

YAQUINA BAY AND HARBOR, OREG.

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LETTER

FROM

THE SECRETARY OF WAR

TRANSMITTING TO THE

CHAIRMAN OF THE COMMITTEE ON COMMERCE  
UNITED STATES SENATE

PURSUANT TO

A RESOLUTION OF THE COMMITTEE, A REPORT  
ON REEXAMINATION OF YAQUINA BAY  
AND HARBOR, OREG.



PRESENTED BY MR. BAILEY

OCTOBER 27, 1941.—Referred to the Committee on Commerce  
and ordered to be printed, with an illustration

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UNITED STATES  
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WASHINGTON : 1941



## LETTER OF TRANSMITTAL

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WAR DEPARTMENT,  
Washington, October 17, 1941.

HON. JOSIAH W. BAILEY,  
*Chairman, Committee on Commerce,  
United States Senate, Washington, D. C.*

DEAR SENATOR BAILEY: I am transmitting herewith a report dated June 19, 1941, from the Chief of Engineers, United States Army, on reexamination of Yaquina Bay and Harbor, Oreg., requested by resolution of the Committee on Commerce, United States Senate, adopted April 13, 1940, together with accompanying papers and an illustration.

The Bureau of the Budget has been consulted and advises that while there would be no objection to the submission of this proposed report, it would not be in accord with the program of the President, in the absence of evidence showing that the proposed works possess important defense values, to submit during the present emergency any estimate of appropriation for the construction of the project.

Sincerely yours,

HENRY L. STIMSON,  
*Secretary of War.*

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WAR DEPARTMENT,  
OFFICE OF THE CHIEF OF ENGINEERS,  
Washington, June 19, 1941.

The CHAIRMAN, COMMITTEE ON COMMERCE,  
*United States Senate, Washington, D. C.*

MY DEAR MR. CHAIRMAN: 1. The Committee on Commerce of the United States Senate, by resolution adopted April 13, 1940, requested the Board of Engineers for Rivers and Harbors to review the report on Yaquina Bay and Harbor, Oreg., contained in Senate Committee Print, 75th Congress, 1st session, and previous reports, with a view to determining whether it is advisable to modify the existing project in any way at the present time. I enclose the report of the Board in response thereto.

2. After full consideration of the reports secured from the district and division engineers, the Board recommends modification of the existing project for Yaquina Bay and Harbor, Oreg., to provide, insofar as the rock bottom will allow, for a channel 26 feet deep and of suitable width across the entrance bar, for a channel 20 feet deep and 300 feet wide from the outer end of the jetties upstream a distance of about 2 miles, and for a turning basin 22 feet deep, 1,000 feet wide, and 1,200 feet long; all at an estimated cost for new work of \$162,000, with \$50,000 annually for maintenance in addition to the amount now required; subject to the conditions that local interests furnish assurances satisfactory to the Secretary of War that they will provide



adequate terminal facilities open to all on equal and equitable terms, furnish free of cost to the United States all spoil-disposal areas necessary for the improvements and their subsequent maintenance, when and as required, and hold and save the United States free from claims for damages resulting from the improvements.

3. After due consideration of these reports, I concur in the views and recommendations of the Board.

Very truly yours,

J. L. SCHLEY,  
Major General,  
Chief of Engineers.

REPORT OF THE BOARD OF ENGINEERS FOR RIVERS AND  
HARBORS

WAR DEPARTMENT,  
THE BOARD OF ENGINEERS FOR RIVERS AND HARBORS,  
Washington, May 26, 1941.

Subject: Yaquina Bay and Harbor, Oreg.

To: The Chief of Engineers, United States Army.

1. This report is in response to the following resolution adopted April 13, 1940:

*Resolved by the Committee on Commerce of the United States Senate, That the Board of Engineers for Rivers and Harbors, created under section 3 of the River and Harbor Act approved June 13, 1902, be, and is hereby, requested to review the report on Yaquina Bay and Harbor, Oregon, contained in Senate Committee Print, Seventy-fifth Congress, first session, and previous reports, with a view to determining whether it is advisable to modify the existing project in any way at the present time.*

2. Yaquina Bay is an estuary at the mouth of Yaquina River on the Oregon coast, 113 miles south of the mouth of Columbia River. The bay extends to Yaquina about  $4\frac{1}{2}$  miles from the ocean entrance. Its point of maximum width, 2,000 feet, is at Newport, about 2 miles from the ocean. The improvements authorized by Congress include rubble mound entrance jetties, 4,700 and 5,800 feet long, with their outer sections 1,000 feet apart, and dredging and rock removal to secure a depth of 20 feet through the entrance, thence 18 feet to Yaquina; and, as a separate project, a river channel 10 feet deep and generally 150 feet wide to Toledo, a further distance of 9 miles. The total cost to the United States for the river channel, which was completed in 1914, has been \$70,700. The entrance and bay improvements were completed in 1930, except for a 1,000-foot extension of the north jetty which was finished in 1940. The Federal cost has been \$2,352,903 for new work and \$827,566 for maintenance. The approved estimate of annual cost of maintenance for the harbor improvement is \$47,000, exclusive of such amount as may be required for the south jetty. Local interests have shared in the costs by providing \$46,200 for the river work and \$729,168 for harbor construction, and have provided at Newport a 400-foot wharf open to all on equal terms and 500 feet of float landings. The mean range of tide is about 6 feet.

3. The surrounding area is mountainous and heavily timbered, the total stand commercially available to the port being estimated at 8,200,000,000 feet board measure. Toledo and Newport, with popu-



lations of 2,300 and 2,000, respectively, are the principal communities. Toledo has rail service but Newport and Yaquina are dependent upon truck and water transportation. A lumber-manufacturing plant, with capacity of 400,000 feet board measure per 8-hour shift, located at Toledo, ships about one-half of its production by rail and the remainder by lightering to Newport and transfer to ocean carriers. The several smaller plants do not at present make ocean shipments. Ocean vessel traffic of the harbor in 1939 consisted of 78,050 tons, of which 71,570 tons was out-bound lumber. Commerce, in addition to this traffic and stone used by the United States in jetty construction, consisted of 105,820 tons of rafted logs and 155 tons of fish. Intercoastal ships first used Yaquina Harbor in May 1939, and in the following 18 months made 23 trips from the bay. These ships are over 400 feet long and fully loaded draw 27 to 28 feet. They are loaded to average drafts of  $17\frac{1}{2}$  feet for departure from Newport. Coastwise vessels operating out of Yaquina Bay are shorter and do not take the swells in the entrance as well as the longer boats. They load at Newport to average drafts of 16 feet, although their fully loaded average drafts would be about 22 feet. Yaquina Bay is also extensively used by fishing boats during the fall and summer seasons.

4. Local interests request that the United States extend the jetties to Yaquina Reef, a rock ledge which parallels the coast about 4,000 feet offshore, remove rock and other material at the entrance to a depth of 26 feet, and provide an inner channel not less than 22 feet deep to a turning basin of equal depth in the vicinity of Newport. They contend that these improvements are necessary to assure year-around operation of intercoastal vessels from the harbor, and that they will enable these vessels and coastwise ships to load to increased drafts and will result in less loss of time by ships waiting for favorable tides to leave the harbor. They state that they have large contracts for lumber for defense work, including shipbuilding and that they are furnishing spruce direct to England for airplane construction. They contend that shallow depths in the harbor and across the entrance bar have recently delayed important cargoes for several days and led the only intercoastal ship line operating from the harbor seriously to consider discontinuing its service.

5. The district engineer finds that extension of the jetties as desired would cost several million dollars and could not be economically justified. He proposes dredging an entrance channel 26 feet deep and about 600 feet wide from Yaquina Reef to the outer end of the jetties; thence 20 feet deep and 300 feet wide following generally the south shore to a turning basin 22 feet deep, 1,000 feet wide, and 1,200 feet long just above Newport, the existing channel to be maintained at authorized depth along the Newport water front. He points out that to provide a depth greater than 20 feet between the jetties would require expensive rock excavation. He estimates the first cost at \$162,000 and the annual cost at \$58,300, including \$50,000 for maintenance in addition to the amount now required. He believes that the improvement would result in average annual benefits of \$76,000, based on an increase in the lumber commerce to 228,000 tons annually and an increase of 5,000 tons in imports. This benefit is made up of \$43,000 estimated savings in ship-operation costs due to a reduction in delays, \$18,000 reduction in lighterage costs, \$5,000 savings in transportation of in-bound commerce which does not now move by water,



and \$10,000 of miscellaneous benefits such as would accrue to the fishing fleet and result from safer navigation. He believes that the improvement should be conditioned upon local interests agreeing to construct adequate terminal facilities, and considers that the costs of these would probably be substantially equaled by the returns from terminal charges. The district and division engineers concur in recommending the improvement, subject to certain local cooperation.

IEWS AND RECOMMENDATIONS OF THE BOARD OF ENGINEERS FOR  
RIVERS AND HARBORS

6. The Board concurs in general with the reporting officers. The existing commerce on Yaquina Bay demonstrates that water transportation is a necessary and valuable medium for the marketing of much of the extensive forest resources of the area. The improvements recommended by the reporting officers would permit a continued development of traffic which will otherwise be hampered by irregularities and delays in ship movements. The probable transportation economies which would result from the work are sufficient to justify the required expenditures. The Board recommends modification of the existing project for Yaquina Bay and Harbor, Oreg., to provide, insofar as the rock bottom will allow, for a channel 26 feet deep and of suitable width across the entrance bar, for a channel 20 feet deep and 300 feet wide from the outer end of the jetties upstream a distance of about 2 miles, and for a turning basin 22 feet deep, 1,000 feet wide and 1,200 feet long; all at an estimated cost for new work of \$162,000, with \$50,000 annually for maintenance in addition to the amount now required; subject to the conditions, that local interests furnish assurances satisfactory to the Secretary of War that they will provide adequate terminal facilities open to all on equal and equitable terms, furnish free of cost to the United States all spoil-disposal areas necessary for the improvements and their subsequent maintenance, when and as required, and hold and save the United States free from claims for damages resulting from the improvements.

For the Board:

THOMAS M. ROBINS,  
*Brigadier General, Corps of Engineers,*  
*Senior Member.*

REEXAMINATION OF YAQUINA BAY AND HARBOR, OREG.

SYLLABUS

The district engineer is of the opinion that further improvement of the entrance to Yaquina Bay and of the bay channel is justified by the benefits which would accrue. It is accordingly recommended that the existing project for Yaquina Bay and Harbor, Oreg., be modified to provide, insofar as the rock bottom will allow, a channel over the ocean bar, outside the jetties, of suitable width and 26 feet deep at mean lower low water; a channel at least 20 feet deep and 300 feet wide, extending from the outer ends of the jetties and along the south side of the bay to a point opposite McLean Point; and a turning basin 1,000 by 1,200 feet at the upstream end of the channel with a depth of 22 feet at mean lower low water; also maintenance of the existing channel 18 feet deep and 200 feet wide along the Newport water front from the highway bridge to the turning basin opposite McLean Point; all at an estimated additional cost of \$162,000 for new work and \$50,000 additional for maintenance; provided local interests furnish free of cost to the United States adequate disposal areas for dredged material and give satisfactory assurances that they will provide suitable public terminal facilities at a location satisfactory to the United States.



WAR DEPARTMENT,  
UNITED STATES ENGINEER OFFICE,  
Portland, Oreg., February 28, 1941.

Subject: Review report on Yaquina Bay and Harbor, Oreg.

To: The Division Engineer, North Pacific Division, Portland, Oreg.

1. *Authority.*—This report is submitted in compliance with a resolution of the Committee on Commerce of the United States Senate, as follows:

*Resolved by the Committee on Commerce of the United States Senate, That the Board of Engineers for Rivers and Harbors, created under section 3 of the River and Harbor Act approved June 13, 1902, be, and is hereby, requested to review the report on Yaquina Bay and Harbor, Oregon, contained in Senate Committee Print, Seventy-fifth Congress, first session, and previous reports, with a view to determining whether it is advisable to modify the existing project in any way at the present time.*

Adopted April 13, 1940.

2. *Report under review.*—The report under review, Senate Committee Print, Seventy-fifth Congress, first session, was favorable to modification of the then existing project to provide for extension of the north jetty approximately 1,000 feet.

3. *Scope of the report.*—The desires of local interests at this time are for further improvement of the entrance and lower bay. Improvement of the river, from the upper end of the bay to Toledo, will be covered in report to be submitted by the district engineer about March 15, 1941. The present report will therefore be limited in scope to consideration of further improvement of the Yaquina Bay entrance and inner harbor.

4. *Description.*—Yaquina Bay is a tidal estuary on the Oregon coast. Its entrance, in latitude  $44^{\circ}37'$  N., is 113 miles south of the mouth of the Columbia River and 65 miles north of the Umpqua River. The bay, which extends from the Coast Highway Bridge at Newport to Yaquina, has a length of about  $3\frac{1}{4}$  miles and a maximum width between high tide lines of about  $1\frac{1}{2}$  miles. At mean lower low water the width varies from a minimum of about 1,000 feet at the upper and lower ends to a maximum of about 2,000 feet opposite Newport. The mean range of tide at Newport, just inside the entrance, is 6.0 feet and at Yaquina, head of bay, 6.2 feet. The highest tides rise to about 11 feet above the plane of mean lower low water.

5. The entrance has been improved by the construction of twin jetties, extending southwesterly toward an opening in Yaquina Reef, a rock ledge which approximately parallels the coast about 4,000 feet offshore. The south jetty is 5,800 feet in length and the north jetty, which has recently been extended seaward a distance of 1,000 feet, has a total length of 4,700 feet. The jetties are 1,000 feet apart at their outer ends. (See U. S. Coast and Geodetic Survey Chart No. 6058 and pl. 1 submitted herewith.)

6. Yaquina River rises in the Coast Range Mountains, about 30 miles easterly from the mouth, and flows in a sinuous course a distance of about 50 miles to Yaquina Bay. The river drains an area of 242 square miles. It has a low summer flow and, due to the small drainage area, freshet discharges are not large and have no noticeable effect on stages in the bay.



7. A hydrographic survey made during September 1940 shows controlling depths at mean lower low water in excess of 20 feet along the entrance range and 18 feet in a channel 300 feet wide between the jetties. Seaward of the outer ends of the jetties greater depths prevail. Through the reef, seaward of the jetties, there is an opening 1,000 feet wide with minimum depth of 30 feet. In the bay channel, between Newport and Yaquina, the least depth is 17 feet. In the river, between Yaquina and Toledo, the controlling depth is 8 feet.

8. *Adjacent ports.*—Tillamook Bay, 66 miles to the north, and Umpqua River, 65 miles to the south, with entrance project depths of 18 and 26 feet, respectively, are the two nearest improved harbors. The Columbia River is 113 miles to the north and Coos Bay 87 miles to the south.

9. *Tributary area and resources.*—The region which may be considered as tributary to Yaquina Bay embraces practically all of Lincoln County, small areas in Polk and Lane Counties, and the western part of Benton County, a total area of about 1,400 square miles. Lincoln County is divided into three port districts. The port of Newport includes the coastal region north of Alsea Bay and the extreme northern portion of the county, the port of Alsea the southern portion, and the port of Toledo the east central portion.

10. The area is generally rough and not well adapted for agricultural development, only about 3 percent of the area being in tillable land. Bottom lands along the streams are fertile, but limited in extent.

11. The principal natural resource is timber, consisting of the commercial varieties of fir, hemlock, spruce, alder, and cedar. The watershed of Yaquina River was formerly heavily timbered, but much of the original stand was destroyed by fire. The heaviest stands of commercial timber lie in the Siletz River Basin to the north and in the Alsea River Basin to the south, parts of these areas having escaped the ravages of an early fire which swept the Oregon coast.

12. Although the tributary area is considered to extend easterly into Benton County and includes small areas of Polk and Lane Counties, insofar as the timber resources are concerned, the present demand from outlying mills in the Willamette Valley limits the area of timber available to Yaquina Bay to part of Lincoln County only. According to compilations of the United States Forest Service, there were 12,500,000,000 feet board measure of timber in Lincoln County in 1933, of which 28 percent was within the boundaries of the Siuslaw National Forest, all second growth, and 64 percent was privately owned. The remaining 8 percent consisted of State- and county-owned lands, revested land grants, etc. It is believed that logging operations since 1933 have reduced the total timber stand to about 11,500,000,000 feet. Plate II,<sup>1</sup> submitted herewith, shows the location of the stands of old- and second-growth Douglas fir and spruce in Lincoln and adjoining counties at the time of the United States Forest Service survey in 1933.

13. From a study of the location of the timber stands with reference to natural outlets, and the existing and proposed logging railroads extending northerly from Toledo to the Siletz River Basin, it is estimated that of the present total of 11,500,000,000 feet approximately 8,200,000,000 feet may be considered as tributary to Yaquina Bay and River. This timber is segregated as follows:

<sup>1</sup> Not printed.



*Volume of timber tributary to Yaquina Bay and River*

[In thousand feet board measure, log scale]

	Point of delivery		Total
	Lower Yaquina Bay	Vicinity of Toledo	
Old-growth Douglas fir .....	330,000	1,765,000	2,095,000
Second-growth Douglas fir, 20 to 40 inches .....	1,930,000	1,680,000	3,610,000
Small-growth Douglas fir, less than 20 inches .....		150,000	150,000
Spruce and hemlock:			
Saw timber .....	1,185,000	70,000	1,255,000
Small .....	150,000		150,000
Miscellaneous alder, maple, cedar, pine, etc .....	340,000	600,000	940,000
Total .....	3,935,000	4,265,000	8,200,000

14. Toledo, about river mile  $8\frac{1}{2}$ , is the county seat of Lincoln County and is the largest town in the area. Its present population is 2,300. Newport, situated on the north side of Yaquina Bay just inside the entrance, has a population of 2,000. All other towns or villages in the region are small.

15. The principal industries are located at Toledo and are connected with the manufacture of lumber and wood products. The lumber-manufacturing plant of the C. D. Johnson Lumber Corporation, formerly the Pacific Spruce Corporation, has a capacity of 400,000 feet board measure of lumber per 8-hour shift. At the present time about 50 percent of the cut is lightered to Newport, on Yaquina Bay, and there transferred to ocean carriers. The remainder is shipped by rail. Another mill at Toledo has a capacity of 40,000 feet board measure per 8-hour shift, but does not make ocean shipments. Other small plants manufacture two or three carloads of wood products daily, which are shipped by rail.

16. Dairying is the principal agricultural pursuit. However, in view of the limited acreage of suitable land, dairy and other farm products are almost entirely consumed locally and very small, if any, shipments are made to outside points.

17. Yaquina Bay is used extensively as a port during the summer and fall seasons by salmon- and halibut-fishing boats. The catch is taken to the Columbia River by so-called pick-up vessels, or is shipped by truck to interior towns. Newport, headquarters for the fishing fleet, is a summer resort and recreation center.

18. *Highways.*—The Oregon Coast Highway (U S 101) crosses Yaquina Bay at Newport. Another improved highway (State 26) extends easterly from Newport, passes through Toledo, and connects with the Pacific Highway (U S 99W) at Corvallis, in the Willamette Valley. From Toledo, a secondary highway runs 8 miles north to the town of Siletz and then follows the Siletz River downstream to its mouth. There is also a secondary highway connection between Toledo and Yaquina at the head of the bay. Other roads afford access to the settled districts of the tributary region.

19. *Railroads.*—The only common-carrier railroad in the vicinity is a branch line of the Southern Pacific Co., which leaves the main line at Albany, crosses the Coast Range, and terminates at Toledo. Formerly this line extended to Yaquina, but the section between Toledo and Yaquina has been abandoned and the rails have been removed.



From Toledo, a logging railroad runs 16 miles north into the Siletz River Basin. Surveys have been completed for another logging railroad extending northerly from Toledo to the Siletz River in the vicinity of Siletz and thence upstream along Euchre Creek for a short distance. This road, if constructed, would tap the remaining large stand of old-growth Douglas fir tributary to Yaquina River. The Valley & Siletz Railroad, which extends westerly from the main line of the Southern Pacific Co. at Independence in the Willamette Valley, to Valsetz, on the westerly side of the Coast Range, affords a rail outlet for the large Cobbs & Mitchell lumber mill at Valsetz. Two logging railroads extend westerly from Valsetz into the stand of old-growth Douglas fir in the Siletz River Basin in Lincoln County.

20. *Bridges.*—The only bridge spanning Yaquina Bay is that of the Oregon State Highway at Newport, just inside the entrance. This bridge has a fixed arch channel span 550 feet between piers, with a horizontal clearance of 395 feet between fenders, and a center vertical clearance of 136 feet above mean lower low water. No alteration of this bridge would be required in connection with the improvement considered herein.

21. *Prior reports.*—Yaquina Bay and Harbor has been the subject of many previous reports. The last five reports are listed in the following tabulation:

Date	Document	Nature of report	Recommendation
May 1, 1917	H. Doc. No. 109, 65th Cong., 1st sess.	Survey.....	Favorable to entrance and bay improvement.
Feb. 23, 1928	Unpublished.....	Preliminary examination.	Unfavorable.
June 10, 1931	.....do.....	.....do.....	Favorable.
June 7, 1935	.....do.....	Review.....	Unfavorable.
May 12, 1937	S. Committee print, 75th Cong., 1st sess.	.....do.....	Favorable to extension of north jetty 1,000 feet.

22. *Existing project.*—The existing project for Yaquina Bay and Harbor provides for two rubblestone jetties at the entrance, a channel 20 feet deep in the entrance and 18 feet deep, 200 feet wide, from the entrance to Yaquina (mile 4.5). The existing project was authorized by the River and Harbor Act of March 2, 1919, and modified by the River and Harbor Act of August 26, 1937, to provide for extension of the north jetty at the entrance, a distance of 1,000 feet.

23. The work authorized by the act of March 2, 1919, was completed in August 1930. The extension of the north jetty, authorized by the act of August 26, 1937, was completed June 5, 1940. The amounts expended on previous and existing projects to October 31, 1940, were as follows:

Funds	New work	Maintenance
United States funds.....	\$2,352,902.75	\$827,565.62
Contributed funds.....	729,168.48	.....
Total.....	3,082,071.23	827,565.62



The approved estimated annual maintenance cost for dredging is \$35,000 and for maintenance of north jetty \$12,000. There is no approved estimate for maintenance of the south jetty.

24. *Local cooperation.*—The River and Harbor Act of March 2, 1919, required that one-half the cost of the new work authorized by that act should be borne by local interests. This condition has been complied with by local interests, who contributed, in useful work performed and in funds, a total of \$729,168.48. So far as the present desired improvement is concerned, no offers of local cooperation have been made other than a joint agreement of the ports of Toledo and Newport to furnish, free of cost to the United States, certain specified disposal areas for material dredged from the inner harbor. In view of the substantial contribution by local interests toward the cost of the present project, it is considered that no further contribution of funds should be required.

25. *Terminal and transfer facilities.*—At Newport, the port owns a wharf with a frontage of 400 feet, which is open to all vessels on equal terms. The greater part of the lumber brought down from the Toledo mill on barges is transferred to ocean carriers at this terminal, ships, tackle being used. The wharf has no freight-handling equipment. Large ships sometimes load at anchor in the bay opposite McLean Point. The port also maintains about 500 feet frontage of float landings for use of small seagoing fishing vessels, many of which, at times, enter the harbor for refuge or to market their catch. Use of the float landings is free to all. Terminal facilities on the bay appear to be sufficient for the existing commerce and the present method of loading ships from barges, although ships have difficulty lying at the dock during stormy weather. If additional tonnage of lumber is to be shipped from Yaquina Bay, including shipments from outlying mills other than that of the Johnson Lumber Co. at Toledo, expanded terminal and storage facilities would be necessary. The port of Newport states that such additional facilities will be provided as found to be necessary.

26. *Improvement desired.*—At the hearing held in Newport on October 29, 1940, and in brief submitted jointly at that time by the ports of Newport and Toledo, the desires of local interests are for the following improvements: (a) The extension of the present north and south jetties to Yaquina Reef; (b) the removal of the subaqueous rock in the channel between the jetties to the requested depth of 26 feet at mean lower low water; (c) the construction of a turning basin in the lower Yaquina Harbor of a project depth of not less than 22 feet at mean lower low water; (d) in lieu of the jetty extension, comprehensive dredging operations on the bar entrance channel that will give a year-round depth of 26 feet at mean lower low water.

27. *Commerce and vessel traffic.*—Ocean-vessel traffic consists principally of in-bound fuel oil and out-bound lumber. Local bay traffic, in addition to the in-bound and out-bound ocean commerce, consists principally of rafted logs and the movement of a small amount of general cargo between Newport and Toledo. A comparative state-



ment of all traffic for the years 1930 to 1939, inclusive, is given in the following table:

*Comparative statement of traffic, Yaquina Bay and Harbor, Oreg.*

[Ton of 2,000 pounds]

Year	Ocean vessel traffic					Local bay traffic 1	
	In-bound tonnage	Out-bound tonnage		Total tons	Value	Tons	Value
		Lumber	Logs				
1930.....	-----	-----	-----	83, 120	\$991, 124	82, 196	\$429, 488
1931.....	-----	-----	-----	35, 500	357, 418	87, 256	343, 345
1932.....	3, 318	34, 267	-----	37, 585	298, 242	8, 870	11, 290
1933.....	6, 663	48, 406	-----	55, 069	336, 533	64, 786	128, 204
1934.....	4, 687	36, 092	-----	40, 779	389, 401	44, 436	99, 225
1935.....	8, 891	108, 113	-----	117, 004	1, 188, 676	2 347, 342	1, 273, 999
1936.....	3, 462	73, 761	-----	77, 223	614, 322	115, 439	693, 930
1937.....	9, 374	51, 274	-----	60, 648	664, 311	27, 565	285, 986
1938.....	2, 822	65, 979	16, 408	85, 209	924, 947	77, 852	311, 743
1939.....	2, 449	71, 569	4, 032	78, 050	832, 097	3 333, 880	667, 724

<sup>1</sup> In addition to ocean vessel traffic.

<sup>2</sup> Includes 304,350 tons of rafted logs.

<sup>3</sup> Includes 227,932 tons of jetty stone.

28. In 1939, 41 oceangoing vessels, with total net registered tonnage of 73,437 tons, called at Newport. In addition, the fishing vessels, bay and river craft, made 812 trips. The trips and drafts of vessels in-bound and out-bound are shown in table following:

*Trips and drafts of vessels, 1939*

Draft	In-bound				Out-bound			
	Steamers	Motor vessels	Barges	Total	Steamers	Motor vessels	Barges	Total
19 feet.....					14			14
16 to 18 feet.....	1			1	26			26
14 to 16 feet.....	6			6				
12 to 14 feet.....	25			25	1			1
Less than 12 feet.....	9	812	727	1, 548		812	727	1, 539
Total.....	41	812	727	1, 580	41	812	727	1, 580

29. Lumber shipments of 1939 were slightly increased over those of 1938. The total oceangoing tonnage, however, was about 8 percent less, due to a smaller movement of logs barged to plywood mills on the Washington coast. Omitting from consideration the jetty stone which was handled in the bay in 1939 (227,932 tons), there was an increase in bay and harbor traffic of 12 percent over that of 1938. Lumber shipped by water from the mill of the C. D. Johnson Lumber Corporation of Toledo, in 1939, amounted to some 42,000,000 feet board measure, of which about 60 percent was consigned to California and 40 percent to Atlantic coast ports. It is anticipated that lumber shipments during 1940 will at least equal, and may possibly exceed, the total for 1939.

30. In May 1939, ships of one large steamship company began to call at Newport, loading there to about one-third of their capacity. These intercoastal boats of the 8,000-ton class are 410 feet in length



and if fully loaded would draw from 27 to 28 feet. The smaller coastwise vessels have continued their regular calls at Newport. From May 1939 to and including October 1940 (18 months), ships in the intercoastal trade made 23 trips from Yaquina Bay, carrying average loads of about 1,800,000 feet board measure. In the same period coastwise vessels made 42 trips with average cargoes of 1,000,000 feet board measure. Loaded drafts of intercoastal and coastwise vessels sailing from Yaquina Bay, in this period averaged  $17\frac{1}{2}$  and 16 feet, respectively.

31. *Estimates of prospective commerce.*—An improvement, which would provide 26 feet on the entrance bar and 22 feet in the bay channel and in a turning basin would provide much better navigation facilities than now exist and would probably assure continued service by intercoastal vessels. These latter vessels would not, however, be able to take on full cargoes although they would be able to take on much more than under present conditions. It is also possible that better service would be maintained; perhaps an average of two and one-half ships per month instead of one. Local interests have stated that 3,000,000 feet of lumber could be handled in a single cargo if a depth of 22 feet were provided in the bay channel and turning basin. On an average of 30 intercoastal vessels a year, this would allow for the shipment to Gulf and Atlantic coast ports of 90,000,000 feet annually (149,000 tons). If we assume that the shallower coastal vessels continue to serve the port as they have done in the past, about 40 vessel trips, and would take out an average of 1,200,000 feet per ship, the total shipments to California ports would average 48,000,000 feet annually (about 79,000 tons). On the above assumptions, the shipment of lumber would average a total of 138,000,000 feet, or about 228,000 tons annually. This is about three times the average lumber shipments during the 5-year period 1935 to 1939, inclusive, and is considered a liberal estimate.

32. *Savings on lumber shipments.*—The principal shipments of lumber would, as now, originate at the Johnson mill in Toledo. This mill has an 8-hour capacity of 400,000 feet board measure. It is believed that over a period of years the average output will not exceed 120,000,000 feet, equivalent to a steady 8-hour operation 300 days a year. Inland shipments, local consumption, etc., during the 17-year period, 1923 to 1939, averaged 51, and water shipments 40,500,000 annually. (See table 13, p. 19, of brief<sup>1</sup> submitted by local interests.) If we assume that better navigation facilities would make possible the shipment of 60 percent of the output by water, the average annual shipments from this mill would be 72,000,000 feet, or about 119,000 tons. This is an increase of 60 percent on the average water shipments from this mill during the past 5 years, and 80 percent more than the average for the above 17-year period.

33. In paragraph 31 the total average annual shipments of lumber by water are estimated at 138,000,000 feet, or about 228,000 tons. Deducting the Johnson-Mill contribution of 72,000,000 feet, leaves 66,000,000 feet (109,000 tons) to be supplied by other mills. If we assume that an average of 40 percent of the output of these mills would also be shipped by water, the total average annual capacity of these mills would have to be 165,000,000 feet. Existing outlying

<sup>1</sup> Not printed.



mills, which may be considered as potential shippers via Yaquina Bay, have sufficient rated capacity to furnish this amount of commerce.

34. In view of the existing navigation facilities, and the ship service which has been maintained for many years, it is believed that the only savings on lumber shipments which can be justified are those that would result from more economical lightering operations by the Johnson Lumber Co. In connection with a review report on Yaquina River, this company stated that their lighterage cost from Toledo to Newport was 74 cents per thousand feet board measure. This movement has averaged about 44,000,000 feet annually during the past 5 years (1935-39). It is believed that a great deal more lumber could be handled without materially increasing the present total annual cost of lightering operations. On the prospective water shipments of 72,000,000 feet, it is therefore estimated that a saving in lighterage cost of 25 cents per thousand feet board measure would result. On this basis the average annual savings on this movement would be \$18,000. For the outlying mills there would be no reduction in their cost of delivering lumber from mill to ship terminal on Yaquina Bay.

35. *Savings on ship operations.*—Although very little, if any, lost time has occurred during the short period that intercoastal vessels have served the harbor, due to better than usual sea conditions, it is believed that should this service be maintained there would result an average of about 25 ship-days' lost time over that which would occur with an improved harbor entrance. On the basis of \$600 per day for cost of operation of these vessels, the average annual savings would be \$15,000. Coastal vessels are subject to more delays than the larger ships as these boats, due to their shorter length, cannot ride the seas as well as the larger intercoastal vessels, and for the same draft there is greater danger of their striking bottoms if they attempt to depart during heavy seas. Improved navigation facilities would, it is estimated, reduce the lost time for these ships a total of 40 ship-days a year. At an estimated daily operating cost of \$400, the reduction in delays for coastal vessels would result in annual savings of \$16,000. The total saving in ship-operating costs due to a reduction in lost days is, therefore, estimated at \$31,000 annually.

36. Insofar as the intercoastal vessels are concerned, no practicable entrance and harbor improvement would allow their loading to full capacity, except possibly on very rare occasions. These ships will, therefore, continue as now and make more than one port of call. For the coastal vessels, however, it appears that they would be able to take on full cargoes at more frequent intervals than under existing harbor conditions. The records show that these vessels now occasionally come in already partly loaded and, therefore, have called at some other port prior to coming to Yaquina. The records also show that they occasionally depart from Yaquina not fully loaded and, therefore, probably make one other port of call to complete their load. It is believed improved entrance and harbor depths would allow these vessels to load fully at more frequent intervals, contingent, of course, on cargoes of sufficient size being available. On the basis of 40 ship-trips annually, it is estimated that on 10 trips there would be an average saving of 3 days' time, or a total of 30 ship-operating days a year. At an average of \$400 per operating day, this amounts to a



saving of \$12,000 annually. The total saving on ship operation is, therefore, estimated at \$43,000 annually.

37. *Savings on in-bound commerce.*—With the exception of fuel oil there is at the present time only a small in-bound tonnage. With improved channel and harbor conditions, it is reasonable to expect that there would be an increase in this movement. However, the area to be served is not thickly populated, and it is doubtful that the increase in in-bound cargo would exceed 5,000 tons. At an average saving of \$1 per ton, as stated on page 35 of brief <sup>1</sup> submitted by local interests, the annual saving would be \$5,000.

38. *Miscellaneous benefits.*—An increase in lumber production should stimulate local industries, provide much-needed additional employment, and the additional pay rolls would benefit business and the locality in general. Greater depth over the entrance bar would also be of benefit to the operators of fishing boats, as the frequency of and danger from breaking seas would be reduced. Some saving to the fishermen would probably result, but these savings are difficult to evaluate as the harbor is now in general use by these craft. There would also be intangible benefits from use of the harbor for refuge as it would be more accessible, and the entrance would be safer than at present. Evaluation of these benefits is difficult, but it appears they should amount to at least \$10,000 per annum.

39. *Summary of savings.*—The annual savings and benefits which it is considered would accrue from improved harbor conditions are summarized below:

Reduced cost of lightering lumber.....	\$18, 000
Ship operations.....	43, 000
In-bound commerce.....	5, 000
Miscellaneous benefits.....	10, 000
Total.....	76, 000

40. *Use of waterway by seasonal craft.*—The existing project provides navigation facilities for the occasional use which may be made of the harbor by seasonal and other craft.

41. *Difficulties attending navigation.*—Impaired depths, due to rapid shoaling of the bar channel, cause some interference with navigation. Shoaling is the result of the action of northwest winds which prevail in summer months and frequent dredging is necessary to maintain the project depth of 20 feet in the bar channel. In May 1940, the controlling depths over the bar were from 16 to 18 feet. Maintenance dredging in August 1940 provided depths on the entrance range considerably in excess of 20 feet at mean lower low water. (See inset chart on pl. I submitted herewith.)

42. Turning the larger ships in the inner harbor is accomplished with some difficulty as no basin for this purpose has been provided. Mooring space of suitable depth for ships which might use the harbor for refuge, or those delayed in the bay because of rough seas outside, is limited. Vessels at present turn in the area opposite McLean Point.

43. *Survey.*—A hydrographic survey of the entrance and bay was made during May and an after-dredging survey of the entrance bar in September 1940. The soundings obtained during these two surveys are shown on the map (pl. I) submitted herewith. No probing of the rock shelf between the jetties was made at this time. Previous rock removal provides the project depth of 20 feet in the channel. Jet

<sup>1</sup> Not printed.



borings in the bay made in September 1940 indicate that probably no hard material will be encountered along the south side of the bay. It is possible that some rock might be encountered along the north side of the bay as some of the borings close to shore indicate hard material.

44. *Plans of improvement.*—Two plans of improvement are considered herein.

*Plan I.*—This provides for dredging a channel 26 feet deep at mean lower low water and of suitable width, about 600 feet, across the entrance bar from the outer ends of the existing jetties to Yaquina Reef, and a bay channel 20 feet deep and 300 feet wide on the south side of the bay, extending upstream to McLean Point, with a turning basin 22 feet deep, 1,000 feet wide, and 1,200 feet long at the upper end, all as shown on plate I submitted herewith. The existing project depth of 20 feet between the jetties would remain unchanged, and the existing project channel past the port dock should be maintained.

*Plan II.*—This provides the same bar and channel improvements, and size of turning basin, as proposed in plan I. The bay channel, however, is located around the bend following the existing channel location on the north side of the bay instead of along the south side. The turning basin location is the same for both plans. Under this plan the bay channel would be about 1,500 feet longer than for plan I.

45. The extension of the jetties, as proposed by local interests, would require the construction of approximately 5,000 feet of jetty, and would cost several million dollars. Such an expenditure could not be justified from the resulting benefits at this time. Furthermore, maintenance dredging in the channel between the jetties would probably still be required to some extent.

46. Since extension of the north jetty, recently completed, a marked improvement in depths on the bar beyond the jetties is noticeable, and further increase in depths is anticipated, due to the southerly set of the littoral currents between the end of the north jetty and Yaquina Reef.

47. The estimated cost of the work proposed under plan I and plan II, allowing 1-foot overdepth dredging, is as follows:

Plan I:

(a) Dredging entrance bar to 26 feet and width of about 600 feet, by United States hopper dredge, 300,000 cubic yards, at 15 cents per yard.....	\$45, 000
(b) Dredging bay channel east of highway bridge to depth of 20 feet; and turning basin to depth of 22 feet, by contract, 600,000 cubic yards, at 15 cents per yard.....	90, 000
(c) Contingencies and overhead, at 20 percent.....	27, 000
Total cost.....	162, 000

Plan II:

(a) Dredging entrance bar to 26 feet and width of about 600 feet, by United States hopper dredge, 300,000 cubic yards, at 15 cents per yard.....	45, 000
(b) Dredging bay channel east of highway bridge to depth of 20 feet (following existing channel); and turning basin to depth of 22 feet, by contract, 950,000 cubic yards, at 15 cents per yard.....	142, 500
(c) Contingencies and overhead, at 20 percent.....	37, 500
Total cost.....	225, 000

Annual maintenance dredging, in addition to that already provided for under the existing project, would amount to \$50,000, under either plan of improvement.



48. *Aids to navigation.*—The work proposed, which is entirely confined to channel dredging, would necessitate some shifting of existing buoys and would probably require the setting of a few additional aids to navigation. The total cost would be small.

49. *Analysis of economic justification of proposed improvements.*—The estimated appropriation of public funds necessary for execution of the project under plan I is \$162,000 and under plan II, \$225,000, with annual maintenance cost of \$50,000 for each plan, in addition to that now provided. Federal annual carrying charges are estimated as follows:

Plan I:

Interest on capital invested (3 percent of \$162,000), about.....	\$4, 900
Amortization in 30 years ( $2\frac{1}{10}$ percent of \$162,000), about.....	3, 400
Annual maintenance dredging.....	50, 000

Total Federal carrying charges.....	58, 300
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Plan II:

Interest on capital invested (3 percent of \$225,000).....	6, 750
Amortization in 30 years ( $2\frac{1}{10}$ percent of \$225,000), about.....	4, 750
Annual maintenance dredging.....	50, 000

Total Federal carrying charges.....	61, 500
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50. The savings and benefits (par. 39) of \$76,000 would be substantially the same under either plan of improvement. For plan I the benefits exceed the carrying charges by 30 percent and for plan II by 22 percent.

51. *Water power and other special subjects.*—The desired improvement is confined to the lower Yaquina Bay and entrance thereto, and would have no effect on, neither would it be benefited by, future power development on the river. Flood control, irrigation, or other special subjects, could not be coordinated with the improvement proposed to reduce its cost.

52. *Shore-line changes.*—Since extension of the jetties is not proposed, no changes in shore lines would result from the improvement.

#### DISCUSSION

53. Local interests state that the further improvement of the entrance and lower bay is desired and necessary in order to provide adequately for the type of vessels using the harbor and to reduce delays to shipping during stormy weather. Similarly, the dredging of the bay is desired so as to provide a turning basin and anchorage area. It is feared that unless sufficient facilities are provided to insure year-round operation of the intercoastal vessels now calling at the port, this service will be discontinued and the lumber industries will be seriously affected.

54. In the brief submitted at the hearing held at Newport on October 29, 1940, local interests have stressed the above needs and have shown the savings which would result from the desired improvements. The savings shown have been based on a two-shift operation of the large mill at Toledo, and potential shipments from outlying mills, general commerce, etc.

55. It is the opinion of the district engineer that the estimated savings shown are too large for the reason that a two-shift mill operation cannot be expected to be continuous over a period of years.



Mill operations are governed by market and demand conditions. There are periods of peak production and periods of curtailed production, with the result that an output based on continuous operation on one 8-hour shift would be a liberal estimate of the average mill production.

56. The producing area (see pl. II <sup>1</sup>) considered as tributary to Yaquina Bay as a port is also limited by the cost of haul, truck or railroad, to that point, as against similar costs to other ports, including Portland, Oreg. A study of prevailing rates shows that the tributary area will include practically all of Lincoln County, possibly the western part of Benton County, and small areas in the southwest corner of Polk and northwest corner of Lane Counties. The total area comprises about 1,400 square miles, with a present population of about 15,000.

57. As shown in paragraph 13, the timber which may properly be considered as tributary to the port of Newport amounts to about 8,200,000,000 feet board measure. Proponents of further improvement of the harbor claim a total of 21,000,000,000 feet board measure. This is based on the assumption that all timber lying within a radius of 50 miles from Toledo will flow to the Yaquina River outlet. This circle would include areas as far east as Albany in the Willamette Valley; the Alsea and part of the Siuslaw Basin to the south; and north it extends beyond the main highway from the coast to mills in the Yamhill Valley, including the big plywood plant at Willamina. It should be noted that timber is at present being drawn rapidly from this area to adjacent mills in the interior, which are largely dependent on this source for their supply of logs, and considerable timber has been and will continue to be towed out in rafts to mills on Grays Harbor in Washington. The 8,200,000,000 feet set up herein as tributary to Yaquina Bay and River is therefore considered a reasonable estimate of the presently available timber. There will, of course, be increases due to regrowth, but when it is considered that it requires about 70 years (some mills figure on 90 years) for fir trees to reach a size sufficient to make saw timber, and even then very little clear timber, it is apparent that at the present and proposed rate of cutting, the regrowth will not be sufficient to supply the larger mills with first-class timber for any extended period.

58. The existing ocean commerce of the port of Newport consists of out-bound shipments of lumber and logs, and in-bound receipts of fuel oil and a small amount of general merchandise. Prospective commerce would consist of the movement of the same commodities as now, but with better harbor facilities, shipments of lumber should be increased. In view of the small population to be served, it is doubtful if any large increase in in-bound cargo would result.

59. The existing project provides for an entrance depth of 20 feet at mean lower low water and a bay channel 18 feet deep. This limits the loaded draft of vessels calling at the port, and, for lumber shipments in particular, necessitates the taking aboard of only partial cargoes. Any increase in the present project depths would allow for larger individual lumber shipments. The intercoastal vessels now serving the port draw 27 to 28 feet, when fully loaded, but a depth in the entrance and bay channels sufficient for such a draft could not be justified at this time.

<sup>1</sup> Not printed.



60. It is stated that if ships would be fully loaded at Yaquina Bay, they could save the cost of proceeding north to the Columbia River or Puget Sound, as they now do in order to complete their cargoes. There would, of course, be such a saving if ships could be fully loaded. Intercoastal vessels, however, generally call at more than one port and the partial loading at Yaquina Bay is not considered a serious handicap to their successful operation. In any event, it is not practicable, due to rock bottom in the channel between the jetties, to secure sufficient depth to provide for ships fully loaded to a draft of 27 or 28 feet.

61. Local interests have expressed the desire that the existing jetties be extended to the Yaquina Reef in order to provide more protected water at the entrance; a depth on the bar of 26 feet at low water, and an inside channel (from the ends of the jetties) 22 feet in depth. It is also desired that a turning basin be provided opposite the existing port dock and extending all the way across the bay. As an alternate, they desire consideration of the possibilities of maintaining a depth of 26 feet on the bar by dredging, and for a 22-foot depth and turning basin on the inside.

62. It is found that the cost of extending the jetties to the reef would amount to several million dollars and could not be justified in the benefits to existing or prospective commerce. Attention has therefore been confined to providing greater depths and an adequate turning basin by dredging.

63. The turning basin proposed by local interests includes nearly the entire width of the bay between the highway bridge and a point about 1,200 feet easterly of the port of Newport dock. This area, while larger than is necessary for turning vessels, is desired in order to provide an anchorage where large vessels could lie and swing with the tide when ground swells make it impracticable to stay at the port dock. The excavation of such a basin would involve the dredging of 2,500,000 cubic yards initially at a cost of about \$350,000, and its maintenance would probably be very expensive.

64. As alternates to the plans proposed by local interests, with a view to reducing initial and maintenance costs, estimates have been made for dredging a 300-foot channel upstream from the highway bridge in two different locations, as indicated on the map submitted herewith (pl. I), with a turning basin 1,000 by 1,200 feet at the upstream end. The turning basin is located where the river is naturally fairly deep.

65. For the shorter and less expensive location (plan I), it would be necessary for local interests to provide a tie-up berth or loading wharf on the east or west side of the basin. Vessels could be loaded from barges at this point probably more advantageously than at the present Newport dock, as they would be protected from ocean swells entering the bay and would not have to leave their berths. The need of a larger anchorage basin would therefore be obviated. A paved highway connects with the west side of the basin. For plan II the existing port terminal could be used as a berth, but the turning basin or anchorage basin upstream would not be so readily available to vessels when they would have to leave this berth, as at present, on account of ground swell. Under this plan a tie-up berth or loading wharf should also be provided in the turning basin. The initial cost of plan II is \$63,000 more than for plan I.



66. It is apparent that if the volume of business is to be increased to 138,000,000 feet of lumber shipments per annum, and nearly one-third of this is to be supplied by the smaller inland mills by truck haul, it will be necessary that enlarged terminal facilities be provided for assembly of cargo. Both increased berthing space, and storage space will be needed. A practical solution of the terminal problems as well as that of navigation in the inner harbor seems to indicate excavation of the channel and basin under plan I, with the construction of berthing facilities on the turning basin for the larger ships, and the use of the existing wharf at Newport, extended to provide additional storage, for use principally by the coastwise vessels.

67. A greater depth than the 20 feet provided for under the existing project is believed to be necessary for safe navigation on the ocean bar, outside the ends of the jetties. Local interests are requesting a depth of 26 feet for this area. It is believed that such a depth over a bar channel approximately 600 feet wide is justified in the interest of navigation and should be provided to such extent as is practicable in view of the existing rock bottom. Extensive and expensive sub-aqueous rock removal is considered not justified at this time.

68. Borings made in 1916 in connection with the existing project show that the entire entrance channel from a point about 500 feet seaward to a point approximately 4,000 feet landward of the present outer end of the jetties is underlaid with rock ledges and pinnacles at depths varying from 20 to 26 feet. In order to provide the existing project depth of 20 feet between the jetties a large amount of surface blasting of rock pinnacles was done some years ago over a distance of about 1,000 feet in length at the outer end of the jetties. Further excavation of this area and much larger additional areas, as advocated, to secure a depth of 26 or even 22 feet between the jetties, would be very expensive and appears not to be justified in the benefits which would result. Navigators state that the swells are not bad inside the ends of the jetties and, since the larger ships when loaded all pass out at higher stages of the tide, the increased depth is not of such vital importance as on the bar where the seas are heavier. In view of the rocky bottom it is possible that a few rock pinnacles in the proposed bar channel would extend from 1 to 2 feet above the plane of 26 feet below mean lower low water. The rock areas would, however, be small and scattered and would not adversely affect the benefits in reduced wave action to be obtained from a general depth of 26 feet over a wide bar channel.

69. It therefore appears inadvisable to provide more than 20 feet on the inside channel. A depth of 22 feet, however, should be provided in the turning basin where ships will have to lie at low tide while loading. Representatives of the larger ship line now serving the port are entirely satisfied with the proposed channel and basin under plan I, but are still of the opinion that the jetties should be extended to provide smoother water at the entrance.

70. In paragraphs 32 to 39, inclusive, the estimated savings on present and prospective commerce movements, and other intangible benefits, are shown to total about \$76,000. The annual Federal carrying charges under plan I are estimated at \$58,300, and for plan II at \$61,500. Non-Federal carrying charges in connection with construction and operation of a terminal would, it is believed, be taken care of at least in greater part by the operating revenue. While either



plan of improvement, therefore, appears to be economically justified, plan I has the greater margin and, it appears, will better satisfy the needs of navigation. The estimated annual savings under this plan exceed the annual costs by 30 percent.

71. The present terminal operated by the port of Newport is inadequate for the assembling of cargoes and has no handling facilities. Since justification of the improvement is based primarily on a large increase in lumber shipments, it is believed that local interests (port of Newport) should be required to construct a terminal of adequate size and suitably equipped for assembly and handling of cargo, especially from outlying mills or, at least, give satisfactory assurance that such a terminal will be constructed. Local interests should also be required to furnish, free of cost to the United States, necessary and suitable areas for the disposal of dredge spoil.

#### CONCLUSIONS AND RECOMMENDATION

72. In view of the savings and general benefits which it appears would result from further improvement of Yaquina Bay and entrance, the district engineer is of the opinion that modification of the project to provide these improvements is justified. It is therefore recommended that the existing project for Yaquina Bay and Harbor, Oreg., be modified to provide, insofar as the rock bottom will allow, for a channel across the entrance bar 26 feet deep at mean lower low water and of suitable width, approximately 600 feet: a channel 20 feet deep and 300 feet wide, extending from the ends of the jetties upstream and along the south side of the bay a distance of about 2 miles to McLean Point; and a turning basin at the upstream end 1,000 feet wide and 1,200 feet long, with a depth of 22 feet; also, for maintenance of the existing channel 18 feet deep and 200 feet wide, extending from the Coast Highway Bridge along the Newport water front to the proposed turning basin opposite McLean Point; all at a cost of \$162,000 for new work, and \$50,000 additional for maintenance; provided, local interests furnish, free of cost to the United States, all necessary disposal areas for new work and maintenance in the bay channel and turning basin, and give satisfactory assurance that they will construct adequate terminal facilities, open to all on equal and equitable terms, at a location satisfactory to the United States.

C. R. MOORE,  
*Lieutenant Colonel, Corps of Engineers,*  
*District Engineer.*

[First endorsement]

OFFICE, DIVISION ENGINEER,  
NORTH PACIFIC DIVISION,  
Portland, Oreg., March 22, 1941.

To the CHIEF OF ENGINEERS, UNITED STATES ARMY.

1. I concur in the report and recommendation of the district engineer.

R. PARK,  
*Colonel, Corps of Engineers,*  
*Division Engineer.*

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