Senator Kilgore -105

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INVESTIGATION OF THE NATIONAL DEFENSE PROGRAM

ADDITIONAL REPORT

OF THE

SPECIAL COMMITTEE INVESTIGATING THE NATIONAL DEFENSE PROGRAM

PURSUANT TO

S. Res. 71

(77th Congress, and S. Res. 6, 78th Congress)

RESOLUTIONS AUTHORIZING AND DIRECTING AN INVESTIGATION OF THE NATIONAL DEFENSE PROGRAM

TRANSPORTATION

——————— 1943.—Ordered to be printed

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SPECIAL COMMITTEE TO INVESTIGATE THE NATIONAL DEFENSE PROGRAM

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INVESTIGATION OF THE NATIONAL DEFENSE PROGRAM

, 1943.—Ordered to be printed

Mr. ------, from the Special Committee to Investigate the National Defense Program, submitted the following

ADDITIONAL REPORT

[Pursuant to S. Res. 71, 77th Cong., and S. Res. 6, 78th Cong.]

TRANSPORTATION

The importance of transportation, as a war activity, has not been adequately recognized. The movement of the things we produce to the point where we use them, while possibly less spectacular, is no less vital than either the function of production or consumption. Transportation of goods and persons is required during every stage of development and processing of military articles and essential civilian products from the raw materials in the ground through manufacturing and distributing facilities to their destination of final use.

At the beginning of the war, the United States had the finest transportation system in the world. It consisted of a vast and intricate maze of railroads, air lines, highways for trucks and busses, water routes for barges and ships, and pipe lines for gas and petroleum products. Like the arteries and veins of the human circulatory system, our transportation facilities supplied and controlled our every activity. They have contributed to the development of a standard of living and comfort not elsewhere equally enjoyed. At the same time, they have become so woven into our national life that we are dependent upon them, not only for our comforts, but our productive effort. A break-down, or even a diminution in transportation service, would have incalculable repercussions on our war effort.

We, in America, took the availability of efficient transportation as a matter of course. Most of us did not realize its importance, until it was rudely brought home to us by the changes which had to be made in our daily lives, as a result of the interruption of our coastwise and intercoastal traffic. When our oil tankers were sunk by submarines or diverted to direct military service, gasoline had to be rationed in the East, disrupting automobile transportation, and we suffered from shortages of fuel oil for heating and power. We hastily devised an expensive and makeshift partial substitute by shifting the bulk of our railroad tank cars to the East and reversing some of

our pipe lines. Similarly, needs for supply to the Pacific front required a westward movement of traffic on western railroads, where facilities were designed mainly for a heavy eastward movement. Congestions resulted.

These effects, though extensive, were small in comparison to those which would have resulted if our entire inland transportation system had been subject to enemy attack. Freedom from such attack, coupled with the excellence of our transportation system, made it possible for us to superimpose on normal traffic the tremendous transportation burdens incident to the construction of Army and Navy installations, new mines, mills, and factories; and the carrying out of a huge military production program, without a break-down. Our attention was properly concentrated on creating new facilities for war production because they had a direct and more apparent importance to the war effort. We hoped that the transportation system would somehow succeed in carrying both the peacetime and the wartime load, and we sharply reduced the established programs of the transportation systems for obtaining new equipment.

WARTIME INCREASE IN VOLUME OF TRAFFIC

Management and labor deserve commendation for the record they have achieved in stretching our transportation facilities to meet the increased load. The volume of traffic handled has exceeded anything thought possible before the war.

The following tables indicate the increase in freight and passenger traffic in all forms of transportation and the percentage of the burden carried by each during the 5 years from 1939 to 1943, inclusive:

TABLE A.—*Ton-mile volume of intercity traffic, public and private, by kinds of transportation, 1939–43* [1]

[Amounts in millions of ton-miles]

Kind of transportation	Year 1939	Year 1940		Year 1941		Year 1942		Year 1943	
		Amount	Percent increase over 1939	Amount	Percent increase over 1940	Amount	Percent increase over 1941	Amount	Percent increase over 1942
Railways, steam, and electric	336,100	379,161	12.8	481,748	27.1	645,260	33.9	732,000	13.4
Highways:									
For hire trucks	[2] 19,737	[2] 23,410	18.6	[3] 28,561	22.0	[3] 28,618	0.2	29,000	1.3
Private trucks	[2] 23,263	[2] 27,593	18.6	[3] 28,562	3.5	[3] 21,589	[4] 24.4	18,000	[4] 16.6
Total highways	43,000	51,003	18.6	57,123	12.0	50,207	[4] 12.1	47,000	[4] 6.4
Inland waterways	96,249	118,057	22.7	140,454	19.0	148,565	5.8	140,000	[4] 5.8
Pipe lines	63,107	67,270	6.6	77,818	15.7	84,480	8.6	100,000	18.4
Air carriers	11	14	27.3	16	14.3	26	62.5	40	53.8
Total	538,467	615,505	14.3	757,159	23.0	928,538	22.6	1,019,040	9.7

[1] Statistics for 1939–42 prepared from information furnished by the Interstate Commerce Commission. Estimates for 1943 prepared by Bureau of Railway Economics, Association of American Railroads.

[2] Proportions of 45.9 percent and 54.1 percent, respectively, based on H. Doc. No. 354, 77th Cong., 1st sess., Federal Regulation of the Sizes and Weight of Motor Vehicles, p. 446.

[3] Estimated on shift in proportions of common and contract carrier truck and tractor-miles operated reported to Interstate Commerce Commission.

[4] Decrease.

TABLE B.—*Proportions (percent) of total ton-mile volume of intercity traffic, public and private, by kinds of transportation, 1939–43*

Kind of transportation	1939	1940	1941	1942	1943
Railways, steam and electric	62.4	61.6	63.6	69.5	71.8
Highways:					
For hire trucks	3.7	3.8	3.7	3.1	2.8
Private trucks	4.3	4.5	3.8	2.3	1.8
Total highways	8.0	8.3	7.5	5.4	4.6
Inland waterways	17.9	19.2	18.6	16.0	13.8
Pipe lines	11.7	10.9	10.3	9.1	9.8
Air carriers	(1)	(1)	(1)	(1)	(1)
Total	100.0	100.0	100.0	100.0	100.0

[1] Less than 0.1 percent.

TABLE C.—*Passenger-mile volume of intercity traffic, public and private, by kinds of transportation, 1939–43* [1]

[Amounts in millions of passenger-miles]

Kind of transportation	Year 1939	Year 1940		Year 1941		Year 1942		Year 1943	
		Amount	Percent increase over 1939	Amount	Percent increase over 1940	Amount	Percent increase over 1941	Amount	Percent increase over 1942
Railway, steam and electric	23,669	24,766	4.6	30,583	23.5	55,073	80.1	87,000	58.0
Highways:									
Busses	11,198	11,613	3.7	13,646	17.5	23,253	70.4	30,000	29.0
Automobiles	234,693	245,751	4.7	264,316	7.6	199,635	[2] 24.5	160,000	[2] 19.9
Total highways	245,891	257,364	4.7	277,962	8.0	222,888	[2] 19.8	190,000	[2] 14.8
Inland waterways	1,486	1,317	[2] 11.4	1,821	38.3	1,860	2.1	1,900	2.2
Air carriers	678	1,041	53.5	1,370	31.6	1,398	2.0	1,470	5.2
Total	271,724	284,488	4.7	311,736	9.6	281,219	[2] 9.8	280,370	[2] 0.3

[1] Statistics for 1939 to 1942 prepared from information furnished by the Interstate Commerce Commission. Estimates for 1943 prepared by Bureau of Railway Economics, Association of American Railroads.
[2] Decrease.

TABLE D.—*Proportions (percent) of total passenger-mile volume of intercity traffic, public and private, by kinds of transportation, 1939–43*

Kind of transportation	1939	1940	1941	1942	1943
Railways, steam and electric	8.7	8.7	9.8	19.6	31.0
Highways:					
Buses	4.1	4.1	4.4	8.3	10.7
Automobiles	86.4	86.4	84.8	70.9	57.1
Total highways	90.5	90.5	89.2	79.2	67.8
Inland waterways	.5	.4	.6	.7	.7
Air carriers	.3	.4	.4	.5	.5
Total	100.0	100.0	100.0	100.0	100.0

TRAFFIC FORECASTS FOR 1944

Forecasts of the volume of freight and passenger traffic which will have to be handled in 1944 indicate a still further increase over 1943. In many cases, the volume estimated is determined not by the demand but by the estimated limit of capacity. Fortunately, this is not the case with respect to railroad freight traffic.

FREIGHT TRAFFIC FORECASTS

Rail revenue ton-miles for 1943 are now estimated, on the basis of 11 months' operating experience, to be between 13 and 14 percent above 1942, or approximately 732 billion ton-miles. The year 1944 is expected to exceed 1943 by from 2 to 5 percent which would mean between 750 billion and 770 billion ton-miles to be handled by railroads in 1944.

It is estimated that the 1943 traffic handled by intercity trucks will be around 47 billion ton-miles, and the estimates for 1944 forecast no increase. This is not because there will not be an increased demand for truck hauling in 1944, but because it is now estimated that the capacity of the trucking industry will decrease, if anything, because very little new equipment will be available to truck operators during 1944 and present equipment is getting older and, therefore, less serviceable. In the past 2 years, the volume handled by trucks has been going down steadily.

The volume estimated to be carried by the pipe lines in the summer of 1944, as compared with the summer of 1943, indicates an increase of approximately 160 percent of deliveries of oil into district I. This, of course, is likewise based upon the capacity rather than demand. Pipe lines will still have to be supplemented by tank cars, barges, and tank ships.

Although, in terms of ton-miles, air express is a relatively insignificant portion of the freight burden, it should also be noted that, unless the air lines are given additional equipment, it will be impossible for them to carry any substantially increased volume in 1944. Here again, the estimate of volume of demand forms no basis for the forecast of traffic to be handled, since the capacity has already been reached. In fact, an increased volume of freight would have been shipped by air in 1943 if there had been capacity to carry it. Air freight is regulated under priorities.

PASSENGER TRAFFIC FORECAST

It now appears that in 1943 the rail passenger-mile increase will be approximately 58 percent over 1942. Forecasts indicate a further increase of 15 percent in railroad and bus passenger traffic in 1944, as compared with 1943, and this volume is based, not upon the anticipated demand for such traffic, but rather upon the capacity of the railroads and busses to handle it.

The forecast for air passenger travel for 1944, as compared with 1943, indicates a possible increase of 5 or 6 percent, based on the present number of planes. It measures not the demand for this form of travel but the capacity of the air lines to serve it. It is also based upon the assumption that the bulk of this additional percentage will be handled at the off-peak seasons of the year.

THE RECORD ACHIEVED

The factors which explain the record which has been achieved include:

(1) Our transportation system is the best in the world and was developed through competition to furnish excellent service.

(2) We entered the war with a substantial surplus of reserve capacity in the form of equipment which was in need of repairs and equipment which had been retained to carry seasonal peak loads and to serve as a standby.

(3) The managements of companies engaged in transportation have constantly had in mind the experience of the last war when serious congestions of traffic and break-downs in transportation resulted in Government operation. Such experience enabled them to take promptly a number of steps which increased the efficiency of transportation operations.

(4) Cooperation by shippers and transportation companies, the suspension of some competitive practices and the establishment of more centralized control resulted in a more effective use of existing facilities with the same result as if more equipment had been added.

THE PROBLEM

Despite the splendid job which has been done in conserving and utilizing our existing transportation facilities, we must recognize that the transportation system has always required extensive and regular replacements. Any policy which fails to provide for maintenance of transport capacity in excess of anticipated demands is short-sighted and invites disaster. If we permit our transportation facilities, for any substantial period of time, to be exceeded by transportation needs, we are face to face with congestion and break-down. In such a case, our only recourse would be for the Government to take over the transportation systems or the establishment of a priority system, of both. The experience of the last war should be forever before us. Government operation leaves much to be desired. Shackling transportation by rationing and priorities would also be unsatisfactory. The flow of traffic must remain free and rapid if we are to increase, or even maintain, our production and combat tempo. Any other course means the postponement of victory and the increased expenditure of lives and material. A margin of safety in reserve capacity over any foreseeable demand must always be maintained. Transportation is so vital and a break-down would be so disastrous that we cannot afford to run the risk of even approaching the breaking point.

The transportation burden is increasing. Equipment is wearing out. Manpower is growing scarcer. Good as our transportation system is, it is folly to assume that there is no limit to the strain it can withstand. An indication of the seriousness of the situation lies in the fact that experts in forecasting the 1944 transportation burden have based their figures, not upon estimated demand, but upon estimated maximum capacity as to the following: Air transport, trucking, rail-passenger traffic, and pipe lines.

If we act now, an impending crisis may be avoided by means much more satisfactory than any measures which could be taken once the crisis is actually upon us. Essentially, this means that we must either reduce the burdens upon our transportation system or provide new equipment, or adopt a combination of both.

The Office of Defense Transportation, the various transportation systems and the individual shippers have placed in effect many measures to increase the efficiency of the transportation system. Such steps have had substantial results which are subsequently discussed in

greater detail. More progress can and must be made along these lines, but the savings to be made, although substantial and most necessary, are limited. We must recognize that the transportation system must be given sufficient new equipment to insure that it will be able to meet the tasks assigned to it.

Plans for providing new equipment must be made long before it is to go into actual use. This is particularly true because of the time lag that necessarily exists between the date of the decision to procure new transportation equipment and the date when such equipment can be manufactured and delivered for use. Normally, the time required varies from at least 6 months to more than a year. In wartime, the time required is greater because of the other urgent demands on the same production facilities, because of the shortage of manpower, and because of the delay incident to obtaining decisions and action by the numerous government agencies involved.

RAILROADS

Shortly after Pearl Harbor, Dr. Goebbels, Germany's propaganda minister, predicted that the shortage of railroad equipment with which the United States was entering the war would prevent any effective defense effort on the part of the United States and that when the country was faced with such new problems as the paralysis of coastwise shipping and shortages of tires and gasoline, the lack of railroad equipment would prove an insuperable handicap. Transportation—and particularly railroad transportation—declared Dr. Goebbels confidently, would prove the Achilles' heel of the American production effort.

By repairing and using all equipment to the limit of capacity and by improved operating efficiency, the railroads in 1942 handled over twice the freight and three and one-half times the passenger traffic carried in 1939 with 501 (1 percent) fewer locomotives, only 93,216 (5½ percent) more freight cars and 531 (1⅓ percent) fewer passenger cars.

This is a remarkable record, but the increased velocity and the heavier loads by which this record has been made, together with shortages of essential materials and experienced employees, are tending to wear out the equipment faster than replacements are being provided. The pace cannot be maintained for long without new equipment.

It is obvious that Herr Goebbels' prediction has been disproved, but at the same time, shortages in necessary railroad locomotives, cars, and other facilities are most definitely a limiting factor upon the Nation's war effort. This is particularly true because the increased load of traffic in the war years has fallen most heavily upon the railroads.

MATERIAL AND EQUIPMENT

The railroads have received during 1942, and will receive during 1943, only a part of the equipment which they estimated they would require. The Association of American Railroads has furnished the

following comparison of requests and deliveries of the three principal items covering class I railroads only:

	1942		1943 (estimated)	
	Requested	Delivered	Requested	Delivered
Locomotives	1,436	689	[1] 878	620
Freight cars	113,000	62,378	[1] 80,000	27,360
Rail (net tons)	1,600,000	1,260,000	[2] 2,100,000	1,500,000
Maintenance material, other than rail, has been adequate.				

[1] Based on Oct. 1, 1942, to Oct. 1, 1943.
[2] Reduced by Office of Defense Transportation to 1,800,000.

This presents a dangerous situation, and steps should be taken now to remedy it. The committee has been assured that this will be done.

Locomotives.

The shortage of locomotives is one of the most serious limiting factors on railroad traffic. Although 937 locomotives were on order by class I railroads on June 1, 1943, and required this year, a failure to deliver needed material has resulted in a production far below that scheduled. War Production Board priority ratings were such that locomotive manufacturers could not receive the necessary materials at the times and in the quantities required to maintain scheduled production. The figures for locomotives scheduled and produced are significant:

Locomotives scheduled and actual production—1943

	January	February	March	April	May	June	July	August	September	October	Total
Scheduled	63	62	58	65	67	64	72	86	96	91	724
Produced	49	56	60	51	37	61	55	74	81	91	615
Shortage											109

The number of locomotives on order, installed, and retired by months from January 1939 to November 1943 are set forth in appendix I.

Locomotive production was impeded by lack of a clear understanding as to which Government agency had the responsibility for expediting the production program which had been approved. Confusion existed between April 3, 1943, when the War Production Board took the position that the Office of Defense Transportation was the Government agency responsible for obtaining delivery on equipment, and August 9, 1943, when the War Production Board advised the Office of Defense Transportation that such responsibility rested with the Transportation Equipment Division of the War Production Board. Since that time, steps have been taken by the War Production Board designed to expedite the production of locomotives. In October, the full amount scheduled was produced. Recently, the priority rating

was upgraded so that locomotives for domestic use are now equal to the military priority. Progress is now being made, but the delay resulting from the confusion has been detrimental to the equipment program.

The manufacturers of locomotives are engaged in many other war activities, and are also producing a great many locomotives for lend-lease and for the use of our forces abroad. However, the need for some of the war materials produced by locomotive manufacturers, particularly tanks, is now very much reduced, and the need of our railroads for locomotives has increased. The committee has followed locomotive production closely during the last 6 months. Until recently, shortages in alloy steels have prevented the construction of locomotives as good as peacetime practices would otherwise permit. These restrictions now, however, have been entirely removed by the War Production Board. The committee recommends that immediate attention be given to increasing the production of locomotives required for our domestic railroad systems.

Freight cars.

The 74,000 freight cars authorized since January 1, 1942, for delivery prior to December 31, 1943, together with the 16,377 cars for which material is provided in the last half of 1943, many of which will not be completed until early in 1944, making a total of 90,377 cars, are equal to only about 5 percent of the cars now in operation. Total production from January 1, 1942, to October 1, 1943, has been 83,694. The following numbers of freight cars are now authorized for production in addition to the 1943 program:

First quarter, 1944	10, 282
Second quarter, 1944	10, 150
Third quarter, 1944	6, 704
Fourth quarter, 1944	2, 140
First quarter, 1945	1, 140

In 1942, we had 586,000 fewer freight cars than we had in 1918, although the average capacity per car has increased from 41.6 tons to 50.6 tons. Nearly one-third of the available freight cars have been in use for more than 25 years, and about two-thirds are over 15 years old, as shown by the following age categories:

Age:	*Number of freight cars in service*
1 to 5 years old	227, 069
6 to 10 years old	142, 138
11 to 15 years old	197, 428
16 to 20 years old	434, 262
21 to 25 years old	204, 623
Over 25 years old	536, 802
Total	1, 742, 322

The amount of time required for freight-car repairs increases with age. Older equipment requires more repair materials and manpower. If we expect to maintain present operating efficiency, replacement of much of this older equipment will be necessary.

When a railroad requires new cars, it usually has to finance them by obtaining the consent of the Interstate Commerce Commission to issue

equipment trust obligations for the particular type of cars needed. Then, it issues and sells the obligations and orders the new equipment specified in the trust obligations. The contracting car builders then purchase the specified materials and construct the equipment. The railroads had such outstanding orders for approximately 68,300 freight cars (over $200,000,000 worth of equipment) on the 4th day of April 1942. Late that Saturday afternoon, without previous notice, the War Production Board issued its order L–97a stopping construction of freight cars, except as thereafter authorized by the War Production Board. Continuation of production was permitted as to certain of the cars then on order, viz. 19,000 cars remaining unbuilt out of the 36,000-car program authorized January 1, 1942. As to the remainder of the cars on order April 4, 1942, this stop order presented the railroads with a serious problem.

Several hundred carloads of material were in transit. Millions of dollars had been borrowed on the trust obligations. The railroads were suddenly left with the interest-bearing obligations and without many of the cars ordered. The War Production Board had issued priorities for the materials. It made no effort to stop the flow of materials and had issued the construction stop order without notice. The railroads had to negotiate the transfer of the borrowed trust funds for other uses, or recall the outstanding certificates and stand the losses. The car builders had millions of dollars worth of steel and other materials on hand. It has taken over a year to work off the bulk of this material into other uses essential to the war effort. Recent relaxation of War Production Board restrictions on the use of steel and other materials will now release the remainder.

For the first 6 months of 1943, the War Production Board authorized the construction of 20,000 freight cars. The construction was prorated among the car builders irrespective of their existing car orders then financed by the railroads, and each car factory was limited to construction of only two types. As a result, production was delayed for several months before the railroads discovered which builders would be permitted to build what types of cars.

Details on freight cars on order, installed and retired are set forth in appendix II.

American freight cars are used in Canada and in Mexico. There are approximately 18,000 more American cars now in these services than there are foreign-owned cars in service in the United States. This may be desirable for war purposes, but it constitutes a most generous loan to other nations at a time when our own railroads have a great need for these cars. Full and indiscriminate domestic use of foreign freight cars is prohibited by our tariff laws, although loading cars in the direction of the return movement is, in general, permitted. Section 308, paragraph 6 of the Tariff Act of 1930, as amended, permits the Commissioner of Customs to relax these prohibitions in specific emergency cases.

Inventories of basic materials have become substantially greater and permission has now been granted by the War Production Board to

return to all-steel freight car construction so that a substantial increase in the number of freight cars of better quality is now possible.

Passenger cars.

Since January 1942, construction of passenger cars has been limited to the material which was all, or nearly all, in inventory or readily obtainable. Eight hundred Pullmans, chair cars, and observation cars have been converted to general passenger service. Twelve hundred troop sleepers are authorized and will be available early in 1944. They will release for civilian use about 600 to 700 coaches now being used by the Army. Four hundred Army kitchen cars are also authorized. No additional civilian passenger equipment has been scheduled for production.

More than half of our passenger cars, other than Pullmans, are more than 25 years old and 30 percent of the Pullmans are more than 25 years old. (See appendix III.) Although it is not desirable to attempt to build a large number of new passenger cars at this stage of the war, our railroads should be making plans now for the replacement of much of this equipment with new and better equipment. Prompt action along these lines, as soon as materials and manpower become available, will ease the transportation situation and also will prove very helpful in reestablishing our civilian economy. The Committee has been assured that plans are now under way to accomplish this. Actual relief will not be felt for some time.

In the meantime, the public will have to accept the discomforts of rail passenger travel as one of the burdens of the war and should plan to travel as little as possible. Also, the War and Navy Departments should eliminate unnecessary movements of troops in training and cut down their frequency and distance where possible; as approximately 36 percent of the passenger coaches and one-half of the Pullman sleeping and chair cars are used solely for troop movements.

Rail and fastenings.

Due to shortages of materials and manpower, the 1943 war-curtailed program for maintenance of way, including rail replacements, is expected to fall short by $200,000,000. During the depression, the railroads reduced their rail replacements to only half the amounts previously utilized, and shortages of steel up to the present time have prevented adequate replacement.

One indication of the weakening of rails is the development of an excessive number of transverse fissures in the steel. The existence of a fissure is not visible but is determined by specially designed detector cars.

Detected fissures and resulting service failures are compiled by the Association of American Railroads as follows:

	Detected fissures	*Service failures*
1939	13, 822	5, 764
1940	15, 064	4, 721
1941	20, 408	5, 772
1942	28, 316	7, 064

Actual derailments caused by failure of rail and rail joints have also increased as follows:

	Derailments
1939	290
1940	330
1941	459
1942	631

It should be noted that during this period traffic has more than doubled.

Failure to obtain the necessary quantities of rails and materials as needed has added to the operating difficulties of the carriers. Experienced railroad men accumulate rails and equipment in sufficient quantity to keep the manpower on a laying program continually employed and complete the work efficiently. Under the schedules of the War Production Board and the Office of Defense Transportation, rails are scheduled for monthly deliveries. The quantities thus made available are not sufficient to permit their efficient use until the deliveries for several months have been accumulated to permit an orderly laying program.

During recent months, the balance of steel production against steel requirements has become less critical and it is possible to provide the railroads with increased quantities of steel rail. For 1944, 1,800,000 net tons of steel rail will be made available by the War Production Board.

It takes about a year to treat and air-season cross ties. The supply of ties available for 1944 will be less than needs by a substantial amount. The lumber situation has become critical through military demands, through Office of Price Administration price limitation discouraging lumber operations and through local labor shortages in areas where railroads have been accustomed to procure their cross ties from cuttings by farmers and other local labor in woods along the railroads' rights-of-way.

Facilities.

The volume of traffic handled by the railroads is also limited by facilities such as yards, terminals, signal systems, tracks, sidings, and buildings. The carriers have not been able to keep abreast of known needs. Shortage of materials and difficulty in obtaining the approval of various divisions and committees within the War Production Board, such as the Steel, Copper, Rubber, Construction, and Communications Divisions, and the Non-Industrial and the Industrial Facilities Committees has impeded the expansion of these facilities. Obtaining such approvals involves a multiplicity of conferences and repeated explanations of the same needs to different divisions and committees.

The Association of American Railroads was requested to furnish certain information on this subject. It has compiled the following statements:

On May 17, 1943, there were $18,000,000 worth of such projects awaiting such approvals, involving 263 different projects. Of these, 6 had been before the War Production Board since February.

On June 15 there were 254 projects, of which 31 were for signaling, 28 for bridges, 7 for main tracks, 53 for yard and passing tracks, 60 for mechanical facilities, 18 for freight and passenger stations, 17 for communication facilities,

and 40 for construction. Of these, 40 had been awaiting approval since prior to May 1.

As of November 15, 1943, there were 142 applications for such projects awaiting approval of the War Production Board. Of that number, 109 were projects involving an expenditure of $10,000 or more, for an aggregate of $14,593,000. The remaining 33 projects involve expenditures of less than $10,000 each.

The following kinds of facilities are involved:

Facility:	*Number of projects*
Signaling	11
Bridges	11
Main track	10
Yard and passing tracks	33
Mechanical	24
Freight and passenger stations	3
Communications	3
Miscellaneous	14
Total	109

As of November 15, 1943, applications for 26 of the 109 projects had been on file with the War Production Board for 45 days or longer.

This situation has definitely improved. A part of the delay has resulted from failure of the railroads to furnish additional information promptly. At the present time, revisions of orders are being considered by the War Production Board which would eliminate altogether requiring specific authorization of a large number of projects of small size and involving limited tonnages. The committee urges prompt action along this line and a speedier handling of the larger projects which will remain subject to controls.

OPERATION

Many operating improvements have been effected, among which are the heavier prescribed minimum loads for shipments of freight and the more prompt loading and unloading of freight cars.

Shippers, the Office of Defense Transportation, the Interstate Commerce Commission, and the railroads have combined their efforts to obtain maximum utilization of available car capacity. By General Order No. 1, effective May 1, 1942, the Office of Defense Transportation prescribed minimum loads for cars handling less-than-carload shipments of freight. Railroads complied with that order even before the effective date. By General Order No. 18, the Office of Defense Transportation required maximum loading of cars handling carload shipments of freight. Shippers quickly responded to the mandate of that order. Also, shippers have organized car-efficiency committees to insure prompt loading and unloading of cars and to police all other matters affecting efficient car utilization during the time cars are in the hands of shippers.

As might be expected, there was some increase in damaged goods, but this has not been excessive and cannot be clearly attributed solely to the heavier loading. Although there was an increase of 20.2 percent in dollar value of damage in the first 6 months of 1943, as compared with the first 6 months of 1942, there was during the same period an increase in freight revenue of 23.7 percent. Improved stowing and bracing methods, such as the use of vertical and horizontal bulkheads having the effect of tieing the load firmly into the car, have contributed to minimizing the damage which might otherwise have resulted from heavier loading.

The Army and Navy have established Traffic Control Sections which, on the whole, have done a good job in directing freight and passenger traffic, through methods and regulations designed to utilize existing transportation equipment efficiently. The volume of traffic handled has been tremendous. For example, from 10 to 12 percent of the entire rail ton-mile load moves on War Department bills of lading. A further substantial volume of Army goods moves on commercial bills of lading converted to Government bills of lading after delivery.

Further improvement in military use of commercial transport facilities involves procurement practices and direction of personnel movements, where transportation is only one of many factors to be considered. A wasteful use of transportation under present conditions is so serious, however, that the military and naval agencies, concerned with procurement and with troop movements should work closely with the Traffic Control Sections, whose staffs are in constant touch with the transportation situation and the carriers and Government agencies concerned therewith and are aware of the need for conservation and efficient utilization of transportation facilities. This recommendation is particularly appropriate in the case of the Army Air Forces, who are not presently under the jurisdiction of the Traffic Control Division of the Army Transportation Corps.

Part of the credit for the excellent record of traffic movement which has been made must be given to the railroads. The operators recall the congestion which gave rise to Government control during the last war, and have benefited from that experience. The possibility of Government control and their desire to avoid it has spurred them on to greater initiative and effort and has induced cooperation and acceptance of centralized control.

The control of W. F. Kirk, located at Chicago, Ill., over routing of traffic on the western railroads is a good example of this cooperation. Mr. Kirk, an experienced railroad official selected by the executive officers of the western railroads was appointed an agent of the Interstate Commerce Commission by Service Order No. 99, dated February 3, 1943, and was also appointed Associate Director of the Office of Defense Transportation. This action was made necessary because congestion had appeared. Mr. Kirk is vested with authority to divert or reroute transcontinental carload traffic from the line of any railroad or railroads which in his opinion cannot currently accept and move such traffic, over the line or lines of any other railroad or railroads less congested and in a better position to handle the traffic. Such rerouting or diversion has been made regardless of the routing shown in the bill of lading designated by either the shipper or the carrier. Over 100 diversion orders have been issued by Mr. Kirk. Many more diversions have been accomplished voluntarily or under threat of issuance of an order.

A factor in producing the record made by the railroads which must not be overlooked is that the increased volume of traffic has produced a revenue excess over expenses far greater than the railroads have had for many years. By the nature of railroad operations, a certain minimum of facilities and equipment must be maintained regardless of the volume of traffic. An increase in traffic above that point does not produce a corresponding increase in operating cost. This has

greatly improved the financial position of the railroads. A chart showing the net income of the railroads since 1937 is set forth in appendix IV.

Proposed conservation measures.

Many other suggested operating economies have occasioned controversy. Among them are the elimination or reduction of the wasteful uses of the transportation facilities involved in undue circuitous routing and cross hauling.

Circuitous routing.—A great deal has been said about the wasteful use of rail facilities through circuitous routing. Many startling examples of long, roundabout itineraries of a particular shipment have been discovered in this investigation. In some instances, shipments have traveled more than twice the distance that would have been traveled if the most direct route had been used. Government agencies, including the Army and the Navy, have also been offenders in this respect. Some railroads are still soliciting shipments for circuitous routes over roads already congested. Interlocking ownership has sometimes occasioned a roundabout routing so that a railroad in which a particular shipper has a financial interest may participate in the division of the freight charges.

It is obvious that it would be impossible to make a separate examination of each circuitous shipment, determine its necessity and total the excessive miles so found in order to make an appraisal of the waste resulting. Nevertheless, these points seem clear:

1. A direct waste results from miles unnecessarily traveled. This waste is in the form of wear and tear on the rails, the cars, and the locomotives, consumption of extra fuel, increased man and equipment hours, longer turnaround time, expenditure of a certain amount of overhead, etc.

2. The extent of undue circuitous routing has probably been exaggerated. The Office of Defense Transportation made way bill studies of shipments on May 27, 1942, which showed that the total miles traveled by all the cars on that date was only 11 percent more than if only direct routes had been used. The same study also showed that 15 percent of the traffic handled by the railroads moved by routes that were more than 25 percent longer than direct routes.

3. A limited amount of circuity is highly desirable. It creates flexibility and permits the flow of a larger volume of traffic than if direct routes only were available to the shipper.

4. Solicitation of traffic for a congested circuitous route where a direct route is not congested is to be condemned. Continuous vigilance by the appropriate agencies should be exercised to the end that individual cases of flagrant disregard for the conservation of rail facilities in this war emergency can be dealt with appropriately.

The Interstate Commerce Commission has power to minimize undue circuitous routing through service orders and the power to suspend, for the duration, its Fourth Section Orders. These powers, however, should be exercised only with extreme care, to avoid resulting in a rigidity of routes which might have unfavorable repercussions.

Such drastic action should not be necessary. The shippers and the railroads well know when a shipment is sent over an unduly circuitous route. Their patriotic conscience should be sufficient to overcome nap considerations of immediate and temporary self-interest. The

railroads in seeking to avoid governmental operation and to improve on the job which, by and large, they have done so well, should devote greater attention to this phase of conservation.

The committee recommends that the Interstate Commerce Commission and the Office of Defense Transportation conduct test checks from time to time for the purpose of ascertaining the extent to which the railroads and shippers have made progress in minimizing excessively circuitous routing, so that the Interstate Commerce Commission can be informed as to the extent of the voluntary cooperation of the railroads and shippers and can determine whether any further substantial benefits can be obtained by issuing orders and regulations designed to limit unduly circuitous routing.

Cross hauling.—The theory of eliminating or reducing cross hauling is that the transportation involved in moving an article from the point where it is produced to the point where it is consumed is wasteful if that article or a similar one can be obtained near the point of consumption. It is based upon the maxim that we should not "carry coals to Newcastle."

In developing our national economy, in which an excellent transportation system has played a major part under free and open competition, the geographical area of markets has been continually expanding. Nation-wide advertising through magazines, newspapers, radio stations, and billboards has also played a great part.

This free use of transportation facilities has resulted in a high degree of specialization so that from the raw materials stage to the final delivery of the finished product in the hands of the ultimate consumer, there is a complicated and intricate maze of back-and-forth movement. As individuals, we would probably be astonished if we were able to total up the miles traveled by the many simple articles that we use daily, from the mine, farm or forest, to the mills, to the factories, to the wholesalers, to the retailer and thence to us, and in that process we would usually find that the components of that article had at one or several points doubled back.

The War Production Board has issued an order known as haulage conservation order T–1, directed against shippers, which attempts to eliminate some of the long and cross hauls.

Studies were made by the Office of Defense Transportation of waybills on shipments of certain commodities on May 27, 1942, and September 23, 1942. These studies showed what appeared to the Office of Defense Transportation to be excessively long hauls on some commodities.

One of the commodity-movements studies was that of standard Portland cement. These studies were referred to the War Production Board. On August 25, 1943, the War Production Board extended its Haulage Conservation Order T–1 to include cement and provided that it would become effective September 24, 1943.

In essence, the War Production Board sought to diminish this allegedly wasteful use of transportation facilities by establishing 93 zones and prohibiting the shipment of cement from one zone to another without first getting permission from the War Production Board on a form which it prescribed. Shipments to the Army or Navy can be made regardless of this haulage conservation order if a certificate is furnished by the Army or Navy that it is necessary for that shipment to cross a zone line. The order applies only to the finished product

shipped by the cement companies and not to the shipment of ingredients or supplies used in the production of cement.

The committee was interested in this subject, not so much because of the immediate question involved, but rather for the purpose of making an appraisal of this method of attempting to reduce the wasteful use of transportation facilities.

The first question in making such an appraisal is the amount of savings estimated to result from the enforcement of the order. The War Production Board, Division of Stockpiling and Transportation, estimated that it would result in a savings of 500,000,000 ton-miles of transportation annually. Upon inquiry, the committee was unable to find that the facts and studies furnished justified this figure, and indeed, the committee was told that it was only advanced as a rough estimate.

In addition, the committee inquired as to whether or not any attempt had been made to translate the estimated savings into terms of scarce materials, i. e., how many fewer locomotives and freight cars would be required. The committee was informed that not only had no such study been made, but in the opinion of the officials, no such study could be completed in time to be of any use. To the extent the savings might be in empty car-miles, the order will tend to reduce the revenue of the railroads and destroy the markets of some of the cement companies, without any substantial relief to the burden of traffic on the railroads.

Furthermore, it is estimated that 80 percent of the cement produced in 1943 for domestic use is being purchased directly or indirectly for the Government, 55 percent being for the military services. The military services have already instituted programs for the elimination of unnecessary transportation by directives requiring procurement of commodities, such as cement, at a source nearest the place of their intended use. To the extent they deem it necessary to purchase outside a zone where they intend to use it, they need only issue certificates.

Also, it is estimated that because of the reduction in construction activities, the amount of cement required for 1944 will be only about half of that required for 1943 which is estimated to be only 60 percent of that produced in 1942. Heavier loading of cars has increased the average cement carload from 35 tons in 1939 to 45.4 tons in 1942.

When all these factors are considered, it is apparent that it is impossible, on any evidence now available to the Government agencies, to establish that the cross haulage order issued with respect to cement will substantially reduce the equipment needs of the railroads. On the other hand, by the establishment of artificial zone barriers, the order does require the cement industry to adjust its methods of operation and its marketing and distribution practices. This type of regulation also requires additional forms and additional policing forces. It also makes necessary the partial suspension of antitrust laws. This is done pursuant to section 12 of Public Law No. 603.

The zoning itself results in some of the absurd and ridiculous prohibitions which are attendant upon any such artificial arrangements. For example, a mill in Virginia may ship to Charlotte, N. C., a rail haul of 456 miles. A mill in Georgia, however, may not ship to Charlette, although the rail haul is only 349 miles. A mill in Alabama may

ship into Mobile County, although a Georgia mill 85 rail miles nearer may not ship there. In some instances, the order permits a mill located in town A to ship to town B, but prohibits the mill at B from shipping into A. The freight rates as well as the mileage are the same in either direction. In others, shipments by established routes would pass through a city to which the shipment from that mill would be prohibited.

Rigid artificial barriers also encounter the fact that, to a certain degree, the demand for cement is "ambulatory" in character, i. e., the peak of demand shifts because of important projects requiring cement being located in different areas in different years. It is entirely possible that in one zone there may be practically no demand in a certain year whereas in another zone the demand may be so high even as to exceed the total capacity of the producing plants therein.

Using the order with respect to cement as an example, it is quite apparent that the subject of cross-hauling should be studied thoroughly before orders are issued. It is estimated by the Office of Defense Transportation that a rigorous application of zoning, based entirely on transportation conservation factors, would decrease the total ton-mile load on the railroads by not more than 4 percent, which, although small percentage-wise, would assist the transportation situation. At the same time, the detriment and shock to our domestic economy and distribution and marketing system would, as to many items, outweigh the transportation savings resulting from the elimination of cross-hauling.

In many instances, there are no such economic hardships, because the expense of a long haul practically counterbalances the benefit to the shipper of reaching the distant market. In such instances, it is possible that most of the benefits could be obtained by a voluntary campaign against long hauls. In those cases where such campaigns are not feasible or successful and where a sufficient background of study has been made to warrant an order, an appropriate order could be issued.

The difficulties surrounding this subject are such, however, that it would be much better to make increased efforts to extend and improve the facilities of the railroads rather than to attempt to cope with the situation by cumbersome artificial restrictions, the benefits from which are limited and difficult to predict.

Voluntary reduction.—A much more practical and sensible approach to conservation is the campaign recently inaugurated by the Office of Defense Transportation with the cooperation of the War Production Board and the War Food Administration. It seeks, through plans to be devised by the Industry Divisions and largely by means of voluntary action of the shippers and transport agencies, to achieve a 10-percent improvement in efficiency of utilization of transportation facilities.

It is, of course, too early to make any predictions as to the possibilities of success of this program. Cooperation of the shippers will be vital. Their record in connection with the heavier loading of cars and speeding up turnaround time by faster loading and unloading lends encouragement that substantial progress will be made.

The philosophy of this approach is to be commended in any event—for it emphasizes voluntary cooperation and teamwork rather than the imposition from above of unpopular restrictions—requiring the setting

up of additional bureaus and resultant red tape. The choice lies with the shippers, for if the voluntary programs fail additional restrictions may have to be imposed. In this connection, it should be noted that the failure of the cement industry to police itself in conserving transportation facilities during this war emergency gave rise to the regulation by the haulage conservation order above described.

This program ought to be extended to include governmental agencies such as the Army and Navy, the Treasury, Department of Agriculture, Defense Plant Corporation, Metals Reserve Company and others using transportation extensively. This campaign is an intensification of the voluntary cooperation which has consistently been employed by the Office of Defense Transportation on the theory that more could be achieved through the stimulation of an attitude of teamwork on the part of shippers and carriers than through unwelcome and arbitrary artificial restrictions and orders. The record of the volume of traffic handled under war emergency conditions is ample proof of the soundness of this approach.

MOTOR TRANSPORT

The most serious situation with respect to transportation is the lack of adequate facilities for motor transport. Shortages in tires, repair parts, new equipment and manpower, plus restrictions on road speed and other regulations have imposed limits on the carrying capacity of trucks, busses and automobiles which are far below the demands for the type of transportation service they render.

The motor vehicle is woven into our national life to such a degree, and in such manner, that diminution in the service rendered by motor transport will necessarily have serious repercussions on our war effort.

TRUCKS

The volume of traffic carried by the for-hire trucking industry is relatively small compared to that handled by the railroads, measured in ton-miles. The ton-mile standard, however, does not accurately reflect the relative service rendered by trucks and railroads because the average truck haul is much shorter than the average rail haul.

Although in some classes of haulage, rail and trucks compete, trucks render an essentially different service being more adaptable to the short, rapid shipment of relatively smaller lots and furnishing a store-door delivery. Approximately 54,000 communities in the United States have no rail service at all. In many others, rail service is so slow and infrequent that it is suitable only for the movement of heavy freight and has to be supplemented by trucks to handle light freight on fast schedules.

In addition, trucks in a very real sense form a part of the conveyer belt of industry in conveying parts in process and components from one factory to another in the mass-production of military and civilian goods. During the past 20 years, some factories have been located with respect to raw materials and markets for finished products in reliance upon the truck in such a way that operations would be hampered and, in some cases, made impossible if truck transportation were not available.

In January 1943, there were approximately 4,600,000 civilian trucks in the United States in the following categories:

Agricultural	1, 590, 000
Private—industrial and commercial	2, 010, 000
Intercity common carriers	170, 000
Contract carriers	365, 000
Local common carriers	120, 000
Federal, State, county, and municipal	230, 000
Miscellaneous	115, 000
Total	4, 600, 000

Class I common and contract carriers, being those with annual gross operating revenues above $100,000, are the only truck operators required to report to the Interstate Commerce Commission. They represent less than 1 percent of the total number of trucks. Accurate statistics on the total volume of freight handled or the equipment required by all truck owners are, therefore, difficult to obtain.

In 1942, the railroads had 25 percent fewer freight cars than they had in 1918 when truck traffic was comparatively nonexistent. If the railroads were to attempt now to move a substantial portion of the freight presently handled by trucks, they would not have sufficient locomotives and freight cars. Also, the terminal facilities would not be adequate to handle the increased switching load involved in an attempt to handle all the many thousands of short hauls now being made by trucks.

Efforts have been made to decrease the demands upon the trucking industry. Some progress has been made such as the reduction in delivery service, the elimination of long truck-hauls on certain commodities, etc. However, the amount of the savings from such conservation measures will not, in comparison with the total volume of truck traffic, be very great. Fundamentally, we must accept the principle that reductions in the volume of truck traffic will result in inability to handle essential traffic, which will have important and far-reaching results.

When the committee made a survey of trucking conditions last spring, it found that the three principal difficulties facing the trucking industry were lack of (1) repair parts, (2) new trucks and (3) tires.

The committee found that for lack of facilities, the volume of truck traffic in 1943 and 1944 was expected to be substantially below the average for the years 1940, 1941 and 1942, and very substantially below the volume for 1941, the high year.

Maintenance and repair parts.

It is obvious that in providing for essential motor transport, the maintenance of existing vehicles is of prime importance. Due to lack of new vehicles, we are using our old ones much beyond their normal life based upon peacetime standards, when it was the practice to turn in used equipment for new at frequent intervals.

This has multiplied the need for replacement and repair parts because of the fact that with the increased mileage of the vehicle, more extensive and more serious repairs are required. At the same time, inventories of parts have become depleted. The shortage of replacement parts was further aggravated by a vigorous scrap drive instituted by the War Production Board in 1942 which resulted in approximately

4,000,000 motor vehicles in the Nation's junk yards being broken up and shipped to the steel mills. A tremendous number of serviceable parts, which in normal times would have been fed back into the motor-transport system, were destroyed and the civilian market was deprived of these reserves. Action to correct this situation was not taken until May 29, 1943, when the War Production Board issued Conservation Order M–311 which prohibited the scrapping of used serviceable automotive parts.

Until the summer of 1943, purchases for military use were being made from commercial stocks of parts. A study made by the War Production Board revealed that during the first 9 months of 1942 military purchases accounted for 14 percent of total sales of parts. The Army had now improved its ability to supply parts through its depots and has prohibited military purchase of parts from civilian stocks except in cases of emergency. Nevertheless, while that situation existed it constituted a severe drain on parts inventories at a time when parts production was restricted.

Although comparative statistics are not too reliable, recent figures compiled by the Office of Defense Transportation disclose 292 percent more vehicle-days lost by busses in August 1943 because of parts shortages than in August 1942, 271 percent more lost by for-hire trucks, and 175 percent more lost by private trucks. Although not a sizeable amount in vehicle-days, the rate of increase is alarming.

Since March 1943, the Office of Defense Transportation through its 142 district offices, the War Production Board and parts and vehicle manufacturers have been attempting to assist operators in locating parts needed to maintain their vehicles where those particular parts could not be found locally. The usefulness of this work is obvious, but indicates clearly the lack of an adequate inventory and emphasizes the need for producing more replacement parts.

The facilities for producing some of the replacement parts which are now critically short are much the same as those for producing original parts for automotive vehicles, farm machinery, etc. These are now largely devoted to production of component parts for vehicles and airplanes for the armed services. Critical materials are no longer the serious problem. Facilities are now the bottleneck.

Commencing on September 12, 1941, and extending up to the present time, the manufacture of replacement parts has been controlled by limitation orders, first by the Office of Production Management and then by its successor, the War Production Board. The present limitation order is known as L–158, and until recently, it restricted the manufacture and distribution of replacement parts to a specified percentage of previous production. Civilian parts were accorded a priority rating of AA2x, inferior to the AA1 rating for military production.

The committee believed that it was apparent that motor transport operations would have to be very substantially curtailed to the great detriment of essential activities, unless prompt action was taken to make more repair parts available to operators, and particularly the small operators. The committee found that one of the principal reasons why sufficient parts were not being made available was that the manufacturers of parts for civilian use had been assigned a priority substantially below that assigned for the production of parts for use by the armed services. As a result, manufacturers were able to

obtain the allocation of materials for parts for the armed services and were unable to obtain them for parts for civilian use. The parts for the armed services were being produced substantially as scheduled, but only a fraction of the parts scheduled for civilian use were being manufactured. Some facilities for producing parts in which there was an especially critical shortage were already loaded with military orders for many months to come. Furthermore, there always is a considerable time lag between authorization and actual production and distribution for use. The situation was becoming worse rather than better and could be remedied only by changing the priority classification and recognizing the importance of maintaining our motor transport facilities.

This situation was called to the attention of the War Production Board. On October 11, 1943, the War Production Board amended Limitation Order L–158 so as to assign a priority rating equal to military production to parts for medium and heavy trucks, trailers, and busses. Because of the objection of Army representatives and others to a blanket priority uprating the amended order excluded parts for passenger cars and light trucks, although some parts are interchangeable with parts for the heavier vehicles. On November 13, 1943, L–158 was again amended so as to remove the restrictions on the amount of inventory which could be carried by manufacturers.

At the time of surveying facilities for new truck production, later discussed in detail, only rough estimates of replacement parts requirements were made, and percentages of production were allocated thereto. A more complete survey of parts requirements and facilities to produce them is now being conducted by the War Production Board.

The committee believes the War Production Board has delayed the parts production program by not having made such a survey as soon as the problem became apparent. The survey regarding parts is now merely in the stage of getting the industry's approval of a form, which will later have to be approved by the War Production Board and the Budget Bureau under the Federal Reports Act of 1942 before it can be circulated and the collection of the information started. This information will then have to be compiled and studied before plans for scheduling production can be formulated. This point will probably not be reached before the 1944 new truck program is well under way. It is, therefore, quite likely that that protion of the replacement parts program which exceeds the rough percentages already allocated will take an inferior position in the production schedules, so that a sufficient quantity of parts may not be produced.

The committee believes that a production program should be scheduled as a whole, rather than piecemeal, in order to include substantially all items that are affected by it. It should be realistically planned, based on facts rather than guesses, so that those dependng on it will not be misled by actual production falling behind schedule. However, the committee is disturbed that so much time must now be consumed preparing forms, conducting surveys, and devising a program when the replacement parts situation is daily becoming more acute.

A vehicle lacking only one vital functional part may be laid up and rendered useless. To permit that vehicle to remain useless while a new one is being built is obviously poor economy. The new civilian

truck program scheduled for 1944 is far below the normal annual civilian replacement, and the great bulk of the trucks so scheduled will not be available until the latter half of the year. In the meantime, many vehicles will be in urgent need of essential repair parts and, to the extent that they are not available, will be laid up.

It is to be hoped that the present estimates allowing a certain amount of production of replacement parts in the 1944 new truck program were adequate. Immediate action should be taken to insure the earliest possible availability of all necessary replacement parts.

New trucks.

Just as in the case of railroads, there has been a tendency to think that somehow our truck transportation industry will be able to get along with little or no new equipment, and that the facilities for making such new equipment can be diverted indefinitely to the manufacture of war equipment. In the case of trucks, this tendency has been even more pronounced than that in the case of railroads. At the same time, limited supplies of gasoline, particularly in the East, and the shortage of tires has led to the assumption that wherever possible transportation by truck should be eliminated in favor of transportation by rail.

As a result of this and the tremendous military demand for trucks during 1942 and 1943, the United States, the greatest user of motor vehicles in the world and the most dependent upon them, has had practically no trucks manufactured for civ lian use.

Most of the new trucks on hand, at the time the manufacture of trucks was stopped early in 1942, were taken for war purposes. The Office of Defense Transportation requested that 261,500 of such trucks be made available for civilian use in 1942, but only 97,000 were assigned for that purpose. This should be contrasted with the 576,000 new trucks required for replacement needs alone in 1941, a year when more than one million new trucks were manufactured. From March 9, 1942, when releases from the truck pool commenced, until November 1, 1943, approximately 91,000 trucks were issued for civilian use. This is the equivalent of 54,000 truck replacements annually, less than one-tenth of the new trucks supplied in 1941.

Even with drastic rationing, inventories of trucks available for the allocation to civilian use have now been almost completely exhausted. In October 1943, there were only 31,386 trucks left in the pool (11,256 light, 18,295 medium, and only 1,835 heavy). Many of these were special-type trucks, not suitable to general commercial haulage.

With the exception of a few thousand trailers, primarily tanktrailers for petroleum transportation and pole trailers for logging operations, the only trucks authorized for production for civilian use up to July 1943 were 4,000 heavy trucks which were to be built to replace trucks allocated to civilian use but transferred to the military services. This figure was later reduced to 3,017, the number actually withdrawn for military use. Although the production of these trucks had been authorized in July 1942, only 2,252 of such units had been built by October 29, 1943.

A program was approved by the War Production Board for producing, during the last half of 1943, 7,500 heavy trucks, 5,610 commercial trailers and 1,600 attachment third axles, together with an appropriate number of bodies. Some progress has been made in the production of third axles, bodies and trailers, but virtually no progress has been

made in the production of the 7,500 heavy trucks. Through the month of October, no trucks had been completed. It is now estimated that only a total of 450 will be built this year. Manufacturers have indicated that the 7,500 trucks will not be completed before the end of June 1944 and then only if schedule for component parts such as engines, axles, and transmissions can be so revised as to provide parts for these trucks to be allocated to civilian uses. The reason for the failure to produce these trucks was the assignment by the War Production Board of a priority rating inferior to that assigned to the production of vastly greater quantities of trucks for the armed services and the lack of adequate expediting.

Meanwhile, early in June 1943, the Automotive Division of the War Production Board requested all claimant agencies to submit their truck requirements for the last half of 1943 and the year 1944 by not later than June 14, 1943. Requests for trucks were submitted by the Maritime Commission, Office of Economic Warfare, Canada, War Production Board, Office of Defense Transportation, Army, Navy, and Lend-Lease. Some of these agencies failed to submit their final estimates until August or September.

The Office of Defense Transportation is the claimant agency for the civilian trucking industry of the United States. The total requirements for new trucks for which demands had been made upon the Office of Defense Transportation for the 18-month period ending December 1944 were 328,000. This figure was reduced by the Office of Defense Transportation to 79,625 for 1944 production on the ground that the materials and facilities for more than that number of trucks simply were not available if the amounts requested by the armed services and the other agencies were to be met. On August 28, 1943, the War Production Board approved only 19,218 trucks for production in the first half of 1944. Even this figure was relatively meaningless because, as previously noted, inferior priority ratings had resulted in virtually no progress in providing for the manufacture of the 7,500 trucks scheduled for production in the last half of 1943. Under the circumstances, it was apparent that unless changes were made, there was little possibility of any substantial number of trucks being produced for civilian use before the end of 1944.

For the year 1943, the War Department requested the production of 671,107 trucks for its own use and that of the British and Russian forces. The present estimates are that 607,610 will be delivered. For 1944, for the same uses, the War Department requested a total of 742,433 trucks. This total of nearly a million and a half vehicles requested, when combined with the very substantial numbers in the possession of our armed forces and those of our allies from production prior to 1943, constitutes a tremendous number of trucks. The committee does not propose to substitute its judgment for that of the War Department as to the necessity for the building up of this vast mass of motortrucks nor does it propose to take the position that the 1944 military truck production program is less essential to the war effort than the proportionate civilian production which it displaces. The War Department has indicated its willingness to make available to the committee privately a detailed justification of this program.

The committee does believe, however, that the possession of such a vast number of trucks makes it imperative that the War Department

maintain an accurate and up-to-date inventory of its vehicles, not only in actual military use, but those devoted to construction projects and other installations. The War Department has informed the committee that it is now engaged in such a program.

The committee also believes that the War Department should institute procedures to ascertain how many ton-miles of use are being obtained for those trucks stationed within the continental United States because the War Department should not acquire trucks for nonmilitary purposes unless it is able to operate them with an efficiency comparable to that prevailing in civilian uses.

By the institution of these procedures, the War Department should be able to reduce the number of trucks allocated to it for production thus freeing manufacturing facilities for the manufacture of trucks sorely needed by the domestic transport industry.

The committee will follow this matter in order to ascertain the progress being made by the War Department in improving the efficiency of utilization of its present inventory of trucks in noncombat areas.

Because the committee does not want to take even the slightest risk of impeding the progress of the war by insisting upon the reduction of what might prove to be too large requests by the War Department for trucks, the committee at this stage can only recommend to the War Department that it, itself, subject its estimates to the most rigorous scrutiny to make certain that they are not excessive. The responsibility for making these requests rests squarely upon the War Department. It is aware of the need of these trucks for civilian transportation essential to the war program.

In addition to War Department requests for trucks for 1944, which include some hundreds of thousands of trucks for Russia and England, 96,721 trucks were requested by other claimant agencies for uses other than the United States civilian trucking industry. Such agencies include the Navy, Maritime Commission, Office of Lend-Lease, Office of Economic Warfare, Canada, and the War Production Board. The aggregate number of trucks so requested exceeded the number requested to be built for our civilian use. The same obligation will rest on these agencies as rests on the War Department—to account to the public, at a later date, for their requests by showing the necessity for the use of such trucks.

The committee called these facts sharply to the attention of the various agencies involved because the committee desired assurance that proper and sound plans were being made and that proper balance would be maintained by the War Production Board. The committee took the view that it was unsound to believe that because our civilian transportation had gotten along somehow up to the present time it could continue indefinitely without adequate replenishments.

On November 2, 1943, a final decision as to 1944 truck production was made by the War Production Board in which there was reflected a more realistic appreciation of the needs of the civilian trucking industry. For example, the War Production Board has designated 1944 truck production of both civilian and military trucks a "must" program and declared manpower for its production "essential." It has established an equal priority rating for all of the segments of the

program, both military and civilian. It has provided for unified expediting. Furthermore, it recognized to a greater degree the essentiality of filling civilian truck needs. While military requests were cut only approximately 3 percent, civilian domestic requests, although cut by nearly 15 percent, were much more adequately recognized than seemed probably last August.

A further encouraging feature of this decision is the fact that it was based upon a survey of the production facilities in the country as to components considered most scarce, i. e., rear axles, transmissions, and engines.

This survey, however, was deficient in that it did not attempt to take into account such underlying facility bottlenecks as foundry and bearing manufacturing facilities. The committee has been assured that such surveys are, however, being conducted and that steps will be taken to prevent such facility shortages from impeding the production schedule agreed upon. The survey was deficient in failing to take into account, completely and accurately, the demands on the same facilities for the production of replacement parts. As previously noted, this survey is in the process of formulation.

It should also be noted that the program for civilian truck production has not been stepped up appreciably for the first half of 1944 over that approved last August and that meeting civilian production schedules for the second half of 1944 will, to a large degree, depend upon the construction of new facilities. A further factor delaying the actual delivery of civilian trucks is the fact that military production has already been scheduled far ahead and although civilian production has been accorded equal priority, it cannot apply to facilities already absorbed by military production.

The committee recommends that all possible speed be achieved in the production of trucks and that existing schedules be reexamined by the War Department in order to ascertain whether or not some part of present military production may not be deferred without impeding the war effort.

Tires.

The situation with respect to tires is extremely critical. Military and civilian truck and bus requirements for 1944 total in the neighborhood of 21,000,000 new tires.

The best estimate of the present inventory of new truck tires in the country is around 600,000, while used tires not in use on vehicles are estimated at approximately 300,000.

A program for the expansion of tire-making facilities is in progress. The most recent survey of facilities indicates a production capacity sufficient to produce during 1944 only 18,000,000 truck and bus tires. This leaves a deficiency of approximately 3,000,000 tires based on present estimated requirements. A resurvey which will include the new facilities now in process of construction will more accurately appraise production capacity for 1944, but this survey will not be completed until February 1944.

Because of this deficiency, the trucks scheduled in the 1944 new truck production program will be equipped with no spare tires, except for the military trucks to be used in combat areas and the trucks provided for Russia.

The stock pile of natural crude rubber at the end of 1943 will be about 150,000 tons. It is estimated that 81,000 tons of natural crude rubber will be imported during the year 1944. The estimated production of 18,000,000 truck and bus tires in 1944 is based upon the use of both synthetic and natural crude rubber. The total requirements of 21,000,000 tires is based upon the assumption that the combined synthetic-natural tire will be equal in performance to the all natural tire. In the event the new synthetic tires do not furnish mileage performance equal to that of the all natural rubber tire, it is obvious that the deficiency will be even greater than that stated above. Inadequate performance of synthetic tires will necessitate consuming our crude rubber stock pile at a faster rate than now contemplated.

The heavy-duty synthetic tire is still in the testing stage and quantity runs are not expected to be made until next May and then only in case adequate supplies of rayon tire cord have been produced.

It is known that the quality of the synthetic rubber tire is inferior to an equivalent tire made of all natural rubber but no accurate information on the exact degree of such inferiority is available at this time. The rubber director, however, has asserted that if extreme care is taken to avoid abuse of the synthetic rubber tire, such as overloading, improper inflation, speed, quick starting and stopping, and hitting holes or rocks, the synthetic tires can be retreaded and the extra mileage resulting therefrom will "cause them to give service closely comparable to that obtained with crude rubber tires under pre-war average care and conditions."

Of course, the greatest contribution to the solution of the entire problem of tire shortages can be made by strict attention to conservation measures on the part of the operators of all motor vehicles, both civilian and military. They must make every effort to drive carefully and follow instructions for the care of their tires. But knowing the strains on wartime transportation, the committee agrees with the industry that it is imperative to intensify efforts to improve the quality of synthetic rubber tires.

These circumstances render it impossible to provide the number of tires necessary to service the enormous number of trucks requested by the armed services and lend-lease, if we have any expectation of providing sufficient tires to keep our essential civilian vehicles in operation. While cuts made in the allocation of trucks for lend-lease and others will provide some relief, fundamentally we must face the alternative that either (1) the War Department will cut down or reschedule its truck program or (2) there will not be sufficient tires to maintain our essential civilian transportation.

This presents an additional and formidable reason for the committee's recommendation, previously noted, that the War Department subject its estimates of truck requirements for 1944 to the most rigorous scrutiny. The fact that we have reached December 1943, with requests and allocations of trucks and tires for 1944 without giving thought to the hard practical facts of the situation, is an indication of poor management and lack of coordination. Such a situation ought never to have been permitted to arise. Immediate action should be taken to work out a realistic program. Failure to do so will result in confusion and great detriment to both the war program and essential civilian industry.

INTERCITY BUSSES

Busses have been handling an increasing proportion of the Nation's passenger load. Based on present estimates, intercity busses will have carried 2½ times more passenger miles in 1943 than they carried in 1939.

In 1942, intercity bus systems handled 28.2 percent of the passenger traffic as compared with the railroads' 67.3 percent, measured in terms of passenger-miles. This fails to reflect accurately, however, the relative importance of bus transportation because of the difference in the length of the average journey. The average distance per bus passenger is 52 miles, whereas the average distance per rail coach passenger is 108 miles, with parlor and sleeping-car passenger distances averaging 421 miles. In 1942, intercity busses carried 692 million passengers, whereas the railroads carried 667 million.

The essential characteristic of bus travel is its flexibility in being able to use the immense network of highways, in being able to pick up and discharge passengers at any point along the route and in furnishing more frequent service.

The reduction of private passenger automobile travel, which prior to the war was estimated to be many times the total of all public travel, has given bus transportation increasing importance. It is now relied upon for transportation of workers and shoppers much more than if gasoline and tire shortages had not restricted automobile use.

The bus industry has been faced with very much the same problems as the truck industry, i. e., shortages of equipment, repair parts, and tires. The bus industry, however, has been permitted to expand its equipment. An average of 2,277 busses was produced annually for the period from 1935 to 1941. Nearly 2,000 were manufactured in the year 1942, approximately 2,000 were scheduled for production in 1943, nearly all of which will be built, and the 1944 program calls for about 1,800. The following table shows the number and percentage of increase in busses owned from 1939 to 1943:

	1939	1940	1941	1942	1943
Number of busses owned	18,614	18,000	18,240	21,962	23,474
Percentage of increase or decrease		−3.3	−1.0	+18.0	+26.1

Speed.

The speed limitation imposed on all motor traffic by order No. 23 issued by the Office of Defense Transportation on September 26, 1942, effective October 15, 1942, has imposed heavy burdens on the intercity bus industry. To a considerable extent, the speed limitation of 35 miles per hour has offset the new busses installed because, at the slower rate, each bus can perform less service. This limitation also increased manpower problems because, at the slower rate, more drivers are needed to travel the same number of miles. According to the National Association of Motor Bus Operators, busses operating at a maximum speed of 45 miles per hour produce a sustained speed of only 35 miles per hour. A maximum speed of 35 miles per hour results in a sustained speed of only 28 miles per hour. Timetables for busses had to be adjusted accordingly.

Some studies have indicated that there is substantially more tire wear at a maximum speed of 45 miles per hour than at a maximum speed of 35 miles per hour, while other studies have indicated that the increased tire wear is negligible. Some studies also showed that at the lower rate of speed there were many more gear shifts and brake applications. These latter items intensify the maintenance problem because of the extra wear on the parts involved. Slower schedules also resulted in much heavier loading, which has meant a harder use of busses, also adding to the maintenance needs.

When the rubber shortage became apparent, the committee took the view that a limitation on speed was necessary but recommended that the maximum limit be 40 miles per hour. The Baruch committee adopted this recommendation but reduced the speed limit to 35 miles per hour.

Studies made by the Public Roads Administration and others have indicated that the 35-mile limit is not being observed too well. It is probable, however, that the 35-mile limit, although violated frequently, has produced a substantial reduction in the average speed of motor vehicles.

As was predicted when this committee reported the rubber shortage in the spring of 1942, the period now before us is likely to be the most critical, from the point of view of interruption in service for lack of tires, because the stock piles of new tires and natural rubber have dwindled and tires now on vehicles have had many miles more wear, while relief from the manufacture of synthetic rubber and tires is still months away.

In the light of this situation, the conservation of tires is more important than it ever was. The Office of Defense Transportation has been conducting a study, attempting to determine by more scientific methods than any heretofore used, the exact effect of speed on tire wear. It has not yet made public its findings.

If it can be determined with substantial accuracy that raising the maximum speed limit for trucks and busses from 35 miles per hour to 40 miles per hour would not result in an appreciable increase in the amount of tire rubber consumed, the committee recommends that the Office of Defense Transportation modify its order No. 23 to permit the higher speed.

Intercity busses would be particularly helped if they could speed up their schedules to the extent that would be permissible with even a 5-mile increase in the maximum speed allowed. It would have the same effect as adding more busses and more personnel because the same equipment and manpower could carry a greater transportation load. The total savings in time to bus passengers would also be substantial.

Local public transit.

The restriction on the use of automobiles through gasoline and tire rationing and shortages of replacement parts and mechanics has also thrown an unprecedented burden upon local transit systems. In 1941, city streetcar and bus systems carried about 14 billion passengers. In 1942, this figure increased about 28 percent to 18 billion passengers. During the first half of 1943, local transit systems were carrying at the rate of 22 billion passengers per year. At the same time, transit vehicles were increased by a little over 8 percent in 1942, and there has been practically no increase in vehicles since.

In 1942, 45,000 city busses constituted one-half of the number and one-third of the seating capacity of all vehicles engaged in local transit. These busses, of course, are faced with the same problems of parts, new equipment and tires common to all forms of motor transport which have been discussed in the truck section of this report. Over 4,000 city busses are scheduled for production in the 1944 truck-production program.

AUTOMOBILES

There are nearly 25,000,000 automobiles registered in the United States. More than any other nation, we have become dependent upon the automobile and the highway systems for passenger transportation. The amount of automobile traffic has been drastically curtailed through the tire and gasoline rationing programs and through the shortages of repair parts and repair facilities this curtailment has been reflected in the increased volume of traffic handled by public transport agencies. It is extremely difficult to assess and analyze accurately the importance of traveling by automobile in degrees of essentiality.

Early in 1942, the Michigan State Highway Department, the Public Roads Administration, and other transportation agencies conducted a survey of over 700 factories in Michigan with a combined total employment of almost a half million employees. In 633 of the plants, representing 81 percent of the total employment involved in the survey, more than one-half of the employees depended on their own cars to come to work.

The location of plants and dwellings in the past 25 years has been made in reliance upon the availability of this form of transportation. It is, therefore, extremely doubtful that the public transportation agencies, even if they had an excess capacity, which they do not, could serve any substantial portion of the employees now going to and from work in their own cars.

In the discussion of the program for production of replacement parts in the truck section of this report, attention was called to the recent amendments to the War Production Board order L–158, limiting the production of replacement parts. While a priority rating equal to military production was assigned to medium and heavy truck parts, this was not done with respect to light trucks and passenger automobiles.

The automobile parts shortage is particularly dangerous because the older vehicles, needing repair, are widely owned among farmers and war workers, who are most dependent upon automobile transportation.

Parts for automobiles, taxicabs, and light trucks are to some extent interchangeable with parts for the heavier trucks. As to those interchangeable parts, there would be a more economical use of materials, facilities, and manpower if the total parts to be produced could be scheduled as one run in accordance with sound mass-production practices. Replacement parts are ordinarily purchased by the consumer only when there is an immediate use for them. This should be a sufficient guaranty of economical use.

Since it would be almost impossible, even through another cumbersome rationing program, to distinguish between the degrees of essentiality of use of automobiles, the committee believes that provision should now be made for the adequate production of replacement parts

for automobiles, taxicabs, and light trucks. The committee recommends that the War Production Board reconsider upgrading the priority rating on these parts.

AIR LINES

Our domestic air lines carry only a fraction of the passengers and freight. In 1942 they carried approximately 0.1 percent of the freight and 1.8 percent of the passenger traffic carried by public transport agencies. Their importance, however, is far greater than such percentages would indicate.

This war has placed emphasis on speed, not merely in isolated cases of emergency but in continuous daily operations. If, for example, it were possible to calculate the number of ferry pilots that would have been needed if they had been forced to travel to their appointed tasks by slower forms of transport, the amount of cost in lost man-hours, in the training of additional pilots, and in slowing down the progress of the war would have been tremendous. Losses of production hours resulting from a line shut down for lack of some vital component, losses of time of management and military and governmental officials, slower mail, etc., would have been similarly costly. The contribution of the air lines, though small in volume, has been large in terms of the valuable time-saving service rendered.

A relatively young industry, air transport had grown rapidly and was flourishing at the time war was declared.

Comparative statistics of air transport operations for the years 1930 and 1941 and for the years ending June 30, 1942, and June 30, 1943, are set forth in appendix V. From an inspection thereof, it will be noted that between the years 1930 and 1941, the number of air lines and the number of planes used by them decreased, but that there was a very substantial increase in the passenger-miles and ton-miles of air transport.

On January 15, 1942, the regulation of air traffic through the priority system of control of air travel and cargo was installed by the Army Air Forces, based upon the criteria of relative importance of travel to the national defense, considerations of urgency, and lack of availability of other modes of travel.

On May 18, 1942, of the 324 planes then owned by the air lines, all but 165 were taken over by the Air Forces by either purchase or lease. Subsequently, from time to time, a total of 20 planes has been returned to the air lines, 6 of which were replacements for destroyed planes.

Notwithstanding the foregoing and other burdens imposed upon the air lines, a remarkable record of transportation achievement has been compiled. On July 15, 1943, several of the larger lines made reductions of passenger fares averaging about 10 percent and made some reductions in express rates.

The air lines have increased the average daily scheduled flying hours per plane from 8.03, before the 50 percent reduction in number of planes of May 18, 1942, to 11.27 as of September 1, 1943. The revenue passenger load factor, being the percentage of actual pay load to capacity load, was 86 percent for the first 6 months of 1943, as compared with 67 percent for the corresponding months of 1942. These efficiencies enabled the air lines to handle—in the year ending

June 30, 1943, with only about 170 planes—almost as many passenger-miles and a far greater quantity of mail, express, and excess baggage than they had handled in the preceding year with 324 planes.

Our civilian air lines, in addition to handling air transport traffic, have given great aid and assistance to the war program by making their facilities available for servicing, maintaining, converting, and modifying Army planes, thus freeing, to that extent, the Air Forces from establishing similar facilities. The civilian air lines have also assisted in training navigators, pilots, mechanics, and meteorologists for the Air Transport Command and have taken over and operated a large number of the planes made available to the Army Air Transport Command.

There is great need for transport planes for many war purposes, and the supply, although substantially increasing at a more rapid rate, is not equal to all the demands. This means that it is not possible to furnish the civilian airlines in the United States with anywhere near the number of planes that they could usefully employ. Nevertheless, it should soon be possible to return to the airlines a substantial number of the planes taken from them a year ago last May. The record to December 1, 1943, of returning only 20 planes, 6 of which were replacements for destroyed planes, is not creditable. The committee is gratified that now 7 additional planes are being returned to the air lines, 2 of which are for replacement. The air lines of the United States have established that they can utilize the transport planes furnished to them with a very high degree of efficiency. This factor, although not the sole or controlling factor, is very important and should be given most careful consideration before transport planes are assigned to other uses where the efficiency factor will be substantially less.

The Committee has requested our Air Services to furnish figures as to the comparative efficiency in ton-miles and passenger-miles and in average daily hours of flight time of the transport planes operated by them.

BARGES

Inland water transportation has carried a substantial portion of the wartime transportation load.

The principal wartime development in inland waterway transportation was the effort to carry a greater amount of petroleum products by barges as a result of the critical shortage which developed when the tanker movement was interrupted by submarine attacks and the diversion of tank ships to the carrying of petroleum products to other areas in response to direct military needs.

In May of 1942, because of this crisis, a program was inaugurated by a special committee appointed by the President for the construction and conversion of barges and for construction of towboats and tugboats for the purpose of increasing deliveries by barge into district I to alleviate the hardship experienced there from the petroleum shortage. The committee inquired into this program and issued an Interim Report on Barges in January of this year calling attention to the slow progress in this expansion program.

In the light of changing conditions, the original authorized construction program was modified from time to time and is not yet completed in its entirety, although a substantial part of the vessels pro-

vided for have been delivered and are now serving either in the petroleum-carrying trade or in other services useful to the war effort. In the following table are set forth the present modified barge, towboat, and tugboat construction programs showing the total number to be built and the number completed as of November 30, 1943:

Item	Total number planned under the modified program	Number completed as of Nov. 30, 1943
Conversion of steel cargo barges into tank barges	116	116
Welded steel oil and hopper barges	155	40
Steel tugboats, 600 horsepower	100	66
Steel towboats, 2,000 horsepower	21	4
Wooden oil barges	269	269

Except for the wooden barges, all of the vessels completed have been put into service in the petroleum-carrying trade or in other uses essential to the war effort and have made a substantial contribution. The agencies concerned anticipate a demand for those remaining to be built as soon as they are completed and ready for service.

The wooden barges, designed to carry residual (Bunker C) oil are not in use to any substantial extent and the agencies are anticipating considerable difficulty in employing them either in the petroleum-carrying trade or otherwise.

They represent an investment of more than $22,000,000 of funds furnished by the Defense Plant Corporation and were constructed according to designs and under the supervision of the Corps of Army Engineers. Their operation is directed by the Office of Defense Transportation.

Twenty-seven of these barges were used between September 6, 1943, and November 20, 1943, in the movement of Navy special fuel oil from Texas ports to Panama City, Fla., where the oil was transferred to tank cars and hauled to Norfolk, Va. This was the first extensive use of these barges for hauling residual fuel oil and, as a result of this experience, difficulties in moving of oil by wooden barges were encountered. First, carrying oil in wooden vessels has never proven too satisfactory because of inability to make wooden vessels watertight. Second, due to the shortage of seasoned lumber at the time these barges were being built, some green lumber had to be used which resulted in poor fitting seams and joints and consequent contamination of the oil by salt water, by seepage through the hulls, decks, and hatch covers of the barges. Third, due to the nature of construction, the pump lines did not reach to the bottom of the barge and, as a result, 700 to 900 barrels of oil and sea water remained in the bottom of the barges. The contamination of the oil was such that unless corrective measures were taken, the wooden barges could not be continued in the service of transporting Navy special fuel oil because Navy specifications called for oil in which there was contamination not exceeding 0.5 percent, whereas in some of the oils transported in wooden barges, the contamination was as high as 3.5 percent. Navy special oil is relatively lighter than other residual oils, having a viscosity of 25, as compared with a viscosity of 150 for Bunker C oil.

Similarly, 10 barges were used in the movement of molasses for the Defense Supplies Corporation from Port Everglades, Fla., to Baltimore, Md., but contamination from sea water caused fermentation of the molasses to such an extent that this use of the wooden barges was discontinued because of the spoilage of the molasses.

Corrective measures are now being taken to fix three barges to be used as a test in the transportation of the Navy special oil. These corrective measures consist of (1) calking seams and covering decks with canvas or felt paper and tar for the purposes of making the barges more watertight; (2) lowering the suction lines to within 1½ inches within the bottom of the barges so as to allow for bottom stripping of the barges, thereby eliminating residue; (3) installing coils in two of the storage tanks in Panama City for the purpose of heating the contaminated oil and breaking the emulsion, thereby removing water from the oil.

The results of these corrective measures have not yet been obtained since the Navy's use of these barges for transporting its oil is just being resumed. It is to be hoped that the problems will be solved and prove wooden vessels suitable for the carrying of oil.

The combined barge-rail movement of oil is more expensive than the all-rail movement because it involves the additional expense of transshipment from the barge to the tank car. Difficulty was experienced in chartering these wooden barges to independent operators because of the greater expense, the likelihood of contamination through leakage, and the greater fire hazard and higher insurance rates. The wooden-barge program was engaged in solely as a last resort during the height of the petroleum shortage crisis and the concurrent shortage in steel. Wooden barges were then recognized as a make shift substitute to add a substantial amount of petroleum products sorely needed in the East. Under the contemplated use, it is estimated that these wooden barges would contribute about 50,000 barrels per day in deliveries to the eastern seaboard.

Although the petroleum shortage on the eastern seaboard has been somewhat alleviated through tank-car movements, the construction of pipe lines, and the resumption of some tank-ship movement, the long-suffering residents of the eastern seaboard will insist that these barges, even though they be a marginal type of transportation, be operated. Fifty thousand barrels a day of gasoline will be the equivalent of over 1½ additional gallons of gasoline per week for the 8,270,000 cars registered in district I.

The barge program, conceived at a time of dire emergency, was so delayed by endless conferences attended by practically no action that all benefit therefrom during the winter of 1942–43 was lost. That was the period when it would have been of greatest value. We are now getting deliveries upon the construction program which really started about the first of this year.

Barge deliveries of oil into district I have increased by approximately 100,000 barrels per day in the 2-year period of the war. At the present time, barges transport approximately 7 percent of the petroleum products delivered into district I. Although this percentage is small, the contribution made by the oil-barge movement is substantial and represents more than the amount now allowed for all automobiles in district I. The committee expects that additional relief will be forthcoming from present efforts to employ the 269 wooden barges now on hand.

PIPE LINES

Pipe-line transportation of petroleum was early and properly visualized by the Petroleum Administration for War as a solution to some of the major domestic petroleum-transportation problems. At this time, the greater part of the pipe-line program has been completed. As a result, the petroleum-transportation problem has been greatly alleviated. The Petroleum Administration has announced that by next spring petroleum-transportation facilities will be adequate to handle all domestic production.

Pipe-line shipments to the East last month reached a high point of 482,457 barrels a day. This represented an increase of nearly 350,000 barrels a day over deliveries in the corresponding period a year ago. This is largely attributable to the Big Inch pipe line which is now in operation. This pipe line now has not only reached, but topped its estimated capacity of 300,000 barrels a day delivered to the Atlantic seaboard. All of its pumping stations are in operation.

The second large pipe line for the Atlantic seaboard, a 20-inch line, is expected to be completed by the spring of 1944. This will result in additional transportation facilities for petroleum products with a rated capacity of 235,000 barrels of gasoline per day.

The two large pipe-lines, together with their distribution system and the number of smaller pipe lines to the eastern seaboard, will result in the delivery by pipe lines of about 60 percent of the amount of pre-war tanker deliveries from domestic sources to the east coast.

The total estimated cost of the Big Inch pipe line was $95,000,000 and that of the second war emergency pipe line, the 20-inch line, is estimated at $75,000,000. These expenditures should be compared with the $35,000,000 spent by the War Department in connection with the Canol project to build a much shorter pipe line with a capacity of only 3,000 barrels per day as contrasted with the total rated capacity of 535,000 barrels a day for the two big pipe lines. Neither the Petroleum Administration for War nor the War Production Board had any connection with the Canol project.

A total of 17 other pipe-line projects have also been completed embracing with the 2 large lines, more than 11,000 miles of construction, reversals, and conversions. For the most part, the smaller pipe lines serve special purposes, but their contribution to a local situation benefited the Nation-wide petroleum transportation picture.

In late 1941, pipe lines accounted for less than 3 percent of petroleum shipments into district I. In the third quarter of 1943, pipe lines accounted for over 18 percent of such shipments and are rapidly increasing their proportionate contribution of essential petroleum deliveries. The through deliveries of petroleum products from district III to district I should also serve to relieve the shortage in district II.

TRANSPORTATION MANPOWER

As in most activities, the operators of the transportation systems have complained about shortages in personnel. Transportation manpower problems are very similar to the manpower problems faced by all forms of industrial and commercial activities. Employee shortages, however, are very definitely a limiting factor upon the volume of service that can be rendered by transportation agencies and some features of the shortages are peculiar not only to transportation generally but to the various forms of it.

Transportation is merely the continuation of a peacetime activity. Its revenue is based upon fixed rates subject to public control, most of which were established prior to the outbreak of the war. Many transportation wage contracts, based upon peacetime wage scales, were in existence at the time wages were frozen. These, and other factors, have had a very definite bearing upon the establishment of a relatively lower wage rate for transportation employees. This situation is to be contrasted with the typical war plant, producing military items on cost-plus contracts, where there was relatively less incentive for the employer to economize in labor costs and where wage scales were more recently established. The Senate has already taken action designed to correct this.

Transportation agencies have suffered from the inroads of Selective Service, although there is no evidence that comparatively they have lost more men to the armed forces than any other essential activity. Some agencies of transportation, like the railroad industry with its high age distribution, and water transportation because of its unique dangers and closeness to the war effort, have lost fewer men proportionately than many other essential activities. The Railroad Retirement Board estimates that from the railroads alone over 240,000 workers had become members of the armed services by June 30, 1943.

In the higher skilled positions, however, where seniority rules had been established, transportation agencies, and the railroads particularly, have been fortunate in not losing personnel. It is in the transportation jobs of less skill and lower wage that personnel shortages are most acute and the greatest rate of turn-over is found. War Manpower Commission regulations have proved ineffective for a number of companies in reducing high rates of turn-over, although it is, of course, impossible to estimate what turn-over rates would have been without such regulations.

Detailed statistics showing increased employment are set forth in appendix VI. An examination of these figures discloses that from July 1941 to July 1943 the number of employees in public transportation systems increased by almost 400,000 to a total, on the latter date, of 2,793,300. Slightly over half of this increase was in railroad employees numbering 1,555,900 in July 1943. As will be noted from the table, this was an increase of all transportation employment of 16½ percent for the 2-year period, while the volume of freight traffic during the same 2-year period increased by over 33 percent and the volume of passenger traffic increased by 250 percent.

The Office of Defense Transportation estimates that a net increase of about 60,000 workers, divided as follows, will be needed to handle the 1944 load:

Railroads	14,100
Trucking	11,400
Local transit	9,400
Airlines and miscellaneous	25,000

One of the sources of new employees in transportation systems has been the employment of women, even in positions not previously considered suitable for them, such as bus and streetcar operators, drivers of delivery trucks and helpers, mechanics and mechanic's helpers, passenger train brakemen and yard brakemen, and in many other mechanical and laborer's jobs heretofore usually filled by men. In July of 1943, 225,000 women (slightly over 8 percent of all employees) were employed, as compared with 120,000 in September of 1942 (4.8

percent of all employees). Another source has been the importation of Mexican nationals for track work on the western railroads. On September 11, 1943, there were nearly 15,000 so employed. Another source has been Negro workers who in July 1943 represented about 10 percent of all employees. There are also many part-time employees, such as students on vacation, and, in some instances, business and professional people and factory workers, working on a part-time basis.

In recruiting these employees, Government employment agencies have been very helpful. For example, the Railroad Retirement Board placed 197,000 workers on the railroads for the year ending June 1943 as compared with 59,000 for the previous year. Further suggested sources of labor, such as prisoners of war, have met with opposition by the unions.

Many measures have been advocated, and some have been put into effect, for the more effective utilization of transportation employees. Some progress has been made, particularly in railroad and motor transport industries, through training and upgrading programs, in which Government agencies have been of assistance.

The average weekly hours of work on railroads have been increased from 48.6 hours in June 1942 to 50.9 hours in July 1943. This average is equaled by few other war industries.

Some of the orders of the Interstate Commerce Commission have resulted in manpower savings through modification of operating practices, such as the service orders suspending State laws and labor agreements limiting the length of trains and labor agreements which limited the total number of tons on double-header freight trains. This action is along the line recommended by the committee in its report on manpower. Although considerable progress has been made in eliminating regulations and practices which restrict the full use of railroad equipment or interfere with the full utilization of labor, there is no question but that more can and should be done along this line to relieve the labor shortage during the war emergency.

A great deal has been said about these restrictions, which are lumped together under the popular and somewhat inaccurate characterization of "featherbed rules," such as full crew laws, mileage limitations, and rules preserving specialization of work as between employee classes or crafts. Many of these rules do not require pay for work not done, as is generally implied in the term "featherbed." Similar restrictions are to be found in the trucking industry where over-the-highway operators have been compelled to employ a local driver upon entering a municipality and have been prohibited from leasing outside equipment as long as the operator has trucks of his own available for use, sometimes resulting in operating a vehicle empty over some part of a trip. Similar rules are also found in the local transit industry where some agreements prohibit employment of operators on trips additional to their regular runs and other rules limit the number or percentage of so-called "swing" runs, which may be scheduled. Some seniority rules discourage recruiting of new employees, and sometimes assign the easier tasks to the older employees leaving to the new employees, many of whom are now women, the more arduous and unpleasant jobs.

A few of these rules, as noted in the instances cited above, have been formally suspended. Many others are not being observed or are being less rigidly enforced.

The elimination of many of these rules hampering the full use of labor has been opposed by the labor unions. Most of them were developed over a long period of time, when employment was relatively scarce, and had as their objective the spreading of the work available among a greater number of employees. They represent from the point of view of the employees' unions, a tremendous investment in time and effort. The unions naturally are loath to give up these rules, because they feel that they would have difficulty in reestablishing them after the war when the demand for transportation will be less and a surplus of labor is expected to exist again. Some progress has been made but not enough. It is not possible to estimate any more accurately the savings that could be made through the elimination of wasteful labor restrictions than it is to estimate the savings expected to result from the reduction of other wasteful practices such as circuitous routing and cross-hauling. However, it may be stated that the savings would be substantial and well worth attempting to achieve. Probably the major portion of the savings could be made through the voluntary action and cooperation of the unions without resorting to regulatory orders.

The committee was hopeful that the establishment of labor management committees in the transportation industries would accomplish substantial results in eliminating wasteful labor practices and aid in solving other labor problems arising from time to time. It is disappointed that more progress has not been made. Efforts to continue and intensify labor-management cooperation are called for. Voluntary and willing action and team work produce better results than attempted enforcement of unpopular regulations which are resisted at every point. The committee believes substantial dividends can be achieved in the very worth-while program of labor-management cooperation designed for the purpose of more effectively utilizing transportation labor.

The committee believes that its basic recommendations concerning the balancing of manpower requirements for war production and the armed services against manpower resources, together with full utilization of workers' abilities, should have been acted upon at the time of the manpower report over a year ago. At the present time, much remains to be done in the field of utilization. As pointed out above, management practices as well as labor restrictions have contributed to poor utilization.

It is not enough to wait until the critical nature of a manpower shortage convinces the parties concerned that additional measures need to be taken. The Government can devise manpower programs, initiate action and, in a few instances, issue regulations or orders, but, to a large extent, the burden of responsibility rests on management and labor in any local situation to alleviate the manpower shortage by training new workers, relaxing restrictions, and improving labor utilization.

CONCLUSION

Our transportation system is essentially sound. It has performed an almost unnoticed but indispensable service to our war effort. Labor and management of transport companies and shippers, with the cooperative supervision of the Office of Defense Transportation and the Interstate Commerce Commission, have met and have over-

come unforeseen obstacles, which our enemies predicted would cause our war production to collapse. To date, we have outdone the enemy on the transportation front. We have proved the superiority of cooperation and freedom over regulation imposed from above through force and fear. One of the enemy's chief weaknesses, despite the confiscated facilities and enslaved manpower at his disposal, is the insufficiency of his transportation.

Yet pride in achievement must not lead us into neglect. Disruption or diminution in transportation service now would have incalculable effects upon our progress toward victory and peace. The unprecedented increase in the volume of traffic has approached dangerously near the limit of the capacity of our transport facilities. Replenishment needs of transportation agencies in terms of manpower, materials, and facilities are modest in comparison with total war requirements and entail practically no public financing. Failure to provide for those needs would be to run the risk of break-down. A transportation collapse would be disastrous to the war effort.

1. Our wartime experience indicates the importance of maintaining a sound and healthy railroad system as an instrument of national defense. The production of adequate numbers of locomotives, freight cars, rail and other railroad facilities is, therefore, imperative.

2. Motor transport has grown into our economic life in such a manner that our entire national effort depends upon the soundness and vigor of these arteries of commerce. Circumstances such as the loss of sources of natural rubber and heavy military demands upon petroleum production and motor-manufacturing facilities have presented serious obstacles to the adequate maintenance of motor transport. These obstacles must be overcome and adequate replacement parts, new vehicles, and tires must be supplied.

3. The air lines, though relatively small as measured by the volume of traffic handled and although half of their planes had to be taken from them for military use, have made a significant contribution in meeting transportation needs in a war where emphasis has been placed upon speed and dispatch. Returning to them a substantial number of planes, as soon as possible, would enable the air lines to multiply the service they have demonstrated they are capable of rendering.

4. A notable job has been done in overcoming the transportation deficiency which arose when our coastwise and intercoastal traffic was interrupted by submarine sinkings and the diversion of our tank and other ships to military uses. The handling of an unprecedented overland westward movement of freight by the railroads, the marshalling of railroad tank cars and the fast handling of rail movement of petroleum products into district I, the construction of huge pipe lines and the expansion of oil barge deliveries were accomplished, on the whole, in a creditable manner. However, the slow progress and partially unsatisfactory outcome of the barge and towboat expansion program are to be deplored.

5. On the whole, the carriers, the shippers, and the public have cooperated well in obtaining a high degree of efficient utilization of transportation facilities and in reducing unnecessary and wasteful uses and practices. Much more can, and must, be achieved in this direction.

The committee recommends that constant and adequate attention be given to the needs of our transportation system so as to insure its ability to stand the strain which a long war might thrust upon it.

APPENDIXES

Appendix I

New locomotives installed and on order—Class I railways in the United States

First of month	New locomotives on order	New locomotives installed during month	Locomotives retired
1939			
January	73	17	113
February	84	18	113
March	101	19	113
April	95	25	113
May	86	15	114
June	128	32	112
July	108	13	102
August	118	27	102
September	94	36	106
October	108	67	176
November	136	41	237
December	115	10	135
1940			
January	117	19	269
February	139	26	46
March	132	34	56
April	115	36	107
May	95	36	142
June	129	29	112
July	124	21	95
August	168	36	150
September	179	28	72
October	215	55	112
November	196	47	80
December	182	50	71
1941			
January	206	47	123
February	238	34	92
March	298	42	92
April	335	36	37
May	438	59	74
June	517	43	[1] 12
1941—con.			
July	559	62	8
August	603	49	41
September	611	53	24
October	671	68	51
November	611	64	42
December	572	76	90
1942			
January	546	71	64
February	543	44	54
March	651	64	54
April	930	58	46
May	985	55	25
June	950	73	37
July	917	67	24
August	881	82	66
September	861	61	137
October	840	63	83
November	779	30	72
December	894	44	24
1943			
January	888	49	18
February	886	50	1
March	891	60	----
April	910	54	20
May	893	38	----
June	937	42	----
July	1,024	50	----
August	1,014	65	----
September	1,038	75	24
October	1,067	91	11
November	1,039	[2]	[2]

[1] Includes 36 locomotives involved in transfer of power between companies.
[2] Not yet available.

Source: Car Service Division, Association of American Railroads.

APPENDIX II

New freight cars installed and on order—Class I railways in the United States

First of month	New cars on order	New cars installed during month	Cars retired
1939			
January	5,080	1,020	10,900
February	6,637	1,702	5,373
March	6,788	2,382	6,658
April	6,502	1,713	3,176
May	6,391	293	5,470
June	9,261	1,517	4,545
July	10,062	1,605	2,794
August	8,448	2,165	4,680
September	8,754	2,223	8,748
October	23,028	2,713	4,558
November	28,906	2,648	3,634
December	36,193	4,415	7,181
1940			
January	37,049	4,978	2,898
February	34,509	6,608	4,190
March	28,112	8,608	5,965
April	21,112	7,431	5,029
May	17,460	5,065	4,213
June	15,039	3,968	7,717
July	16,933	3,564	6,938
August	19,765	4,375	4,024
September	18,456	4,894	5,278
October	19,892	5,106	8,301
November	27,459	4,681	4,566
December	30,184	6,072	4,526
1941			
January	34,202	6,494	4,709
February	40,030	4,860	5,314
March	37,981	6,355	3,296
April	41,091	5,660	3,100
May	55,404	5,300	2,975
June	64,027	6,713	1,548
July	91,416	6,862	1,233
August	88,266	5,672	1,356
September	89,917	6,311	1,517
October	86,943	8,600	2,284
November	78,974	7,606	1,086
December	75,559	7,869	2,357
1942			
January	73,697	8,140	951
February	66,870	9,261	1,133
March	69,402	9,857	1,034
April	68,316	10,478	2,253
May	58,129	6,803	1,921
June	48,351	4,165	1,897
July	37,891	2,705	2,082
August	35,442	1,946	1,648
September	34,195	2,318	2,839
October	35,637	2,254	2,031
November	29,204	2,862	1,120
December	27,308	1,789	1,231
1943			
January	27,061	1,683	783
February	36,108	1,313	358
March	32,661	1,661	1,099
April	33,353	1,603	2,774
May	34,262	1,224	1,647
June	33,537	1,931	1,408
July	31,744	2,615	1,012
August	27,795	3,714	1,600
September	28,433	4,688	1,867
October	28,896	3,282	1,076
November	34,092	(1)	(1)

[1] Not yet available.

Source: Association of American Railroads.

APPENDIX III

Age categories

Age group	Passenger-carrying cars		Head-end passenger train cars		Pullman cars	
	Number	Percent of total	Number	Percent of total	Number	Percent of total
1 to 5 years	802	3.6	200	1.3	989	13.89
6 to 10 years	1,066	4.7	375	2.4	219	3.08
11 to 15 years	2,073	9.1	2,235	14.6	919	12.90
16 to 20 years	5,207	22.9	3,587	23.4	2,055	28.86
21 to 25 years	2,278	10.0	1,052	6.9	797	11.19
Over 25 years	11,293	49.7	7,882	51.4	2,142	30.08
Total	22,719	100.0	15,331	100.0	7,121	100.00

Source: Association of American Railroads.

APPENDIX IV

Income account for class I railways in the United States

Year	Operating revenues (000)	Operating expenses (000)	Taxes (000)	Net railway operating income (000)	Rate of return on property investment (percent)	Net income after fixed charges (000)
1937	$4,166,069	$3,119,065	$325,665	$590,204	2.27	$98,058
1938	3,565,491	2,722,199	340,782	372,874	1.43	[1] 123,471
1939	3,995,004	2,918,210	355,678	588,829	2.25	93,182
1940	4,296,601	3,089,417	396,395	682,133	2.59	188,851
1941	5,346,700	3,664,232	547,230	998,256	3.75	499,765
1942	7,465,823	4,601,083	1,198,834	1,484,519	5.50	901,713
First 9 months:						
1942	5,327,539	3,346,739	872,554	976,301	5.04	575,840
1943	6,714,626	4,042,579	1,454,726	1,073,083	5.53	697,444

[1] Deficit.

Increases shown in net earnings during the first 9 months of 1943 were made during the first 5 months of the year. For each month, beginning with June 1943, net earnings have been less than in the corresponding month of the preceding year. Because of increasing taxes and operating expenses, it is believed that this downward trend in net earnings will continue.

Percentage of decrease compared with corresponding 1942 month

	Net railway operating income	Net income after fixed charges
June 1943	7.6	9.2
July 1943	9.7	8.8
August 1943	8.4	6.1
September 1943	28.9	33.8
June-September 1943	14.4	15.5

Source: Association of American Railroads.

APPENDIX V

Comparison of selected data relating to domestic air carrier operations for years ended Dec. 31, 1930, and Dec. 31, 1941, and fiscal years ended June 30, 1942, and June 30, 1943

	Year ended Dec. 31, 1930	Year ended Dec. 31, 1941	Percent of increase	Year ended June 30, 1942	Year ended June 30, 1943	Percent of increase
Number of domestic carriers at close of year	[1] 38	19	−50.0	18	18	----------
Number of planes in revenue service at close of year	[1] 497	359	−27.8	[2] 182	[2] 186	2.2
Average seating capacity per plane [3]	[4] 6.58	18.8	200.9	19.7	19.0	−3.6
Number of employees at close of year	[5] 3,475	[6] 17,222	395.6	[7] 26,954	([4])	----------
Revenue passenger-miles	[8] 84,014,572	1,384,733,251	1,548.2	1,517,621,015	1,425,960,219	−6.0
Express ton-miles	[4] 1,089,802	5,258,551	382.7	7,951,409	14,346,704	80.4
Mail ton-miles	[4] 2,461,411	13,118,014	432.9	15,864,489	28,365,745	78.8
Excess baggage ton-miles	----------	1,402,534	----------	1,786,853	2,833,775	58.6
Gross operating revenue	[4] $21,591,444	$97,312,122	305.0	$107,090,377	$114,031,722	6.5

[1] Data taken from "Progress of Civil Aeronautics in the United States," published by Civil Aeronautics Administration.
[2] Exclusive of planes under lease to U. S. Army.
[3] Includes planes, used in mail and cargo service only, which carry no passengers.
[4] Data furnished by the Air Transport Association.
[5] Includes employees of international and Territorial carriers.
[6] As of month of June 1941.
[7] As of month of December 1942.
[8] Includes nonrevenue passenger miles.

NOTE.—Data for 1941, 1942, and 1943 include Hawaiian Airlines

APPENDIX VI

Transportation number of employees 1941–43, and estimate of 1944 employment demand

Industry	July 1941	July 1942		July 1943			July 1944		
		Number	Percent increase over 1941	Number	Percent increase over 1942	Percent increase over 1941	Number	Percent increase over 1943	Number of increase over 1943
Railroads	1,328,400	1,468,700	10.6	1,555,900	5.9	17.1	1,570,000	0.9	14,100
Intercity bus	34,900	43,500	24.6	51,400	18.2	47.3	52,000	1.2	600
For-hire trucking	486,900	510,700	4.9	538,600	5.5	10.6	550,000	2.1	11,400
Great Lakes water carriers	27,200	26,700	−1.8	27,500	3.0	1.1	27,500	0	0
Inland water carriers	36,500	36,000	−1.4	35,700	−.8	−2.2	37,200	4.2	1,500
Pipe lines	21,000	22,000	4.8	22,700	3.2	8.1	22,500	−.9	−200
Air lines [1]	17,300	20,000	15.6	75,000	275.0	333.5	100,000	33.3	25,000
Local transit	207,000	223,700	8.1	241,600	8.0	16.7	251,000	3.9	9,400
Public warehousing	60,900	62,000	1.8	69,900	12.7	14.8	70,000	.1	100
Transport services, not elsewhere classified	177,000	175,000	−1.1	175,000	0	−1.1	175,000	0	0
Total	2,397,100	2,588,300	8.0	2,793,300	7.9	16.5	2,855,200	2.2	61,900

[1] Estimated.

Source: Office of Defense Transportation.

PUBLISHED REPORTS

The Special Committee Investigating the National Defense Program, United States Senate, pursuant to Senate Resolution 71 (77th Cong.), authorizing and directing an investigation of the national defense program.

Report No. 480 (77th Cong., 1st sess.):
- Part 1.—Aluminum.
- Part 2—Camp and Cantonment Construction.
- Part 3—Priorities and the Utilization of Existing Manufacturing Facilities.
- Part 4—Statement of Committee Policy.

* * * * * * *

Report No. 480 (77th Cong., 2d sess.):
- Part 5—Annual Report of Committee Investigations.
- Part 6—Light Metals, Aircraft, and Other Matters.
- Part 7—Rubber.
- Part 8—Conversion to War Production Program of War Production Board.
- Part 9—Conversion Program, War Production Board. (Accompanies pt. 8.)
- Part 10—Investigation in Connection With Senator Albert B. Chandler's Swimming Pool in Kentucky.
- Part 11—Manpower.
- Part 12—Shipbuilding at the South Portland Shipbuilding Corporation.
- Part 13—Gasoline Rationing and the Fuel Oil Situation.
- Part 14—Lumber.

* * * * * * *

Report No. 10 (78th Cong., 1st sess.):
- Part 1—Barges.
- Part 2—Farm Machinery and Equipment.
- Part 3—Interim Report on Steel.
- Part 4—Second Annual Report.
- Part 5—Renegotiation of War Contracts.
- Part 6—Labor.
- Part 7—Concerning Faking of Inspections of Steel Plate by Carnegie-Illinois Steel Corporation.
- Part 8—Shipbuilding and Shipping.
- Part 9—Conflicting War Programs.
- Part 10—Aircraft.
- Part 11—Comparative Merits of Rayon and Cotton Tire Cord.
- Part 12—Outlines of Problems of Conversion from War Production.

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