18,129	34,860	21,143	34,004	19,171
						11,856	10,329	18,150	35,107	21,320	34,381	19,441
								1,347	1,268	1,428	1,551	1,675
						252	2,514	13,104	12,095	18,359	34,281	24,567
								9	338	849	230	24
						252	2,514	13,113	12,433	19,208	34,561	24,581
82,515	84,007	77,891	155,889	188,717	165,735	507,478	462,734	662,668	933,340	717,673	1,085,925	747,519

4. Defense

(in thousands)

1928	1929	1930	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940
							\$5,518	\$6,544	\$16,354	\$11,556	\$34,870	\$22,042

¹ The cost of land is not included in WPA construction grants, the land being supplied by the sponsor. However, in the case of PWA, 1.4 percent of the total estimated cost of projects constructed under the PWA non-Federal program was for the purchase of the site. The RFC states that an extremely small proportion of its loans was expended for the purchase of land, in most cases the entire proceeds of the loan having been used for construction.

² Includes waterways.
³ Includes some grants for flood control.
⁴ Water power development.

⁵ The CWA reports do give a break-down of utilities grants which probably include some made for sewer and water systems.

⁶ Some expenditures for wildlife are listed for WPA in the source but since according to WPA they were not for construction they have been excluded from this tabulation.

⁷ Includes parks.

⁸ Less than 0.1 percent of total; no estimate made.

⁹ Includes bridges, tunnels, viaducts, subways, wharves, and small amount for "other" engineering structures.

¹⁰ In the source this item is described as "Federal government buildings including military and naval" mainly armories according to WPA.

¹¹ Includes improvement of grounds around public buildings.

¹² A break-down of CWA expenditures for public buildings is not available. This figure is a total which is not comparable with the amounts given for public buildings in all other years since it includes all types of buildings.

¹³ One-half the amount listed as having been spent for Sanitation and Health is considered by WPA to have been for construction.

¹⁴ CWA does not give a break-down of "Utilities." Therefore, this may include water and sewer systems which elsewhere have been classified as water use and control.

TABLE NO. 3-E.—5. Government Plant

[All figures in thousands]

Agency	1934	1935	1936	1937	1938	1939	1940
a. Public buildings:							
1. PWA.....	\$62	\$1,257	\$9,320	\$18,760	\$12,534	\$19,599	\$14,032
2. WPA ".....	122,091	17,743	29,581	39,150	27,291	32,246	22,583
Total.....	122,153	19,000	37,901	57,910	39,825	51,835	36,615
d. Welfare and health:							
1. PWA.....	127	3,666	14,768	41,716	17,301	29,383	21,048
2. WPA ".....	36,956	18,551	50,336	35,973	28,011	34,061	19,620
Total.....	37,083	22,217	65,104	77,689	45,312	63,464	40,668
f. Education:							
1. PWA.....	330	8,623	70,302	74,053	67,084	129,588	92,828
2. WPA ".....		27,300	40,202	50,312	37,352	52,324	34,555
Total.....	330	35,923	110,504	124,365	104,436	181,912	127,383
g. Housing:							
1. WPA, total.....			2,468	5,809	249	3,970	944
i. Recreation:							
1. PWA.....	7	175	1,456	2,468	3,354	3,014	2,159
2. WPA ".....	35,352	86,201	166,560	183,935	127,293	163,969	90,626
Total.....	35,359	86,376	168,016	186,403	130,647	166,983	92,785
k. Utilities:							
1. PWA.....	16	2,793	2,288	15,798	2,118	12,431	8,905
2. WPA ".....	29,208	2,188	6,126	11,160	9,801	20,748	27,099
Total.....	29,224	4,981	8,414	26,958	11,919	33,179	36,004
l. Miscellaneous:							
1. PWA.....	35	1,012	4,160	9,330	8,474	11,301	8,096
2. WPA ".....		16,879	11,731	8,781	10,353	14,277	18,535
Total.....	35	17,891	15,891	18,161	18,827	25,578	23,631
Grand total.....	224,184	186,388	408,298	497,295	851,215	526,921	368,030

See footnotes on pages 92 and 93.

TABLE NO. 3-F.—6. Miscellaneous

[All figures in thousands]

Agency	1934	1935	1936	1937	1938	1939	1940
a. PWA.....	\$66	\$978	\$8,112	\$2,962	\$1,412	\$5,274	\$3,778
b. WPA.....	33,118						
Total.....	33,204	978	8,112	2,962	1,412	5,274	3,778

TABLE NO. 4.—Summary of expenditures for Federal loans for public construction classified according to function, fiscal years 1933-40, inclusive ¹

[All figures in thousands]

Function	1933	1934	1935	1936	1937	1938	1939	1940
1. Water use and control:								
a. Flood control.....		\$797	\$1,284	\$14,493	\$896	\$668		
c. Reclamation and irrigation.....	\$1,765	4,895	7,947	1,258	3,501	1,188	\$1,409	\$736
d. Transmission and electric plant.....		8,427	8,843	38,193	9,174		11,510	3,581
e. Public water supply systems.....	10,415	28,207	41,904	45,637	44,935	31,549	22,816	14,412
f. Public sewer systems.....	136	20,615	11,301	10,467	2,192	2,172	2,375	2,623
g. Miscellaneous.....		507	2,711	1,074	510	1,571	932	1,057
Total.....	12,316	63,448	73,990	111,022	61,178	37,148	39,042	22,459
2. Public land development:								
d. Soil erosion control.....							104	117
Total.....							104	117
3. Transportation:								
a. Roads.....		2,173	11,841	1,745	408	267	11,876	31,043
c. Aids and assistance to navigation.....		797	143	268		468		
i. Miscellaneous.....	15,939	38,424	21,307	58,753	15,828	8,471	9,832	9,220
Total.....	15,939	41,394	33,291	58,766	16,236	9,206	21,708	40,263
5. Government plant:								
a. Public buildings.....		1,598	6,109	1,749	713	1,803	2,879	2,584
d. Welfare and health.....		2,680	13,696	2,818	204	134	6,734	7,632
f. Education.....		11,452	42,167	15,303	7,391	5,514	10,487	12,156
j. Recreation.....		217	856	5,602		134	259	294
k. Utilities.....		435	11,413	2,836	31,938	49,780	68,254	105,701
l. Miscellaneous.....		145	11,699	805	612	13,268	7,511	8,513
Total.....		16,527	85,940	29,013	40,858	70,133	96,124	136,890
6. Housing:								
Total.....						3,388	55,562	196,263
7. Miscellaneous:								
Total.....	840	3,652	5,243	787	153	267	10,916	42,401
Grand total.....	29,095	125,021	198,464	199,588	118,425	120,142	223,456	438,353

See footnotes on page 96.

TABLE No. 4-A.—1. Water use and control

[All figures in thousands]

Agency	1933	1934	1935	1936	1937	1938	1939	1940
a. Flood control:								
1. PWA.....		\$797	\$1,284	\$14,493	\$866	\$608		
Total.....		797	1,284	14,493	866	608		
c. Reclamation and irrigation:								
1. PWA.....		1,955	5,279	408	2,294	668	\$363	\$411
2. RFC.....	\$1,765	2,940	2,668	855	1,207	520	1,046	375
Total.....	1,765	4,895	7,947	1,263	3,501	1,188	1,409	786
d. Transmission and electric plant:								
1. PWA.....		4,490	428	27,644	9,174		3,161	3,581
2. RFC.....		3,937	8,415	10,549			8,349	
Total.....		8,427	8,843	38,193	9,174		11,510	3,581
e. Public water-supply systems:								
1. PWA.....		7,532	19,116	8,454	4,383	2,741	2,227	2,524
2. RFC.....	10,415	20,675	22,788	37,083	40,552	28,808	20,589	11,858
Total.....	10,415	28,207	41,904	45,537	44,935	31,549	22,816	14,412
f. Public sewer systems:								
1. PWA.....		19,844	11,271	10,467	2,192	2,172	2,020	2,290
2. RFC.....	136	771	30				355	333
Total.....	136	20,615	11,301	10,467	2,192	2,172	2,375	2,623
g. Miscellaneous:								
1. PWA.....		507	2,711	1,074	510	1,571	932	1,057
Total.....		507	2,711	1,074	510	1,571	932	1,057
Grant total.....	12,316	63,448	73,990	111,022	61,178	37,148	39,042	22,459

TABLE No. 4-B.—2. Public land development

[All figures in thousands]

Agency	1933	1934	1935	1936	1937	1938	1939	1940
d. Soil erosion control:								
1. PWA.....							\$104	\$117
Total.....							104	117
Grand total.....							104	117

TABLE No. 4-C.—3. Transportation

[All figures in thousands]

Agency	1933	1934	1935	1936	1937	1938	1939	1940
a. Roads:								
1. PWA.....		\$2,173	\$11,841	\$1,745	\$408	\$267	\$2,435	\$2,760
2. RFC.....							9,441	28,283
Total.....		2,173	11,841	1,745	408	267	11,876	31,043
c. Aids and assistance to navigation:								
1. PWA.....		797	143	268		468		
Total.....		797	143	268		468		
f. Miscellaneous:								
1. PWA.....		19,046	2,283	41,600	1,223	2,640	829	939
2. RFC.....	\$15,939	19,378	19,024	15,153	14,605	5,831	9,003	8,281
Total.....	15,939	38,424	21,307	56,753	15,828	8,471	9,832	9,220
Grand total.....	15,939	41,394	33,291	68,766	16,236	9,206	21,708	40,263

See footnotes on page 96.

TABLE NO. 4-D.—5. Government Plant

[All figures in thousands]

Agency	1933	1934	1935	1936	1937	1938	1939	1940
a. Public buildings:								
1. PWA.....		\$869	\$3,709	\$1,074	\$663	\$1,303	\$363	\$411
2. RFC.....		729	2,400	675	50		2,516	2,173
Total.....		1,598	6,109	1,749	713	1,303	2,879	2,584
d. Welfare and health:								
1. PWA.....		2,680	13,096	2,818	204	134	6,734	7,632
Total.....		2,680	13,096	2,818	204	134	6,734	7,632
f. Education								
1. PWA.....		10,356	41,945	15,298	7,391	5,514	8,755	9,921
2. RFC.....		1,096	222	5			1,732	2,235
Total.....		11,452	42,167	15,303	7,391	5,514	10,487	12,156
j. Recreation:								
1. PWA.....		217	856	5,502		134	250	294
Total.....		217	856	5,502		134	250	294
k. Utilities:								
1. PWA.....		435	11,413	2,013	20,906	1,604	5,957	6,752
2. REA ⁴				823	11,042	48,176	62,297	98,949
Total.....		435	11,413	2,836	31,938	49,780	68,254	105,701
l. Miscellaneous:								
1. PWA.....		145	11,609	805	612	13,268	7,511	8,513
Total.....		145	11,609	805	612	13,268	7,511	8,513
Grand total.....		16,527	85,940	29,013	40,858	70,133	96,124	136,880

TABLE NO. 4-E.—6. Housing

[All figures in thousands]

Agency	1933	1934	1935	1936	1937	1938	1939	1940
1. U. S. H. A.....						\$3,388	\$55,562	\$106,263
Total.....						3,388	55,562	106,263

TABLE NO. 4-F.—7. Miscellaneous

[All figures in thousands]

Agency	1933	1934	1935	1936	1937	1938	1939	1940
1. PWA.....		\$579	\$4,093	\$537	\$153	\$267	\$10,152	\$11,507
2. RFC.....	\$840	3,073	250	250			764	30,894
Total.....	840	3,652	5,243	787	153	267	10,916	42,401
Grand total.....	840	3,652	5,243	787	153	267	10,916	42,401

¹ Compiled from special tabulations prepared by the United States Housing Authority, Rural Electrification Administration, and Reconstruction Finance Corporation. The project type distribution of Public Works Administration loans was estimated by applying the percentage which each project type was of the total loan allotment for each fiscal year to the loan payments to public agencies within that fiscal year as recorded by the Public Works Administration. Since loan allotments by project type were not available for 1940, the 1939 percentages were applied to the 1940 loan payment data.

² Includes loans to mutual associations and cooperatives.
³ Seven-tenths of one percent of the loans for power development were made for the construction of steam and Diesel engine plants.
⁴ A minute percentage of the loans made by REA was to private utility companies, almost the entire amount having been lent to cooperatives and publicly owned utilities.

TABLE No. 5.—Summary of expenditures for Federal loans and Federal guaranties for private construction, classified according to function, fiscal years 1933-40, inclusive ¹
[All figures in thousands]

Function	1933	1934	1935	1936	1937	1938	1939	1940
1. Water use and control:								
a. Flood control.....		\$11						
c. Reclamation and irrigation.....		422	\$521					
e. Public water-supply systems.....	\$87	115	53					
g. Miscellaneous.....		427						
Total.....	87	975	574					
2. Land development:								
c. Miscellaneous.....						\$199	\$584	\$1,034
Total.....						199	584	1,034
3. Transportation:								
a. Railroads.....		74,494	101,309	\$24,077	\$1,095			
i. Miscellaneous.....	99	1,932	225					
Total.....	99	76,426	101,534	24,077	1,095			
5. General facilities:								
d. Welfare and health.....		422	6,467	113				
f. Education.....		76	1,855	6,924				
i. Miscellaneous.....	217	541	2,286	448	1,875	1,518	6,330	8,919
Total.....	217	1,039	10,598	7,485	1,875	1,518	6,330	8,919
6. Housing, total.....		5,312	23,062	197,726	399,348	427,564	675,092	706,784
7. Miscellaneous, total.....					3,512	180		
Grand total.....	403	83,752	135,758	229,288	405,830	429,461	682,006	718,737

TABLE No. 5-A.—1. Water use and control
[All figures in thousands]

Agency	1933	1934	1935	1936	1937	1938	1939	1940
a. Flood control:								
1. PWA, total.....		\$11						
c. Reclamation and irrigation:								
1. PWA.....		68						
2. RFO.....		354	\$521					
Total.....		422	521					
e. Public water-supply system:								
1. PWA.....		66	53					
2. RFO.....	\$87	49						
Total.....	87	115	53					
g. Miscellaneous:								
1. PWA, total.....		427						
Grand total.....	87	975	574					

TABLE No. 5-B.—2. Land development
[All figures in thousands]

Agency	1933	1934	1935	1936	1937	1938	1939	1940
c. Miscellaneous:								
1. Farm Security Administration.....						\$199	\$584	\$1,034
Total.....						199	584	1,034
Grand total.....						199	584	1,034

See footnotes on page 98.

TABLE NO. 5-C.—3. *Transportation*

[All figures in thousands]

Agency	1933	1934	1935	1936	1937	1938	1939	1940
A. Railroads:								
1. PWA, total.....		\$74,404	\$101,309	\$24,077	\$1,005			
f. Miscellaneous:⁴								
1. PWA.....		247						
2. RFC.....	\$99	1,685	225					
Total.....	99	1,932	225					
Grand total.....	99	76,426	101,534	24,077	1,005			

TABLE NO. 5-D.—5. *General facilities*

[All figures in thousands]

Agency	1933	1934	1935	1936	1937	1938	1939	1940
d. Welfare and health:								
1. PWA, total.....		\$422	\$6,457	\$113				
f. Education:								
1. PWA, total.....		76	1,855	6,924				
i. Miscellaneous.								
1. PWA.....		34	2,236					
2. RFC.....	\$217	507	50					
3. RFC Mortgage Co. ⁴				448	\$1,875	\$1,022	\$4,311	\$5,732
4. FSA.....					496	2,019	2,019	3,187
Total.....	217	541	2,286	448	1,875	1,518	6,330	8,919
Grand total.....	217	1,039	10,598	7,485	1,875	1,518	6,330	8,919

TABLE NO. 5-E.—6. *Housing*

[All figures in thousands]

Agency	1933	1934	1935	1936	1937	1938	1939	1940
1. PWA.....		\$697	\$7,172	\$2,243	\$285			
2. RFC.....		4,615	3,491	71	37			
3. FSA ⁴						\$561	\$2,138	\$4,137
4. FHA.....			12,389	195,412	399,026	427,003	672,954	702,647
Total.....		5,312	23,052	197,726	399,348	427,564	675,092	706,784

TABLE NO. 5-F.—7. *Miscellaneous*

[All figures in thousands]

Agency	1933	1934	1935	1936	1937	1938	1939	1940
1. PWA, total.....					\$3,512	\$180		

¹ Special tabulations were prepared by the RFC, RFC Mortgage Co., FSA, and FHA. FSA figures for 1940 were taken from a report of the U. S. Department of Agriculture, Farm Security Administration, Tenant Purchase Division entitled "Tenant Purchase Loans" Report No. 8. Certain data pertaining to the RFC was available in its quarterly reports as of June 30, 1938, and June 30, 1939. PWA loans to railroads and housing corporations are recorded figures. Other PWA loans payments were estimated by applying the percentage which each project type represented of the loan allotment in each fiscal year to the net figure remaining after deducting railroad and housing loan payments from total loan payments (private) within each fiscal year.

² If a portion of the loan was spent for the purchase of land this amount has been included. It is estimated by PWA that 1.4 percent of the total estimated cost of PWA non-Federal projects was for the purchase of land. In the case of FHA guaran-

ties because of certain compensating factors present it may be roughly estimated that the entire volume of loans insured was equivalent to the value of the improvements on the land. The mortgages insured represent about 85 percent of the total value of the property while the land amounts to about 15 percent of the total value. The RFC states that an infinitesimal proportion of its loans was expended for the purchase of land, in most cases the entire proceeds of the loan having been used for construction.

³ Terracing, conservation of various types.

⁴ Includes docks, terminals, bridges, and other structures.

⁵ Loans on income-producing business properties; includes repairs and improvements.

⁶ Loans to tenant farmers for purchase and construction under Bankhead-Jones Act.

TABLE NO. 6.—Summary of Federal expenditures, corporation outlays, grants, loans, and

[All figures

Function	1921	1922	1923	1924	1925	1926	1927
1. Water use and control:							
a. Flood Control ¹							\$11,591
b. TVA.....							2,752
c. Reclamation and irrigation.....	\$6,073	\$4,946	\$5,650	\$6,782	\$3,800	\$3,300	7,276
d. Transmission and electric plant.....							
e. Public water-supply systems.....							
f. Public sewerage systems.....							
g. Miscellaneous.....							
Total.....	6,073	4,946	5,650	6,782	3,800	3,300	21,619
2. Public land development:							
a. Parks ²							1,842
b. Forests.....	6,382	6,263	6,459	7,817	13,066	12,714	12,151
c. Wildlife.....	120	36	25	5	1	7	24
d. Soil-erosion control.....							
e. Miscellaneous.....							
Total.....	6,511	6,299	6,484	7,822	13,067	12,721	14,017
3. Transportation:							
a. Roads.....	58,677	91,653	74,959	85,647	95,337	88,480	82,975
b. Rivers and harbors ¹	58,820	43,317	51,393	75,692	79,429	60,004	51,041
c. Aids and assistance to navigation.....	808	1,185	607	786	543	997	74
d. Airports and airways.....							
e. Panama Canal.....	16,461	11,063	3,621	7,143	9,068		
f. Nicaragua Canal.....							
g. Railroads ²	11,328	4,368	4,473	3,036	2,358	1,875	2,038
h. Miscellaneous.....	2,910	1,450	604	114	824	476	1,120
Total.....	149,004	153,044	135,657	172,417	187,684	160,833	137,267
4. Defense:							
a. Navy Department.....	14,212	10,454	10,073	6,177	3,750	3,257	3,027
b. War Department.....	52,461	16,569	12,164	6,459	4,581	7,001	9,684
c. War Department—Nonmilitary.....	190						
d. Miscellaneous.....							
Total.....	66,863	27,023	22,237	12,636	8,331	10,258	12,711
5. Government plant and general facilities:							
a. Public buildings.....	9,714	5,209	3,454	2,430	2,756	1,940	8,736
b. Research facilities.....							
c. Surveys and investigations.....							
d. Welfare and health.....	285	12,054	10,291	11,611	8,091	5,981	8,976
e. Law enforcement.....	311	80	174	141	410	73	61
f. Education.....	47	528	24	3	47	150	233
g. District of Columbia.....							
h. Facilities outside continental United States.....				45	27		
i. Recreation.....							
j. Utilities.....							
k. Miscellaneous.....							
Total.....	10,357	17,961	13,943	14,250	8,331	8,144	15,006
6. Housing, total							
7. Miscellaneous, total			1,294	244	253	811	1,560
Grand total	238,808	200,273	185,274	214,151	221,465	196,156	202,180

¹ From 1921 to 1926, inclusive, expenditures for flood control are included under the item "Rivers and harbors."² From 1921 to 1926, inclusive, expenditures for the National Park Service are not listed in the Budget statement of construction expenditures.

The Program—for National Development

guaranties for new construction classified according to function, fiscal years 1921-40, inclusive

In thousands]

1928	1929	1930	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940*
\$18,271	\$25,840	\$22,805	\$35,844	\$27,996	\$35,118	\$72,184	\$35,827	\$65,119	\$51,640	\$66,177	\$76,444	\$105,749
711	530					8,020	21,179	41,665	35,545	36,538	31,543	39,136
9,534	10,618	9,398	9,442	23,877	25,832	34,675	75,117	96,524	112,935	105,345	120,164	124,828
		22	11	16	14	9,935	10,267	58,661	22,907	7,169	24,280	17,771
					10,502	28,522	59,461	82,034	89,321	71,172	85,584	57,534
					136	21,034	48,070	111,632	106,075	91,021	138,705	93,134
						952	3,060	2,322	2,238	3,513	3,192	2,676
23,516	36,283	32,225	45,297	51,688	71,602	175,220	260,971	457,757	420,661	380,935	488,912	440,830
3,416	4,149	4,077	6,252	6,913	6,537	8,675	13,826	14,536	23,190	18,023	21,158	16,072
11,001	12,462	11,097	20,641	18,117	12,799	25,399	24,816	23,034	23,894	19,878	26,542	17,524
4	19	292	463	350	158	568	843	1,995	1,987	1,490	2,747	1,068
				5	2	81,774	12,528	28,130	6,667	1,227	5,567	3,738
						321	1,862	35,146	69,553	3,581	7,810	8,969
14,421	16,630	15,466	27,356	25,385	19,496	116,737	53,875	102,843	125,291	44,199	63,824	48,401
82,515	86,000	80,874	162,608	197,059	171,352	500,773	462,853	630,094	880,702	672,803	1,023,212	730,628
58,870	57,718	47,437	53,598	55,842	49,123	79,115	133,036	152,195	147,470	99,047	76,779	61,573
290	900	876	1,488	2,955	2,644	3,811	6,379	5,710	8,439	7,405	14,645	9,260
		1,678	3,026	2,657	628	12,198	12,118	18,978	35,873	23,635	38,613	28,240
		1,418	1,280	2,220	5,276	4,582	1,956	2,478	2,520	2,223	2,457	15,700
		51	65									
957	902	866	804	199	74,864	101,665	25,886	3,400	5,791	11,307	2,033	
1,566	1,151	5,950	3,782	2,671	16,716	40,950	69,872	28,589	29,458	45,643	33,801	
144,198	146,261	139,186	226,513	264,208	245,938	715,793	742,049	905,213	1,106,993	840,263	1,212,667	881,235
4,885	7,314	8,103	12,941	13,246	12,626	14,110	13,686	14,463	19,053	14,979	48,094	81,652
6,288	13,338	11,585	25,655	29,718	13,796	35,542	34,290	17,374	23,676	34,375	61,499	72,248
	584	247	1,182	915		424	411					
						5,518	6,544	16,354	11,556	34,870	22,042	
11,173	21,236	19,935	39,778	43,879	26,422	50,076	53,895	38,381	59,083	60,910	144,463	175,942
7,194	30,785	44,294	73,002	100,621	118,177	204,399	85,163	108,678	137,217	121,055	108,220	97,278
	51	1,333	1,195	632	108	2,655	2,524	1,312	908	838	3,034	6,757
			3	3	4	778	801	253	488	2,041	1,342	230
6,609	4,608	12,817	15,369	19,237	19,856	49,582	51,458	79,937	100,433	60,837	95,297	79,803
30	183		28			1,219	117	272	99	148	105	
149	9	121	727	801	633	12,391	80,727	133,495	132,271	111,199	195,611	141,236
		7,637	10,410	12,875	7,736	4,205	8,000	12,345	6,871	7,183	20,495	19,661
		3,573	3,308	4,822	707	1,731	2,642	3,976	13,738	1,940	6,087	3,745
						35,576	87,232	173,518	186,403	130,781	167,242	93,079
						29,659	16,394	11,250	58,896	61,699	101,433	141,705
						721	31,876	17,144	20,648	33,613	39,419	41,063
13,982	35,636	69,775	104,037	138,991	147,438	342,916	366,934	542,180	657,972	531,334	738,285	624,567
						7,689	32,066	233,801	505,149	510,622	744,111	910,016
2,941	16,309					840	36,856	6,221	8,899	6,627	16,190	46,179
210,231	272,345	276,587	442,981	624,051	511,736	1,445,287	1,516,011	2,289,074	2,881,776	2,370,122	3,408,442	3,127,159

* Includes the Panama R. R. Co., which operates many enterprises in addition to the railroad, the most important being the Panama R. R. Steamship Line.

* No data available for 1940 for Inland Waterways Corporation and Panama R. R. Co.