Report on Public Aids to Transportation

P R E S S R E L E A S E

REPORT ON PUBLIC AIDS TO TRANSPORTATION

Chairman Joseph B. Eastman, of the Interstate Commerce Commission, today released a four-volume report on Public Aids to Transportation, prepared by Dr. Charles S. Morgan, former director of the Coordinator's research department and now assistant director of the Commission's Bureau of Motor Carriers, and various others.

In a foreword, Chairman Eastman calls attention to the fact that in its annual reports for the years 1931, 1932 and 1933 the Commission recommended to Congress that it provide for "an impartial and authoritative investigation" of the "subsidy" question. This recommendation was not adopted by Congress. However, the Emergency Railroad Transportation Act, 1933, conferred very broad powers of investigation in the field of transportation on the Federal Coordinator of Transportation, created under that act, and this subject was included in the research program which Commissioner Eastman, as Coordinator, adopted. At the expiration of the act, on June 16, 1936, tentative reports had largely been completed, although not all of them had been sent to interested parties for comment and criticism. There also were unfinished reports on other subjects. Such a mass of valuable information had been accumulated that it seemed

highly desirable to complete and issue all of these reports, if this could possibly be done.

Completion of this work was made possible in part by use of unexpended funds, approximately $15,000, that had been raised, under the act, by assessments on the railroads and which were voluntarily placed at the former Coordinator's disposal, and by use of personnel and supplies of the Commission. However, the reports could not have been finished except for the very large amount of uncompensated time given to them outside of business hours. Delay in publication, which some have found difficult to understand, is explained by the attention necessarily given to other duties and by the complexity of the subjects treated, the need for considering the views expressed by those who commented on the reports, and the necessity of bringing underlying data up to date, so far as possible. The last of the other reports was issued in August, 1937.

Chairman Eastman acknowledges the cooperation given by the Commission and by various Federal and State departments. He points out, however:

> The responsibility for these reports is one which I assumed as Federal Coordinator of Transportation and which I continue to assume. The Interstate Commerce Commission has no responsibility, and its members, other than myself, have no acquaintance with even the contents of the reports. The work had gone much too far, at the time the office of Coordinator terminated, to permit any transfer of responsibility to the Commission, if, indeed, that could have been done under the law, which is very doubtful.

> While, however, the responsibility for the reports is mine, the man to whom credit for them must be assigned is Dr. Charles S. Morgan. * * * All that I have supplied is counsel and advice.

Chairman Eastman then indicates the extent to which he personally accepts and endorses the results reached in the reports. He states:

> * * *By reason of my many other duties, I have not been able to give to them anything like the same intensive consideration that Dr. Morgan has given. I have, however, kept in touch with them in the course of their preparation, read them in both tentative and final forms, and considered the comments and criticisms of those to whom they were submitted in tentative form. The final drafts incorporate many changes, major and minor, which I have suggested.

He then divides the material presented in the reports between the "underlying facts", some capable of precise ascertainment or a near approach thereto, others not capable of precise ascertainment, and "the interpretation of these underlying facts and the conclusions to be drawn therefrom." As to the first, "I am convinced that everything possible with the facilities at our command has been done to ascertain them fully and accurately." He calls attention, however, to the practical necessity of resorting to some extent to approximations based on informed judgment. As to the second type of material, where "the greatest room for differences of opinion lies," the Chairman states: "I make no claim of 100 percent validity for all of the

conclusions, thus reached, that are presented in the reports. All that I can now say, subject to the comments below, is that it seems to me that they are well supported in the reports, and that I have as yet seen no criticisms which convince me that they are wrong." The matters singled out for comment are noted hereinafter.

"It is because," he adds, "of the room for bona fide differences of opinion with respect to some of these matters" that he has favored the creation of a temporary board of investigation and research, made up of three members appointed by the President, to investigate and report on the transportation subsidy question and other subjects.

> The reports herewith presented would, I am sure, be of the greatest possible aid to such a board of investigation and research, because they would eliminate the need for an enormous amount of research into underlying data, and would also present the salient questions which are involved in the interpretation of these facts and in deriving conclusions therefrom. The proposed board would, however, constitute a tribunal before which those who are disposed either to contest or to support the statement of facts and the conclusions reached in the reports could present their evidence and views at length and from which they could obtain a further adjudication. The questions involved are so large and important that they merit such further consideration.

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The titles of the four volumes and their subdivisions are as follows:

Vol. I: (Part I): General Comparative Analysis
(Part II): Public Aids to Scheduled Air Transportation.

Vol. II: Aids to Railroads and Related Subjects.
Part I: Aids to Railroads
Part II: The Taxation of Railroads
Part III: Nonproductive Expenditures of Railroads

Vol. III: Public Aids to Transportation by Water
Part I: Waterway Improvements and Related Aids.
Part II: Government Transportation Operations on Inland Waterways - An Analysis of the Inland Waterways Corporation
Part III: The Panama Canal

Vol. IV: Public Aids to Motor Vehicle Transportation - An Analysis of Highway and Street Costs and Motor Vehicle User Payments.

The reports are confined to domestic transportation.

Vol. I, part I, states the problem which has called forth the reports, indicates why the term "public aid" rather than "subsidy" has been used, sets out the methods used in ascertaining public aid, summarizes the underlying reports, analyses the effects of public aids, and discusses possible methods of dealing with the conditions created by existing public aids and of appraising transportation projects which may involve further public aid in the future.

SUMMARY OF PUBLIC AIDS GIVEN THE SEVERAL FORMS OF TRANSPORTATION 1/

(1) Railroads

The aids received by the railroads are divided between those given to secure the construction of railroads, mainly in the two decades following 1850, and those given since the World War. Consideration is also given to certain items, including various loans and adjustments incident to the return of the railroads from the hands of the Government in 1920, and the compensation paid for the transportation of the mail, which have been said by some to have involved public aid. The conclusion is reached that, with one possible minor exception, no aid was given in these instances.

The public aid found was as follows:

To secure the construction of railroads.....	$1,282,000,000
From World War to 1936.....	161,000,000
Total.....	$1,443,000,000

The most important items making up this total 2/ are Federal and State land grants ($429,000,000, after appropriate

1/ The summary presented at pages 11 to 41 of vol. I should be referred to for a more accurate and appropriately qualified statement of the findings.

2/ For details, see p. 19 of vol. I.

deductions for obligations incurred), local donations of lands ($232,000,000), rights in public domain ($118,000,000), and Reconstruction Finance Corporation loans ($115,000,000). Special approval of the treatment of land grants is given in Chairman Eastman's foreword (pp. V-VI). In deriving the amounts given in the table, various approximations and estimates were necessary, and such was also the case in the preparation of each of the other volumes, as previously noted. The report calls attention to the fact that an indeterminate amount of public aid has been conferred on the railroads in recent years by the Government's extensive program of grade-crossing work, and to the fact that the railroads are entitled to a limited amount of credit, against aids, for nonproductive expenditures incurred by them. Also assigned to the railroads is $2,850,000 as their portion, based on use, of the aid represented by waterway improvements in the single year 1936.

The aids shown include those given to all predecessors of existing railroads. The properties of these predecessors and those of existing companies have been abandoned in some instances. Aids to abandoned railroads which did not at some time become a part of an existing railroad or a predecessor are not included, but on the whole were small. Aids given for use in the construction of railroad lines but fraudulently or otherwise diverted to the uses of promoters and others also are not included.

Reduced to a "current" basis, railroad aids in 1936 amounted to $35,635,000, as set out at pp. 23-24 below.

(2) Waterway Improvements and Related Aids

To June 30, 1936, $2,917,000,000 of Federal funds had been made available for river and harbor improvements and maintenance and operation, including funds for flood control and other nonnavigation purposes. Increase in the rate of such expenditures is indicated by the fact that 77 percent of this total has been made available since 1910, 64 percent since 1920, 33 percent since 1932, and 13 percent in 1935 and 1936. Of the total, approximately $2,139,000,000 is considered attributable to navigation, divided about 71 percent for new work, 26 percent for maintenance and operation, and 3 percent for unallocated cost of construction plant. There also have been large Federal expenditures for aids to navigation and terminals, and large State and local expenditures, estimated at 1¾ billions of dollars, for canals, terminals, and other waterway improvements.

To determine the public aid in a given year or period it is necessary to convert expenditures to an "annual cost" basis. Two bases of reckoning annual costs are used, one the preferred "amortization" basis and the other the "cumulated cost" basis. The first comprises an annual depreciation or amortization charge, interest on the unamortized investment, and maintenance and other operating expenses. The latter basis is used for the less important projects and also for purposes of comparison with the

results obtained on the first basis.

The results for 1936 are given in table 3/ of vol. I for 12 more important waterways and in tables 19 and 37 for 15 additional waterways. The public aid in the case of the Mississippi River, for example, was $14,540,000 in 1936; for the Ohio it was $10,871,000. For the four waterway groups it was as follows in 1935 (Federal improvements only):

Seacoast harbors and channels	$36,663,000
Great Lakes harbors and channels	10,488,000
Mississippi River system	37,830,000
Other inland waterways	9,507,000
Total	94,488,000

The aforementioned total is about 95 percent complete. The annual cost in 1935 of all Federal waterway improvements was therefore not less than $100,000,000. Similar annual costs of State and local improvements (mainly the New York State Barge Canal and the Illinois Waterway) were about $12,500,000. To be added are the annual costs of terminal facilities provided by Federal, State and local governments, less amounts recovered in rentals or otherwise, estimated on the basis of an "informed approximation" at $32,870,000 in 1935. The total is $145,000,000, of which $129,000,000 represents the public aid to domestic transportation. The total would be higher at the present time. Of the latter sum, $2,850,000 is assigned to railroad use of waterway improvements.

In this connection, Chairman Eastman calls attention to the possibility that the proponents of the waterways will challenge these findings. The contention may be made, he states, that "against the annual costs which are incurred by the Government and directly burden the taxpayers should be offset the savings in transportation costs which are realized by the users of the waterways and also by the users of other modes of transportation which reduce their rates to meet the competition of the waterways, and that the only real burden on the country is the net amount remaining after such offsets have been made."

He briefly analyzes this position and finds in it, as does the report, a confusion of costs with benefits. He contrasts the case of the waterways, where "there is no doubt some but probably comparatively little identity of interest" between the beneficiaries and those who bear the costs, and the case of an office building, where "no direct charge is ordinarily made for the use of elevators, ..., the cost [of which] is borne by the tenants in their rentals." Here the benefits "go very largely to those who bear the costs." Whether or not, he adds, benefits received by waterway users "can properly be regarded as sufficient justification for free use of facilities constructed at public expense is wholly a question of sound public policy. The answer to this question may be in the affirmative or in the negative, but it has nothing to do with the question of what the actual costs are." Use is made of the New York State Barge Canal

to illustrate the point.

(3) Inland Waterways Corporation

In determining the amount of public aid represented by the Corporation's operations, it is necessary to appraise the results in the light of the Corporation's responsibility to the Government as the ultimate owner. However, interest also attaches to the results in the light of what would be expected of a private enterprise of like character. The first approach requires consideration (a) of costs, if any, incurred by the Corporation for which it has not properly accounted, and (b) of costs incurred by the Government for which the Corporation has been and is under no obligation to account.

Only a minor adjustment, for failure to depreciate certain fixed property, was required under the first head. The principal adjustments under the second head were the addition of interest on investment and the inclusion of municipal terminal costs, less payments made by the Corporation. Certain minor items, such as the saving accruing from use of the franking privilege, also were added.

Viewing the operation as a Government enterprise, the adjustments made produce a surplus deficit over the period 1924-1935 of $9,734,675. Use of a higher interest rate and inclusion of taxes and certain other expenses that would normally be borne by a private enterprise, produce a surplus deficit of $15,516,234. The Corporation's balance sheet at the close of 1935 showed a recorded

surplus of $369,866. If certain more debatable adjustments were made, the surplus deficits stated above would respectively become $8,945,907 and $14,727,466. Costs per ton-mile, on the basis of a private operation, averaged 5.57 mills over the period 1924-1935; the peak was 6.63 mills in 1930; subsequently, a decline to 4.67 mills in 1935 occurred. The deficit is higher at the present time.

(4) The Panama Canal

This waterway, our only important toll-bearing facility, earned net operating revenue of $128,955,793 over the period 1921 to 1936, equivalent to 1.91 percent on the investment less the amount set up in the report for depreciation and amortization. The deficit after interest at 3 percent was about $75,750,604. The so-called business enterprises in the same period earned 3.264 percent on the investment less depreciation. The Panama Rail Road and related enterprises, including the Panama Rail Road Steamship Company, similarly averaged 2.97 percent. The Steamship Company showed an operating loss.

The public aid to domestic users of the transit facilities, represented by the difference between the return earned and a 3-percent return, is placed at $665,000 for the year 1936.

(5) Shipping loans and ocean-mail contracts

Loans made to domestic and nearby foreign shipping lines under the Merchant Marine Acts of 1920 and 1928 permitted savings including savings on brokerage expense, of $3,700,000, of which

the sum of $500,000 is estimated to have been applicable to the year 1936. Also, public aid in the form of favorable mail contracts held by such carriers is estimated to have been given in the amount of $11,190,356 to the date of cancellation of all contracts on June 30, 1937. Of this amount, $1,000,000 is estimated to be assignable to the year 1936. Disposition of surplus warbuilt tonnage conferred benefits, but not public aid, on the purchasers in the amount of about $78,000,000. (See vol. III, pp. 188-192.)

(6) Motor-vehicle transportation.

About 22 billions of dollars were used for highway and street purposes from 1921 to 1932; subsequent expenditures have brought the total to 31 billions in 1937. More and more of the cost has been borne by motor-vehicle users. Opinions differ sharply, however, as to the extent to which such users should be held responsible for such costs. Quoting vol. I, p. 25:

> * * * Several suggested methods of assigning responsibility have been considered, but none is wholly satisfactory. The method adopted involves consideration of (1) the added costs incurred for the benefit of motor-vehicle users, (2) the proportion of local or "land-service" use of the different road and street systems, and (3) the extent to which roads serve community needs, narrowly defined. Historical data, a considerable volume of statistics relating to the uses made of roads and streets, and trends in expenditures over a period of years, were closely examined. It was concluded that in the period 1921-32, motor-vehicle users should have borne 80 percent of the annual costs of State highways, that their share of the responsibility for county and local

> roads rose from 15 percent in 1921 to 31.5 percent in 1932, and that 12 percent of the costs of city streets should have been charged against such users in 1921 and 28.5 percent in 1932. The weighted average responsibility over the period was 36.3 percent and in 1932, 45.0 percent. In the period from 1933 to 1937, the percentages used were 83, 34, and 30, respectively, or 48.5 percent on the average. While judgment necessarily entered into the determinations of these several percentages, it is believed that they are reasonable within the limits of error inherent in any study of this kind.

Chairman Eastman discusses, at some length, these findings of the report. The difference of opinion that now exists, as evidenced by the position of the railroads, "again involves a question of public policy." Highways "have distinct public uses apart from transportation, ... but they have also always been regarded as having a general social and economic use which cannot be characterized as a strictly transportation use. This subject is discussed at some length in the report..."

He continues:

> Because of this general social and economic use, which until recent years was predominant, the cost and upkeep of public highways were from time immemorial regarded as a proper burden upon general taxation, except for the occasional toll roads which were constructed for special transportation purposes and often were privately owned. Every one derived an immediate benefit of one kind or another from the highways, and hence they could appropriately be made a general public burden. This is well illustrated by the railroads, which made only a small direct use of the highways but

> gained a large benefit from them as feeders for the rail lines.
>
> In recent years, however, with the development of the automotive vehicle and the paved road, the highways have come to have a large use not associated with the ownership of property subject to general taxation, and often for distinctly commercial transportation purposes and as a substitute for the railroads. So far as such uses are concerned, it is both logical and appropriate that the costs incurred in the construction and maintenance of the highways should be a direct charge on the users instead of a burden on general taxation.

The Chairman then calls attention to the "public utility" theory advanced by the railroads,3/ which "however, they do not pursue....to its utmost logical conclusion," and to the differences between the percentages of motor-vehicle user responsibility assigned in the report and those urged by the railroads, which differences are fairly small in the case of State and Federal highways but large in the case of county and local roads and considerable in the case of city streets.

"This is, of course," he adds, "not a matter capable of mathematical demonstration. The report, however, gives very fully the reasons for its conclusions with respect to the division of costs between the users and the general taxpayers, and in my justment they are good and sufficient reasons."

Total annual costs, including interest on the capital outlays less the cumulated amount of amortization or depreciation,

3/ Explained and critically appraised at pp. 282, 291-297 of vol. IV.

are derived as follows:

	1921-32	1933-37
State highways	$3,999,642,000	$2,948,735,000
County and local roads	5,061,956,000	2,584,515,000
City streets	7,465,502,000	3,458,739,000
Total	16,527,100,000	8,991,989,000

Application to these total costs of the percentages given above gives the following costs assignable to motor-vehicle users as a class:

	1921-32	1933-37
State highways	$3,199,713,000	$2,447,451,000
County and local roads	1,217,320,000	878,735,000
City streets	1,577,728,000	1,037,621,000
Total	5,994,761,000	4,363,807,000

In deriving the payments made by motor-vehicle users that should be applied against these apportioned costs, Federal excise taxes on gasoline, oil, motor-vehicles, etc., are excluded as being taxes for the support of the general functions of government, as are certain portions of registration fees of the nature of personal property taxes. Motor-vehicle tax revenues which have been "legally" diverted also are excluded, though results also are shown prior to making this last adjustment. After making all necessary adjustments, payments are found to have exceeded assigned costs by $108,000,000 in 1921-1932 and by $277,000,000 in 1933-37, or by $385,000,000 in the entire period 1921-1937. Payments first exceeded assigned costs in 1927. In terms of costs

assigned to motor-vehicle users, the excesses were 0.6 percent in 1921-33 and 3.1 percent in 1933-37. These percentages are negligible and are well within the limits of error present in the basic data used and the assumptions employed. For all practical purposes, it may be said that motor-vehicle users as a class have paid their way since 1927. Caution should be observed, however, in applying this conclusion to any individual State; consideration must be given to any special condition that may obtain there.

Attention is next directed to the question whether all groups of vehicles paid their proportionate share of the costs. Analysis is necessary of the respective responsibilities of the different groups of vehicles (e.g., the passenger car and the large truck) for pavement costs (selection of pavement type, design of given types, and width and number of lanes), for costs incurred in lessening or eliminating grades and curvature, for costs of structures, and for maintenance expense, and consideration is given to the relative utilization made of road facilities by the several groups of vehicles and to other factors. After assignment of values to each of these factors, the aforementioned annual costs for 1932 and 1937 are assigned to vehicle groups and comparison made with the payments of each group. (See p. 27 of vol. I and p. 166 of vol. IV).

For the benefit of the reader, the results obtained by use of cost allocation factors different from those employed in the report also are set out. They varyingly throw the greatest

relative charges to the light vehicle, on the one hand, and the heavy vehicle, on the other. In this connection, Chairman Eastman, "speaking from the standpoint of a mere lay observer who has had some opportunity to note the demands which private automobiles make upon the highways and the standards which have been followed in the construction of some which are devoted to their use exclusively," observes that the theory advanced by the railroads under which a very heavy responsibility for road costs would be assigned to the heavier vehicles, "seems to me to be patently unsound." He calls attention to the technical questions presented and states his belief that the conclusions of the report, involving, as next noted, a partial compromise with respect to the most controversial of the cost elements, are well supported.

In presenting what is termed the "final comparison of costs and payments per vehicle," a modification is made of the method of allocating the costs of flexible pavements and grading. The effect on the final results is not large, however, though a general shifting of costs from the smaller to larger vehicles occurs. The final results for 1932 are set out below.

Table 6.- Comparison of costs per vehicle, by vehicle groups, as finally derived with payments made, 1932

Class of motor vehicle and rated capacity	Cost per vehicle	Payments per vehicle	Payments minus assignable costs
Passenger cars	$26	$26	.....
Taxicabs and other for-hire cars	61	81	$20
School busses	82	77	- 5
Contract busses (seats):			
7 and less	41	56	15
8 to 20	46	113	67
Over 20	59	178	119
Common carrier busses (seats):			
7 and less	126	143	17
8 to 20	142	290	148
Over 20	188	437	249
Trucks (capacities in tons):			
Private: Farm	20	25	5
Other private:			
1½ and less	53	48	- 5
Over 1½ and less than 3, single	67	92	25
Over 1½ and less than 3, combination	104	133	29
3 and less than 5, single	151	185	34
3 and less than 5, combination	129	206	77
5, single	287	256	- 31
5, combination	311	277	- 34
Over 5, single	316	358	42
Over 5, combination	372	457	85
For-hire:			
1½ tons and less	102	105	3
Over 1½ and less than 3, single	152	178	26
Over 1½ and less than 3, combination	157	226	69
3 and less than 5, single	251	282	31
3 and less than 5, combination	193	349	156
5, single	457	403	- 54
5, combination	457	465	8
Over 5, single	499	594	95
Over 5, combination	545	832	287

Minus sign = excess of costs over payments.

Only 5 vehicle groups did not pay their way in 1932. For 5-ton private and for-hire trucks the underpayment was $31 and $54, respectively; for 5-ton private combinations it was $34; for the school bus and 1½-ton and less private truck it was $5. These amounts are small in terms of percentage. The passenger car neither over- nor underpaid. The report calls attention to the margin of error inherent in calculations of this kind and cautions against applying the conclusions, based as they are on national conditions, to the situation in an individual State without allowance for possible differences in conditions.

No detailed findings on this modified cost basis have been made for the year 1937. In general, it may be said that the lighter trucks would be assessed less and the heavier vehicles more, and that, considering the upward trend in payments per vehicle and other changes, 1932 to 1937, there would be one or two instances of slight underpayments in the case of the larger vehicles, with no underpayments in the case of light vehicles.

Air Transportation

The public aid conferred on scheduled air carriers, determined by subtracting the cost to the carriers of transporting the mail from the payments made by the Post Office Department, was found to have been $35,236,000 in the period July, 1930, to cancellation of the contracts on July 19, 1934, and $29,418,000 from the resumption of private operations in May, 1934 to July 30,1938.

The total for the 8 years was $64,654,000. The average for the four years, 1935-38, was $7,247,000, compared with an average of about $9,700,000 per year in the period 1931-34. A much larger volume of air mail was handled in the latter than in the preceding period.

Aids through the public provision of airways, airway services and airports aggregated $55,777,000 in the period 1926 to 1938. If, however, the air-mail use of airways is not charged against the air lines, this total becomes $46,209,000.

Aids to nonscheduled uses of airways and airports, other than Government uses, aggregated $56,500,000 in the same period.

It is recognized that the problem of finding the amount of public aid received by scheduled air carriers is an especially difficult one and that the methods used and amounts derived in the accompanying report are at best only approximate. (See remarks of Chairman Eastman at p. VIII of Foreword.) The results are subject to a considerable margin of error but show the general order of magnitude.

Interurban electric railways

A brief discussion of the aids received by these carriers, but without specific findings, appears at pp. 32-33 of vol.I.

Pipe lines

Nothing significant in the way of public aid is found in the case of pipe lines. The aid represented by certain occupancies of public domain has been removed from future considera-

tion by reason of the recent assessment of charges for such occupancies (vol. I, pp. 33-34).

Nonproductive expenditures by railroads and other carriers as possible offsets to public aid.

In the case of railroads, consideration is given, among other matters, to expenditures for the elimination and protection of grade crossings, alteration of bridges over navigable waterways by order of the War Department, Federal safety regulations, and civic and other public improvements. It is concluded that the railroads are entitled to have a small part of their expenditures on safety devices considered in connection with the public aids they have received, but not as offsets to such aids; that an indeterminate part of their expenditures for changing bridges over navigable waters and for grade-crossing eliminations and protection may be offset against aids and that other elimination expenditures may be considered in connection with aids but not as offsets; that, on the other hand, Federal assumption of practically the entire responsibility for hundreds of eliminations, particularly in recent years, has conferred public aid on the railroads; that to a minor extent, there may be offsets to aids in the case of track elevation work and civic and public improvements; and that, on the evidence available, no conclusions can be drawn as to any nonproductive expenditures which may have been incurred in complying with full-crew laws.

A brief review of the possibility that other forms of transportation have incurred nonproductive expenditures leads to the conclusion that, if there have been such expenditures, they have been confined to motor transportation and that their amount is not subject to statistical measurement.

Comparison of public aids received by the several forms of transportation

The analyses of public aids in the several reports cover a greater span of years in the case of some forms of transportation than in that of others, though each covers or substantially covers the entire history of the form of transportation with which it deals (if aggregate "expenditures" on waterway improvements be considered a rough measure of the cumulated aid in this field to date). However, it is necessary, for the purposes of a current comparison of aids, to bring all of the findings to as recent a year as possible. The chief difficulty is presented by the aids given railroads. Consideration is given to the effects of the many changes in the ownership of railroads, of reorganizations, of the rebuilding of properties out of earnings, and of abandonments of rail lines. This analysis leads to the conclusion that "the net benefit now derived by the railroads as a whole from the construction aids is small and probably negligible." (vol. I, p. 40.) With respect to this conclusion, Chairman Eastman states: "The reasoning on this point is quite involved. It seems sound to me, but I have not been able to dispel some lingering doubts." The

report finds that in a current statement of public aid to railroads the principal items are the R.F.C. and P.W.A. loans, the value accruing from the use of public domain, and that part of the current aid to water transportation that can be assigned to the railroads on the basis of their use of waterway improvements.

With the foregoing adjustment in mind, the following comparison of the aids is obtained.

Agency, and form of aid	Amount	Percent
Steam railroads, 1936:		
R.F.C. and P.W.A. loans	$ 26,000,000	13.5
Use of waterway improvements	2,850,000	1.5
Use of public domain	6,785,000	3.5
Total	a/ 35,635,000	18.5
Water transportation:		
General waterway improvements, less $2,850,000 assigned to railroads, 1935	126,150,000	65.3
Loss on operations of Inland Waterways Corporation, 1935	400,000	0.2
Loss on operations of Panama Canal, 1936	665,000	0.3
Loans to and mail contracts of domestic shipping lines, 1936	500,000	0.8
Less duplication between first and second items	b/ 187,000	-
Total	128,528,000	66.6
Air transportation:		
Scheduled air transportation, 1936	14,433,000	7.2
Domestic civil air transportation other than scheduled air transportation, 1936	7,020,000	3.6
Total	21,453,000	10.8
Motor-vehicle transportation, operators of certain groups of vehicles, 1937	c/ 8,000,000	4.1
Grand total	193,616,000	100.0

a/ Less an indeterminate amount for offsetting nonproductive expenditures, plus an indeterminate amount for aid represented by Federal grade-crossing expenditures, each for the year 1936.

b/ Duplication arises from inclusion of municipal terminals used by Inland Waterways Corporation with all public terminals.

c/ This figure is based on the findings in vol. IV, p. 153, for the year 1932, on the "modified" basis; on the "unmodified" basis the total was about $40,000,000 in 1932. It somewhat overstates the amount which should be set up for 1936.

In using the foregoing comparison, consideration may properly be given to the fact that carriers by water, air and highway pay no taxes for the support of the general functions of governments on the publicly-provided facilities which they use. 4/ This fact does not have a bearing on the amount of public aid received but it does enter into the picture as a factor in the terms of competition between agencies of transportation which provide their own right-of-way facilities and those which do not. For the convenience of the reader, the amounts of such taxes, computed at 1.25 percent on the remaining unamortized costs of publicly provided facilities (or, in the case of highways and streets, the gross underpayment arising from the inclusion of taxes found for those vehicles which failed to meet assigned costs plus taxes - vol. IV, p. 154), may be set down as follows:

Waterway improvements (1935)	$20,000,000
Inland Waterways Corporation (1935)	270,000
Total, eliminating duplication	20,220,000
Air transportation:	
Scheduled air transportation, 1936	370,000
Domestic civil air transportation other than scheduled air transportation, 1936	590,000
Total	960,000
Motor-vehicle transportation, certain groups of vehicles, 1937 a/	58,000,000
Total	79,180,000

a/For motor-vehicle users as a class the tax charge in 1937 was approximately $102,685,000. If they could properly be considered in the determination of public aid, taxes would be more than offset by the adjusted overpayment of $110,722,000 shown at p. 160 of vol. IV. However, had taxes been considered in earlier years, this adjusted overpayment would be considerably reduced. The gross underpayment (vol. IV, p. 154) of certain vehicle groups that would result solely from the consideration of taxes would be approximately $58,000,000.

(Footnote continued)

EVALUATION OF EFFECTS OF PUBLIC AIDS TO TRANSPORTATION

These findings as to the relative amounts of public aid conferred on the several forms of transportation necessarily lead to comparisons and evaluations of the effects, good or otherwise, produced by the aids. To be considered first are the effects on carriers, and then those on the public.

(1) Benefits from public aids to transportation

The aids given the railroads contributed substantially to the financing of the early lines and in several instances met a large part of the cost of construction. 5/ Commissioner Eastman points out, in this connection, that the public aid given the railroads, "while it now seems comparatively small in comparison with the size of the industry, was of much greater relative magnitude at the time when it was extended." (Foreword, p. VIII.)

The R.F.C. loans in many cases conferred immediate benefits on owners of railroad securities and in various instances represented efforts to forestall receiverships. P.W.A. loans in some cases led to a reduction of fixed charges and in all cases enabled the railroads to carry forward maintenance work or acquire

(Footnote continued)

4/ An exception should be noted in the case of carriers using the Panama Canal (see vol. I, p. 24) and also a minor exception in the case of highways and streets (see footnote 69, p. 54 of vol. I). Also, it appears that certain carriers by water escape assessment of taxes on their floating equipment (vol. III, p. 167).

5/ Estimates of the relation of the aids to such costs are given in vol. I at p. 42 and in more detail in vol. II.

facilities by which they were advantaged.

Construction of railroads in undeveloped sections occurred at least 10 and possibly as much as 15 years earlier than would have been the case otherwise, though in some cases aid was given which was not needed to secure construction and in other less important though numerous instances, construction would never have occurred without public aid.

The benefits to the public, and to the granting governments as representatives of the public, which flowed from the aids given to bring the railroads into the undeveloped sections of the country unquestionably were very large. In the nature of things, nothing comparable has been accomplished by the aids given other forms of transportation. New ground can be broken only once; the opening of the West was an undertaking without parallel in our transportation history, and the encouragement of north and south rail transportation in the interior of the country had important effects on our national life.

The report sets out data relative to reductions in transportation costs and improvements in service made possible by the railroads, and as to the settlement of lands, growth of cities, rise in property values, and political unification thereby brought about.

Inland waterway improvements of the last three decades have laid the basis for a revived water transportation industry. Common carrier service on inland waterways has not produced adequate

profits. Severe competition has been experienced from the railroads and from contract and private carriers by water. Private carriage has been profitable, and the same is generally true of contract carriage, as that term is used in the trade. Generally the same is true of improvements of coastal and Great Lakes harbors and channels commonly of greater age. The railroads derive benefits from waterway improvements.

Water transportation early lost its pioneering rôle to the railroads. The rejuvenation of the inland branch of such transportation in the past few decades had for its objectives (1) the relief of other agencies of transportation believed to be unable to cope with the volume of traffic that would be available; (2) the control of the rates of these other carriers; and (3) the provision of cheaper transportation. The first objective has proved unnecessary; the second, in the form of so-called "indirect benefits", has been achieved in greater part than the third. The incidence of the benefits is traced, both in relation to the carrier, shipper and consumer, and geographically. Attention is called to the advantages derived by the large shipper and to the fact that the benefits accrue for the most part within territories in close proximity to the improvements.

While public aid is of limited extent in the highway field, the facilities that have been provided have made motor-carrier operations possible and have given the public a better service at a lower cost to it. Passenger-carrier operations show

better earning power than those of for-hire property carriers. Railroads are interested in many motor-carrier operations. For the most part, motor transportation has not played a pioneering role in the sense of opening up new territory, but it has created new travel and recreational habits, reduced sectionalism, and made an important contribution to business operations.

Scheduled air transport, brought into being largely by public aid and prior Government experimentation and operations, is now moving toward a period of some prosperity. The unique contribution of this branch of transportation, speed, is of importance to many.

No mention of the effects of public aids to electric railways and pipe lines is necessary.

All forms of transportation can contribute to the national defense.

(2) The other side of the picture.

Public aid has created many problems for carriers, shippers, and the public. Some are of historical interest only, but others are of very real importance today. The latter are mainly discussed at a later point.

The public aids given to the railroads inevitably led to an overbuilding of lines, often with disastrous effects on owners of railroad securities, with harmful effects on shippers, and at least temporarily harmful effects on owners of agricultural lands.

Financial practices which brought censure many years ago also had their basis in part in the aids given. The net result of the aids policy was, however, heavily on the credit side of the ledger.

The costs of conducting common, contract and private services, developed in ch. V of vol. III, plus the unit costs of the improvements, when compared with the costs of rail transportation, indicate that the greater number of inland waterway improvement projects entail larger, and in some cases very much larger, over-all costs than those represented by the railroad "yardstick". From a broad viewpoint, heavy expenditures have been incurred in order to provide advantages for particular sections, localities, or shippers. The use of these facilities without direct cost has set up many repercussions, felt not only by competing rail carriers but also by sections, localities, or individual shippers not able to make use of the facilities. Large shippers are best able to take advantage of the facilities. A large increase has occurred in the volume of public capital permanently removed from the assessor's reach.

In this connection, Chairman Eastman refers to the fact, mentioned by proponents of waterways, that rate cutting by competing modes of transportation lessens the traffic the waterways can command and thereby increases the over-all unit costs. He adds, however:

"Whether the railroads and other competing carriers retain the traffic at reduced rates or lose it entirely, in either event they are clearly hurt, and obviously this injury is something which must be taken into account in weighing the net public benefits. It may be conceded that the introduction of more efficient or economical means of transportation ought not to be prevented to save existing carriers from injury, for otherwise progress would be stopped. However, in determining whether a new means of transportation is actually more efficient or economical, plainly all the costs which are incurred in making it available must be taken into consideration, and not a part of them only.

"I find, I confess, some difficulty in thinking this problem through. In determining whether a new waterway should be constructed, the essential question, it seems to me, is whether, assuming no reduction in the normal rates of competitors, it would make available new means of transportation which could function, taking all costs into consideration, more economically than existing means. I realize, however, that this would often be a most difficult question to answer. So far as existing waterways are concerned, I am much inclined to the opinion that tolls of some amount should be assessed for their use, upon condition that competitors increase their rates by like amounts. I would not at the start advocate, in most instances, fully compensatory tolls, but only such as it is believed the traffic will be able to bear, leaving future policies to be determined in the light of experience."

The improvement of highway and street facilities for transportation purposes also has increased the volume of public, non-taxed capital. The finding that public aid to motor-vehicle users as a class has been absent in recent years does not necessarily provide assurance that such will be the case in the future if expenditures continue at their present rate. The accident record has been appalling and certain nuisances have been created. Far-reaching changes have been effected in marketing methods,

felt particularly by agencies which are tied to rail service. To date, the net effect of these changes has not been measured with any degree of finality.

Air transportation has not reached a size that makes it a serious "problem". Its economic strength remains to be tested. Projects which call for large additions to the aids heretofore given require careful appraisal.

Aids to electric railways and pipe lines have not presented important public problems.6/

The final chapter of vol. I, Problems Presented by Public Aids to Transportation, is divided into two parts, as indicated below.

A. PROBLEMS HAVING TO DO WITH TRANSPORTATION FACILITIES NOW AVAILABLE

Here the problems relate essentially to what can be done, considering the transportation facilities and services now available and the extent to which they are dependent on public aid, to bring about the maximum practicable degree of order in transportation and fairness in interagency competition.

There is basically a surplus of transportation facilities. When to this condition is added the fact that agencies which attempt to pay their way are forced to compete with agencies which

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6/ A summary of the benefits conferred by public aids and of "the other side of the picture" appears at pp. 53-54 of vol. I.

do not, a serious situation, most severely felt by the railroads, results. Four lines of attack are possible.

(1) Removal of aids to water and other forms of transportation

The question of tolls for the use of waterways is discussed in vol. III and at pp. 55-58 of vol. I. The arguments, pro and con, are presented and analyzed. The conclusion is reached that, while considerations of sound economics require the assessment of tolls, an effort to collect tolls sufficient to recover full costs would be self-defeating in most cases and that at best only limited collections can be made at this time. (See also quotation from foreword at p. 31, above.) Detailed study should be given the subject, however. Abandonment of waterway improvements as an alternative to the charging of tolls is an academic question.

Local sharing of the costs of waterway improvements is desirable, but there is no present likelihood that it will be carried far.

The Inland Waterways Corporation has incurred large deficits, though it has conferred benefits on shippers of a larger aggregate amount. Its competition with the railroads lacks a sound economic basis. The report on its operations has not suggested any specific course of action to be followed, but it is emphasized that the Government is losing money thereby and will indefinitely continue to do so.

Aids to air transportation have not caused much specific criticism. Aid through the air-mail contracts is declining and it is to be expected, as time goes on, that it will be removed so far as all except certain light traffic lines are concerned. Aids through public provision of airports and airways doubtless will increase. The users should bear a fair portion of the costs of the facilities and services so provided. Efforts should be made, when the air-transport industry becomes more firmly established, to require it to pay its way. Nonscheduled flying should be looked to for greater payments.

Individual States should carry forward studies of the relation of motor-vehicle payments to costs incurred in behalf of motor-vehicle users as a class and of particular groups of motor vehicle users.

(2) Lightening the burden of the railroads.

In view of the conclusions reached above, attention may more appropriately be given to three forms of relief sought by the railroads. These proposals do not, however, have their basis solel in the aids given to competitors. Moreover, there should be a determination of the public's interest in the railroads and of the extent to which railroad plant no longer is required in the service of the public.

(a) Lightening the tax burden of the railroads.

The extended discussion of the taxation of railroads in part II of vol. II leads, among other things, to the conclusion

that, while the railroads are not the most heavily taxed of the industries reviewed, they are taxed somewhat above the average. Relief for the railroads, beyond that given them under depression conditions, is mainly a matter for State and local units of governments to consider. Taxation by the latter, almost wholly in the form of ad valorem taxes, is of such a nature that relatively little can be expected except as issues are made of particular situations under the customary tenets of taxation and accepted administrative and legal procedures. Federal intervention could not proceed far without a constitutional amendment that would permit a high degree of Federal supervision over, or direct participation in, State and local finance. Simplification of taxing procedures is needed; Federal authorities could aid in such work. Federal taxes, not a large part of the total paid by railroads, have not created a general problem, though certain special taxes have caused difficulties and remedial measures have been taken by Congress.

Chairman Eastman (Foreword, p. VI) has indicated, that, while the reasoning seems sound, he has "some lingering doubts" about the conclusion that relatively little can be done by the Federal Government to help the railroads with their tax problems. "Difficult legal and constitutional questions are here involved, which I have not thoroughly explored."

(b) Relief of railroads from the burden of nonproductive expenditures

Expenditures for the reconstruction of railroad bridges in connection with navigation improvements are considered nonproductive in part by the railroads. Fear is expressed as to the consequences of further expenditures of this kind which seem in prospect. Changed conditions in transportation indicate that the Government might well modify its doctrine that the railroads must assume the entire risk that waterway improvements requiring alteration of bridges will be made, and adopt a rule that the railroads should pay only in proportion to the benefits they will derive in given instances.

The marked increase in the use of motor vehicles has caused a gradual change over a period of years in the conception of how the responsibility for the elimination of grade crossings should be assigned. Court decisions, greatly enlarged Federal expenditures for this purpose, and recent State legislation are expressions of this change. Large further expenditures are required. Costs should be apportioned according to the benefits respectively to be realized by the railroads, the Federal Government, State and local governments, communities and individual property owners.

The terms of responsibility differ somewhat in the case of crossing protection and track elevation or depression. Determination of the railroads' share of expenditures of the latter type and of those for civic and public improvements is primarily

a subject for negotiation with local units of government. No definite findings are made with respect to the economic effects of full-crew laws.

(c) Relief for railroads through repeal of reduced-rate provisions of land-grant acts

With certain exceptions, the land-grant acts set up a contractual requirement that the railroads carry the mail and Government troops and property at reduced rates, so far as transportation occurs over the specific lines that were aided. However, equalization for competitive reasons by other carriers has spread the influence of this requirement over large areas. The volume of Government traffic has increased beyond expectations and the effects of further increases are feared by the railroads. Relief of the railroads from their contractual obligation would be a gratuity and at best would not be of important benefit except over a long period of years. Loss of traffic to other forms of transportation is to be expected in some cases if the change is made. The Government has obtained substantial direct benefits in this way over a period of about 85 years; indirect benefits conferred through the land grants have been far in excess of the aid given, as measured in this report. The railroads urge that the Government can afford to be generous under these circumstances and that they need whatever financial relief can be afforded now or in the future. Approval of the proposed repeal has been given by representatives of shippers. The report, considering all of the factors involved, concludes that repeal would be in the public interest. It also discusses the questions

of equity involved with respect to permitting lands to pass under claims which still are unadjusted and as to the relinquishment of left-over lands, in the event the Government abandons its contractual rights.

(3) Railroad use of facilities provided through public aid

Another possible way of lessening the present differences in the competitive status of the railroads and other carriers would be to enable the railroads to make use or greater use of the facilities whose cost is borne in whole or part by the public.

Railroads now make extensive use of harbor and channel improvements, are engaged directly or indirectly in motor carrier operations, and have certain minor interests in air transportation. The Panama Canal Act of 1912, the Denison Act of 1928, the Motor Carrier Act, 1935, and the Civil Aeronautics Act of 1936 set up prohibitions or restrictions on rail entrance into other fields of transportation. No modification of present policies or of procedures which enable administrative agencies to apply the announced policies of Congress to specific situations is indicated as required in the public interest.

(4) A program of public aids for railroads

In view of the findings summarized above as to tolls, nonproductive expenditures, taxes, and railroad use of publicly provided facilities, it is appropriate to consider the possibility of directly aiding the railroads, whether to compensate for differences in the aids they currently receive and those given their

competitors ("compensatory aid", estimated at about $150,000,000 a year) or as a means of relieving distress, whatever its cause. Proposals have been made looking to Government assumption of a part of roadway and structure costs and to other direct aids. The railroads, while receptive to further Government loans on more liberal terms, are definitely opposed to direct aid, fearing that it might lessen their stewardship and their opportunity to press for removal of aids to their competitors. Congress has shown no substantial interest in such a program. At this time, the proposals made have served mainly to reveal the severity of the impact on the railroads of aid to competitors, of depression, and of the basic decline in the rate of increase in the demand for transportation in general.

B. CONSIDERATIONS AND PROCEDURES WITH RESPECT TO ADDING TO TRANSPORTATION FACILITIES

The analyses presented in the underlying reports have shown that the facilities provided with public aid have conferred little public benefit in certain instances, have added to an existing surplus of facilities, have set up repercussions felt in many parts of the transportation structure, and created a demand for further public aids to offset the effects of those already given. The conditions of uneconomic competition which such aids have created appear likely to be perpetuated. Under these circumstances, it is appropriate to offer some suggestions as to lines of approach to thoroughgoing appraisals of the merits

of specific projects as they are pressed for consideration in the future.

A survey of probable expenditures for additional investments in transportation facilities indicates that they may considerably exceed 6 billions of dollars by 1950. On the other hand and barring relatively limited points or sections, underutilization of existing facilities is chronic. Obsolete and duplicated facilities contribute to this surplus.

The report next turns to planning in transportation, defined as "a deliberate, calculated effort to measure future transportation needs and, considering the capabilities of facilities in use, to choose that means which, in the public interest, will meet these needs in the most economical and efficient manner." Planning in this sense has been of limited extent, partly by reason of the age of certain facilities, the pressures which have produced others, the multiplicity of agencies providing facilities in still others, and of rapid technologic changes in some cases. The Government itself has contributed perhaps the most disturbing of the unplanned elements.

Planning should be as broad as the forces which produce the problems to be coped with. For all problems advisory Federal participation is desirable; for some problems active Federal participation is essential. Coordination of Federal, regional, State and local planning activities is exceedingly difficult, for the reason, among others, that States and their subdivisions frustrate sound planning by their individual and collective efforts

to secure Federal funds for purposes which are basically inconsistent with planning objectives.

Whether or not formal "planning" will be possible, it is essential that there be at least continuing studies of trends in transportation and of the factors which explain them, and that efforts be made to set up standards and objectives by which the merits of given projects can be appraised. Regulation can do much toward bringing about the objectives envisioned by planners; on the other hand, it can frustrate planning objectives.

Suggestions as to methods and criteria to be used in appraising proposals for additions to transportation capacity

These suggestions embrace the following:

(a) Need for definite, searching statements of the objectives to be served by given projects.

(b) Determination of whether the objectives are in the public interest.

(c) Determination of whether the objectives will be realized:

(1) Has there been adequate exploration of the physical features of the plan?

(2) Have the costs, however they are to be borne, been estimated as accurately as possible? Here a distinction is drawn between the criterion of "private costs", essential for planning in a competitive economy, and that of "Government costs", of interest after a project has been authorized. Costs of carrier service must also be estimated.

(3) Will the costs be lower than those of existing agencies of transportation?

Attention is especially called to the appraisal technique developed in chaps. III-VI of the volume on water transportation.

(4) Will the benefits be realized? Projects which have not fallen by the wayside as the result of testing of the kinds indicated above need final testing of this nature. Two conditions are assumed: (1) That the user will pay for the facilities placed at his disposal. Consideration is here given, among other things, to the economic strength of the various branches of transportation, as indicated by trends in their traffic, ability to pay for existing facilities, and, in the highway field, to the future course of motor-vehicle registrations. It is concluded that "if the worthwhileness of future improvements were to be subjected to testing on strictly economic grounds, extremely few waterway improvements would be justified and proposals for further public expenditures to add to air and highway facilities would require most critical examination." (2) The other condition is that in which the user is not expected to pay. Here the only test is the extent of the use, which in turn depends on the advantages offered and the extent of the potentially available traffic. There have been many disappointments in the past, accounted for in part by reductions of the rates of competing forms of transportation. This condition leads to efforts to justify projects on the ground that they will confer indirect benefits of this kind. The lack of definite data to serve as elements of a forecast of what will transpire has permitted uneconomic projects to escape rigorous testing. It is observed, incidentally, that the proposal, sometimes made, for paying the railroads in order that they may reduce their rates in an amount equal to the savings expected to accrue from a given project lacks practicability.

The need for an independent review agency, acting as an arm of the appropriating branch

of the Government, to be informed on trends in transportation and to report on any project before its approval or disapproval, is stressed. Such an agency would also serve as a means of contact with the States on problems of joint interest and would tend to encourage the establishment of similar agencies in the States.

Other considerations bearing on the further addition of transportation capacity are as follows:

(a) The general sources from which a desire or need for additional transportation facilities may come. These sources are found to be (1) changes in technology, which set up the least disputable claim for favorable public consideration; (2) the rate of growth of population, the reduction in which has caused a basic change in the outlook for transportation, and changes in the economic character and geographic situs of production ("decentralization of industry"), all of which bear on the future demand for transportation service in the aggregate; and (3) a desire to gain competitive advantage.

(b) Trends in expenditures for transportation, which have been estimated roughly to have grown to nearly a third of the national income of a recent year, including, of course, passenger car use; and

(c) The financial condition and requirements of governments in the decade ahead, with indication of the burden of present indebtedness and its bearing on ability to pay for additional transportation facilities,

Mention also is made of the problem of finding sound bases for the distribution between strata of governments of costs other than those assigned to the users of given facilities. Federal grants in aid, $8,000,000 in 1912, aggregated (aside from emergency relief grants) $335,000,000 in 1937. Consideration of principles to govern such distributions dates from at

least the report of the Inland Waterways Commission (1908); certain efforts toward defining such principles have been made in recent years, but without any marked degree of success. Exclusive Federal responsibility for the development of airways is indicated; on the other hand, local participation in the provision of airports is appropriate. Local cooperation has occurred in the case of waterway improvements and through the provision of terminals, but greater cooperation, with proper consideration of benefits conferred, is essential. Federal participation in primary road construction on a 50-50 basis (up to a defined maximum expenditure per mile) is of long standing. Like sharing of the cost of improving secondary roads may not be appropriate. States and their subdivisions also have perplexing questions respecting the sharing of costs. There is need here for defining the interest of a given State in its different road systems, of setting up the definite objectives which road grants are to serve, and of defining the limits of motor-vehicle user responsibility. In both the Federal and State field there is need for case studies, which may in turn lead to generalizations as to the relative responsibilities of different strata of government for given types of expenditures. Percentages so derived would be useful guides for the future, but they could be applied in particular instances only after careful consideration of all factors there involved.

The general report concludes with an economic analysis of proposed superhighways, of the so-called "master plan for free highway development", and of a proposal for a national system of airports. These analyses are made in an effort to apply, concretely, the methods of appraisal hereinbefore outlined.

The several reports contain much statistical and other material of value in studies dealing with many aspects of transportation. Each has a bibliography and index.

The four volumes may be obtained from the Superintendent of Documents, Washington, D. C., for $2.40 per set (paper covers). Individual volumes will not be sold.