

BOARD OF ROAD COMMISSIONERS FOR ALASKA

1923 *PART I*

extract from

ANNUAL REPORT OF THE CHIEF OF ENGINEERS, 1923

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EXTRACT

REPORT UPON THE CONSTRUCTION AND
MAINTENANCE OF MILITARY AND POST
ROADS, BRIDGES, AND TRAILS, ALASKA.

BOARD OF ROAD COMMISSIONERS
FOR ALASKA



WASHINGTON
GOVERNMENT PRINTING OFFICE
1923

WAR DEPARTMENT,
OFFICE OF THE CHIEF OF ENGINEERS,
Washington, October 3, 1923.

BOARD OF ROAD COMMISSIONERS FOR ALASKA.

OFFICERS OF THE BOARD.

President: Maj. James G. Steese, Corps of Engineers, United States Army, retired.

Special disbursing agent: Maj. James G. Steese, Corps of Engineers, United States Army, retired, September 23, 1922, to February 28, 1923.

Engineer officer: Maj. John C. Gotwals, Corps of Engineers, United States Army.

Secretary and disbursing officer: Capt. Aubrey H. Bond, Corps of Engineers, United States Army, to November 25, 1922 (absent, sick, from August 2, 1922), and First Lieut. Pierre A. Agnew, Corps of Engineers, United States Army, March 1, 1923, to date.

Military assistant, under the immediate orders of the president of the board: Capt. C. S. Ward, Corps of Engineers, United States Army, to November 14, 1922, and First Lieut. Pierre A. Agnew, Corps of Engineers, United States Army, December 18, 1922, to February 28, 1923.

Organization and duties.—The act of Congress approved January 27, 1906, "To provide for the construction and maintenance of roads * * * in the District of Alaska, and for other purposes" (33 Stats. 616), and amended by act of May 14, 1906 (34 Stats. 192), prescribes in section 2 as follows:

That there shall be a board of road commissioners in said district to be composed of an Engineer officer of the United States Army to be detailed and appointed by the Secretary of War, and two other officers of that part of the Army stationed in said district and to be designated by the Secretary of War. The said Engineer officer shall, during the term of his said detail and appointment, abide in said district. The said board shall have the power, and it shall be their duty, upon their own motion or upon petition, to locate, lay out, construct, and maintain wagon roads and pack trails from any point on the navigable waters of said district to any town, mining or other industrial camp or settlement, or between any such town, camps, or settlements therein, if in their judgment such roads or trails are needed and will be of permanent value for the development of the district, but no such road or trail shall be constructed to any town, camp, or settlement which is wholly transitory or of no substantial value or importance for mining, trade, agricultural, or manufacturing purposes.

The Engineer officer of the board shall in all cases supervise the work of construction and see that the same is properly performed.

It shall be the duty of said board, as far as practicable, to keep in proper repair all roads and trails constructed under their supervision, and the same rules as to the manner in which the work of repair shall be done, whether by contract or otherwise, shall govern as in the case of the original construction of the road or trail.

The board was organized May 15, 1905. War Department orders of February 15, 1913, relative to the work of the board, prescribe that the senior officer on duty, designated as president, shall have general charge of the operations, that the Engineer officer shall supervise the work of construction in the field as provided by law, and that the third officer shall act as disbursing officer of the board.

From its organization until December 29, 1917, the board reported direct to the War Department through The Adjutant General. On that date orders were issued by the Secretary of War placing the work under the general supervision of the Chief of Engineers.

The act of Congress approved March 3, 1911 (36 Stat. 1052), contains the following language:

Provided, That hereafter the Secretary of War may, in his discretion, assign suitable retired officers of the Army to active duty as members of the board of road commissioners for Alaska.

Offices of the board.—The principal office of the board is at Juneau, Alaska. Suboffices are maintained, when required by active operations, at Valdez, Chitina, Fairbanks, Eagle, Nenana, Anchorage, Seward, Takotna, and Nome, Alaska; Seattle, Wash.; and Washington, D. C.

LOCATION AND DESCRIPTION.

The work thus far accomplished includes the construction of 1,323½ miles of wagon road, 1,115 miles of sled road, 6,150½ miles of permanent trail, and 712 miles of temporary flagged trail, a total of 9,301½ miles.

The Territory has an area of 590,880 square miles, which is more than twelve times the size of the State of New York, or practically one-fifth the size of the United States proper. At its southern point it is 700 miles from the northwest point of the State of Washington by the usually traveled route. Thence the southeastern Alaska Archipelago and a strip of mainland lying west of the Canadian boundary extend northwesterly for about 520 miles to the major portion of the Territory, which lies west of the one hundred and forty-first meridian, and has a dimension of approximately 900 miles north and south and 700 miles east and west, with the Alaska Peninsula and Aleutian Islands reaching out from the southwestern portion nearly 2,500 miles toward Siberia.

The topography of Alaska varies from rolling to extremely rugged, with very little level area. The seaward slope, as far west as Cook Inlet, is especially rugged and subjected to a very heavy rain and snow fall.

The timber along the coast attains a very dense growth but in the interior is only to be found along the stream valleys. Spruce and hemlock form the greatest part of the timber on the coast. Hemlock is not found in the interior.

On the north slope of the Alaska range and on interior river valleys considerable areas are found frozen permanently to bedrock. The climate and topography throughout are such that in the summer time passage overland is difficult. On the seaward slope the heavy rainfall upon the blanket of decayed vegetation creates a footing almost impassable. In the interior the surface thawing of the bed of frozen gravel makes a widespread and difficult morass.

ORIGINAL CONDITION.

Prior to the organization of the Board of Road Commissioners for Alaska there were, in the whole of the Territory, less than a dozen miles of what might be called wagon road, with a few hundred miles of pioneer trail, mostly constructed by expeditions under the War Department. Travel was largely confined to the open waterways in summer and to their frozen courses or overland in winter. When mining machinery and other supplies were to be transported from the coast or river landing they were, in most cases, hauled over the snow during the winter, with some preliminary clearing of the route when necessary. Travel across country in summer, generally speaking, was possible only on foot or with pack horses. It was difficult always, and frequently dangerous, on account of the numerous swift and deep streams, fed by the ice-cold and silt-laden waters of mountain glaciers.

PREVIOUS PROJECTS.

In the summers of 1885, 1898, and 1899 War Department expeditions under Captains Abercrombie and Glenn and Lieutenants Allen and Herron made explorations which collected much valuable data regarding the country and the best natural routes of travel. For the fiscal year 1901 Congress appropriated \$100,000 for roads and bridges in Alaska, to be spent on the route leading from Valdez to Eagle, but this was sufficient only for the construction of a crude pack trail through sections otherwise impassable and the building of some of the most necessary bridges along the route. (Act of May 26, 1900, 31 Stat. 214, and act of June 30, 1902, 32 Stat. 507.)

The act of April 23, 1904 (33 Stat. 271), appropriated \$25,000 for a survey and estimate for a wagon road along this route. A supplemental appropriation of \$5,700.63 was made in the act of March 3, 1905 (33 Stat. 1225), for the completion of the work. The survey was made under the direction of the Chief of Engineers prior to the organization of the board. In the same acts an appropriation of \$2,500 was made for a survey and estimate for a military trail between the Yukon River and Coldfoot, on the upper Koyukuk River, followed by a supplemental appropriation of \$1,431.15 for the completion of this work. This survey was also made under the direction of the Chief of Engineers.

The act of April 27, 1904 (33 Stat. 391),¹ provided for local territorial road work and authorized each United States commissioner to appoint a road overseer for his precinct. Road districts were created corresponding to the precincts, such districts not to include incorporated cities and towns. The road commissioner served for one year and received \$4 per day for his services, not to exceed 16 days within any one year. Revenues were provided by requiring all male persons between the ages of 18 and 50 years, of 30 days or more residence within the Territory, to perform in each year 2 days work of 3 hours each and furnish implements or to hire substitutes

¹ This law remained in effect until Apr. 5, 1913, upon which date it was repealed by an act of the Territorial legislature (chap. 3, Session Laws 1913). While it was in force a great deal of work on local projects was accomplished, but no general scheme of construction was devised, nor was there any coordination among the activities of the various road commissioners. In some districts superintendents of the Board of Road Commissioners supervised the work, but the board was never charged with authority

to perform the work or to contribute in cash at the rate of \$4 per day.

The act approved January 27, 1905, authorizing the organization of the board of road commissioners, committed to the board general power to locate, lay out, construct, and maintain wagon roads and pack trails of permanent value for the development of the Territory. The funds for the work were to be provided by the allotment of a fixed percentage of a revenue known as the Alaska fund, derived from vocational and trade licenses outside of incorporated towns. This fund proved to be so inadequate and uncertain in amount that the matter was taken up by the Secretary of War with Congress. Appropriations in aid of the work were made for the fiscal year 1907, and have since been continued from year to year.

The early operations of the board were largely devoted to the construction of the military and post road from Valdez, on the southern coast, to Fairbanks, an interior point about 370 miles to the northward and to the construction of roads and trails connecting some of the more important localities in the Territory.

With the commercial development of the Territory the roads originally constructed chiefly for military purposes became more and more important for commercial purposes, particularly as they, themselves, have made possible the development of commercial activities and industrial enterprises in the regions they traverse.

By 1913 sufficient work had been done to warrant consideration of a general program of road and trail development. After a general study of the situation the board submitted a recommendation that \$7,250,000 be appropriated during the next 10 years so as to provide Alaska with a complete road system, such as immediate needs justified and sufficient to meet all reasonable demands until the Territory should be sufficiently developed to take over internal public works as a part of its own government. This recommendation was to provide for:

- (a) The maintenance of the existing routes.
- (b) Completion of the projects already undertaken.
- (c) Completion of projects already approved but not yet undertaken.
- (d) Completion of projects likely to arise with the development during the succeeding 10 years.

PROJECT OF 1913.

Amounts required each year of 10-year period of road and trail development.

Fiscal year.	Maintenance existing roads.	Completion projects already undertaken.	Projects already approved, but not yet undertaken.	Projects that would arise with development of the Territory.	Total.	Amount actually appropriated.
1914	\$125,000	\$500,000	\$250,000	.....	\$875,000	\$155,000
1915	125,000	250,000	750,000	\$400,000	1,525,000	125,000
1916	125,000	250,000	750,000	1,775,000	1,775,000	195,000
1917	125,000	100,000	231,000	300,000	756,000	500,000
1918	125,000	100,000	206,000	250,000	681,000	600,000
1919	125,000	100,000	200,000	200,000	625,000	100,000
1920	125,000	30,000	200,000	150,000	505,000	100,000
1921	125,000	30,000	60,000	100,000	315,000	350,000
1922	125,000	30,000	60,000	50,000	265,000	1425,000
1923	125,000	30,000	60,000	.....	215,000	1,465,000
Total	1,250,000	1,420,000	2,780,000	1,800,000	7,250,000	2,885,000

¹ Appropriated under project of 1920, described under "Existing project" below.

At the close of the fiscal year ended June 30, 1920, seven years of the ten-year period had elapsed and the average appropriations had actually been less than one-half of the \$725,000 per year recommended and less than 30 per cent of the total recommended for the first seven years. For the two years immediately preceding the war \$300,000 was appropriated each year (Army acts of 1916 and 1917), the program was well launched, and the act of July 9, 1918, definitely authorized the Secretary of War to submit estimates hereafter for the proper prosecution of this work. For the two war years, however, the appropriations, including the allotments from the Alaska fund, were only about one-fourth of the average amount recommended. The high prices and wages during the war years greatly curtailed the work and affected construction and maintenance of Alaskan roads almost as seriously as the meager funds available. In addition, Alaska received a very severe economic setback during the war and was prevented by Government interdiction from developing its internal resources to the extent contemplated in 1913.

As a result, large sections of the old system were not even kept in repair and some sections became impassable. During the fiscal year 1920 expenditures were made for repair and maintenance upon less than one-half of the total mileage.

For more extended information concerning the operations under previous projects see the annual reports of the Board of Road Commissioners for Alaska for 1909, 1913, and 1917, and the Annual Reports of the Chief of Engineers, United States Army, for 1918, 1920, and 1921.

EXISTING PROJECT.

A new program of operations, prepared by the board of road commissioners in cooperation with the Governor of Alaska, the Territorial Road Commission and other interested Federal and Territorial officials, was submitted in the annual report of the board for 1920. It proposes three classes of work: First, the construction of about 700 miles of arterial or feeder highways, mainly following old routes (estimated cost, \$7,000,000); second, the construction of development roads to be constructed from time to time on locations left for future determination (estimated cost, \$1,000,000); third, the maintenance of existing road and trail system (estimated cost for the 10-year period, \$2,000,000). Total estimated cost, \$10,000,000. The proposed annual appropriations and the amounts annually appropriated to date are shown in the following table:

1920 PROGRAM.

Amounts required each year of the 10-year period of road and trail development.

Fiscal year.	Working season.	Amount estimated.	Amount actually appropriated.
First (1922).....	1921	\$965,000	\$125,000
Second (1923).....	1922	1,203,000	465,000
Third (1924).....	1923	1,500,000	625,000
Fourth (1925).....	1924	1,000,000	.....
Fifth (1926).....	1925	1,400,000	.....
Total for first 5 years.....		6,068,000	.....

Amounts required each year of the 10-year period of road and trail development—Continued.

Fiscal year.	Working season.	Amount estimated.	Amount actually appropriated.
Sixth (1927).....	1926	\$1,045,000	.....
Seventh (1928).....	1927	750,000	.....
Eighth (1929).....	1928	600,000	.....
Ninth (1930).....	1929	500,000	.....
Tenth (1931).....	1930	460,000	.....
Total for second 5 years.....		3,365,000	.....
Total for 10 years.....		10,000,000	.....

General indorsement of this program has been given by Federal interests as follows:

The Alaska advisory committee, consisting of representatives of the Department of the Interior, the Department of Agriculture, the Post Office Department, and the United States Shipping Board reported that "the construction of wagon roads and trails is one of the most important and urgent needs of Alaska" and recommended "an appropriation of at least \$1,000,000 annually until the completion of an adequate road system in Alaska."

In May, 1921, the Inter-Departmental Alaska Board, consisting of representatives of each of the Federal executive departments, recommended: "That approval be given the general program of road construction submitted by the Alaska Road Commission in its Annual Report for 1920, and that definite adoption of the proposed program be urged before Congress, with a view of providing feeders to the Government railway as well as for the general development of the Territory."

The original plan of providing the money necessary for carrying on the work of the board is found in the act of January 27, 1905, which authorized the expenditure for the construction and maintenance of wagon roads, bridges, and trails in said district of 70 per cent, reduced by act of March 3, 1913, to 65 per cent, of what is known as the Alaska fund, derived from vocational and trade licenses outside of incorporated towns. This fund proved to be so inadequate and uncertain in amount that special appropriations in aid of the work were made for the fiscal year 1907, and appropriations have since been made from year to year.

Prior to 1919 the appropriations were available only for the fiscal year specified in the appropriation act. The construction season is very short, however, distances are great and communication is difficult. Supplies must therefore be purchased in advance and in many cases freighted in over the snow during the winter. Work can not be economically started after July 1 nor stopped and then started up again. These conditions necessitate making preparations for the operations of the season some time previous to the beginning of the fiscal year. The appropriation act of July 11, 1919, and the appropriations made since that date, have therefore included a provision that the funds shall be immediately available. Delay of the work on account of the lack of funds has also been occasioned, however, by the fact that appropriation bills were not passed until near or after the beginning of the fiscal year. To guard against such possibility

for the season of 1922 House Joint Resolution 282, approved April 6, 1922, provides as follows:

The Secretary of War is authorized to direct the Board of Road Commissioners for Alaska to incur obligations prior to July 1, 1922, for the construction and maintenance of roads, bridges, trails in Alaska of not to exceed 50 per cent of the appropriation for this purpose for the fiscal year ending June 30, 1922, payment of these obligations to be made from the appropriations for the fiscal year ending June 30, 1923.

Upon June 30, 1922, the date the appropriation for the current fiscal year became available, obligations amounting to \$17,146.76 had been incurred under the provisions of the above joint resolution.

A similar provision for the season of 1923 was made by a paragraph, as follows, in the appropriation act approved June 30, 1922:

Provided, That if an appropriation for this purpose for the fiscal year ending June 30, 1924, shall not have been made prior to March 1, 1923, the Secretary of War may authorize the board of road commissioners to incur obligations for this purpose of not to exceed 75 per centum of the appropriation for this purpose for the fiscal year ending June 30, 1923, payment of these obligations to be made from the appropriation for the fiscal year ending June 30, 1924.

The appropriation for the fiscal year 1924 was made in the act approved March 2, 1923, which carries similar language for the working season of 1924.

Though an item in aid of this work has been included each year in the appropriation bill for the support of the Army, the item was subject to a point of order prior to July 9, 1918, and was several times seriously endangered. In 1918 the Secretary of War finally announced he would submit no further estimates for the continuation of this work unless specifically authorized to do so. As a result the act of July 9, 1918 (40 Stat. 863) contains the following language:

Provided, That hereafter, so long as the construction and maintenance of "military and post roads" in Alaska, and of other roads, bridges, and trails in that Territory, shall remain under the direction of the Secretary of War, he be authorized to submit such estimates for the consideration of Congress as are, in his judgment, necessary for the proper prosecution of the work.

Since that date, therefore, the Secretary of War has been definitely charged with responsibility for the submission of estimates for the construction and maintenance not only of "military and post" roads in Alaska, but of "other roads, bridges, and trails" as well. The act approved June 30, 1922, making appropriations for the activities of the War Department transferred the item to Title II, Nonmilitary Activities. The work will therefore no longer be a charge against the support of the Army.

The special acts of Congress authorizing and defining the scope of the work and the duties of the board and authorizing the submittal of estimates to Congress are as follows:

Act approved January 27, 1905 (33 Stat. 616).

Act approved May 14, 1906 (34 Stat. 193).

Act approved March 3, 1911 (36 Stat. 1052).

Act approved March 3, 1913 (37 Stat. 728).

Act approved July 9, 1918 (40 Stat. 843).

Act approved June 30, 1921.

H. J. Res. approved April 6, 1922.

Act approved June 30, 1922.

Act approved March 2, 1923.

For latest published maps see map following page 54, Part II, of the annual report of the Alaska Road Commission fiscal year 1921,

and also a wall map of Alaska published by the board of road commissioners, 1923.

RECOMMENDED MODIFICATIONS OF PROJECT.

None.

REFERENCES TO PUBLISHED ARTICLES NOT PREVIOUSLY REPORTED.

"Road construction under the Alaska Commission," by Col. James G. Steese, *The Highway Magazine*, January, 1923, pages 11-12, illustrated; "Across Alaska by Automobile," by Col. James G. Steese, *F. R. G. S., American Motorist*, March, 1923, pages 12, 13, and 24, illustrated; "Recent Developments in Alaska," by Maj. John C. Gotwals, *The Tech. Engineering News*, April, 1923, pages 13 and 24, illustrated; "The Alaska Road Commission," by Col. James G. Steese, *The Michigan Technic*, March, 1923, pages 11-14, illustrated.

LOCAL COOPERATION.

The Federal funds disbursed are obtained from an annual appropriation, "Construction and maintenance of military and post roads, bridges, and trails, Alaska," and from receipts from the Alaska fund by act of Congress approved January 27, 1905, and amended by act approved May 14, 1906. About 40 per cent of the total cost of the road and trail system has been paid from the Alaska fund which is derived from Federal trade and occupational taxes collected outside of incorporated towns in Alaska.

As an indication of the close harmony and cooperation existing between this board and the Territory of Alaska, the following résumé of the Session Laws of Alaska is given:

[Act of Apr. 21, 1919: To provide for the construction, maintenance, and protection of public roads, bridges, trails, and ferries and property pertaining to public roads in the Territory of Alaska, etc.]

* * * * *

Sec. 2. The Territorial board of road commissioners shall have authority to enter into cooperative agreements with the Federal Board of Road Commissioners for Alaska, * * * for the construction, repair, and maintenance of any public road, bridge, or ferry, within the Territory of Alaska. In the case of cooperative work, the Territorial treasurer is authorized to deposit in the United States Treasury the funds agreed upon to cover the share of the Territorial road commission in such cooperative projects as are entered into, in accordance with the provisions of this act. Such funds shall be expended by the disbursing officer of the Federal authority designated in the cooperative agreement, and a detailed statement of expenditures from such funds so deposited, shall, upon the completion of the project for which they were deposited, be furnished to the Territorial treasurer.

* * * * *

Sec. 7. It shall be the duty of the divisional road commission to meet at a specified time and recommend the apportionment of road funds to the credit of the aforesaid division, so that such funds will not conflict with the apportionment allotted by the Federal Board of Road Commissioners for Alaska.

* * * * *

Sec. 17. On and after March 1, 1921, in each Territorial road division there shall be a divisional road commission consisting of three members, two of whom shall be elected as provided by law, and one shall be appointed by the Territorial board of road commissioners for a term of two years, or until his successor be appointed and qualified, who shall serve without pay or emolu-

ment. The appointed member shall be chairman and secretary of the commission; receive and account for all funds and property turned over to him as provided by law. He shall be a competent civil engineer, qualified by training and practical experience in highway engineering. * * *

The above act immediately released cooperative funds of the Department of Agriculture which had been accumulating for several years. Until July 1, 1920, Maj. Wm. H. Waugh, Engineers, United States Army, a former engineer of the Bureau of Public Roads and up to that date a member of the Board of Road Commissioners for Alaska, served also as the representative of the Department of Agriculture on all work in Alaska coming under the provision of the Federal aid road acts.

Since July 1, 1920, the Department of Agriculture has maintained a separate organization to handle its work. All of the projects upon which it is working in cooperation with the Territory are former projects of this board. The funds available in the Territory for expenditure by the Department of Agriculture are only available for use within the Tongass and Chugach Forest Reserves. The funds of this board formerly absorbed in these projects are thereby available for use in other parts of the Territory.

While the Territorial funds are not usually applicable to military road systems, and the Department of Agriculture funds are limited to projects within, or partly within, the national forests, all road work in the Territory of Alaska is coordinated by informal agreement among the three agencies having funds available. The methods of this board, worked out through long years of successful experience and applied to as great an extent as was possible under the agreements drawn up, have greatly aided the Department of Agriculture and the Territorial road commission in the prosecution of this work.

Under the Territorial cooperative road law, above quoted, the board expended during the fiscal years 1920 and 1921 a total of \$198,796.54, out of an available Territorial appropriation for the biennium of \$375,000. The balance was allotted in part to the Department of Agriculture to release cooperative funds available for expenditure within the national forests and in part to local sub-projects handled by Territorial agencies. The funds allotted to this board were deposited by the Territorial treasurer in the Treasury of the United States to the credit of the board and then expended as required by the disbursing officer of the board under the same safeguards as purely Federal funds.

The Treasury Department having taken the view that such expenditures can not be properly made by the board without specific authority of Congress, the following proviso was included in the act of Congress approved June 30, 1921:

Provided, That the Secretary of War is hereby authorized to receive from the Territory of Alaska, or other source, such funds as may be contributed by them to be expended in connection with funds appropriated by the United States for any authorized work of construction, repair, and maintenance of roads, bridges, trails, and related works in the Territory of Alaska, and to cause such funds to be deposited to the credit of the Treasurer of the United States, and to expend the same in accordance with the purpose for which they were contributed.

Under the provisions of section 17 of the Territorial road law of April 21, 1919, Mr. Anton Eide, district superintendent of the board

for southwestern Alaska, has acted as chairman and secretary of the Territorial divisional road commission for the third division since May 14, 1921. Similarly, Mr. Abe McKinnon, assistant superintendent of the board of the Yukon district, has acted as chairman and secretary of the divisional road commission for the fourth division since the same date.

[Act of May 7, 1921: To make appropriations for the expenses of the Territory of Alaska (from Apr. 1, 1921, to Mar. 31, 1923).]

SECTION 1. * * *

For roads:

For the construction, etc.----- \$240,000

For shelter cabins:

For erection, etc.----- 10,000

Act of May 5, 1921: Providing for the construction of a bridge across the Nizina River, in the Nizina mining district, McCarthy recording precinct, at or near Young Creek (or at any point connecting with the road now being constructed by the Board of Road Commissioners for Alaska from the town of McCarthy to Nizina River), in the third judicial division of the Territory of Alaska; providing for cooperation between the Territorial board of road commissioners and the Board of Road Commissioners for Alaska in the construction of said bridge, and making an appropriation therefor.

Be it enacted by the Legislature of the Territory of Alaska:

SECTION 1. There is hereby appropriated from any moneys in the Territorial treasury, not otherwise appropriated, the sum of \$25,000 for the construction of a bridge across the Nizina River, in the Nizina mining district, McCarthy recording precinct, at or near Young Creek (or at any point connecting with the road now being constructed by the Board of Road Commissioners for Alaska from the town of McCarthy to Nizina River), in the third judicial division of the Territory of Alaska.

SEC. 2. The Territorial board of road commissioners shall have authority, and it shall be its duty to enter into a cooperative agreement with the Board of Road Commissioners for Alaska, for the construction of said bridge; and in case cooperative work is performed the Territorial treasurer is authorized to deposit in the United States Treasury the amount of \$25,000 hereby appropriated to cover the share of the Territory of Alaska in the cooperative project of constructing said bridge: *Provided*, That an equal amount is expended in the construction of said bridge by the Federal Government acting through the Board of Road Commissioners for Alaska. The amount hereby appropriated shall be expended by the disbursing officer of the Board of Road Commissioners for Alaska.

Of the foregoing appropriations the board expended during the last fiscal year \$69,705.29 upon cooperative road and trail projects, \$2,700 for shelter cabins, and \$5,000 for preliminary work on the Nizina Bridge project. It also supervised the expenditure of \$7,812.19 by the chairman of the Territorial road commission for the third division and \$21,365 by the chairman of the Territorial road commission for the fourth division. The balance of the \$120,000 available for the first year of the biennium was applied to cooperative agreements with the Secretary of Agriculture as heretofore. No Territorial road organization was maintained after March 31, 1921. On November 14, 1921, the governor of the Territory, with the approval of the Territorial board of road commissioners, of which he is chairman, appointed the president of the Federal Board of Road Commissioners for Alaska as the consulting engineer for the Territory and placed him in charge of all public works supported by appropriations made by the Territorial legislature.

During the current fiscal year the board expended \$92,533.33 upon cooperative road and trail projects, \$7,300 for shelter cabins, and \$20,000 on the Nizina Bridge project. It also supervised the expenditure of \$10,855.72 by the chairman of the Territorial road commission for the third division, and \$15,717.11 by the chairman of

the territorial road commission for the fourth division. The balance of the \$120,000 of road funds and \$8,579.40 of forest revenues available for the second year of the biennium was applied to cooperative agreements with the Secretary of Agriculture as heretofore.

For the working season of 1923 the territorial board has allotted to the Department of Agriculture \$18,000 and to the Federal board the following amounts:

Cooperative projects	\$75,000
Shelter cabins	7,500
Total	82,500
Chairman third division	15,000
Chairman fourth division	20,000
Grand total	117,500

These funds are held subject to the call of the Federal board. The divisional funds are disbursed through local banks, but all vouchers are audited by the Federal board under the same restrictions that apply to Federal vouchers before being certified to the Territorial treasurer for payment.

The city of Juneau contributed \$777.71 in reimbursement of services in connection with improvement of the city streets.

The city of Valdez contributed \$601.83, the cost of seasonal repairs to the Valdez Dike built by this board in 1913.

[Act of May 5, 1921: Providing for the purchase of the Seward Peninsula Railroad for operation as a public tram and highway.]

As it enacted by the legislature of the Territory of Alaska:

SECTION 1. That the Federal Board of Road Commissioners for Alaska, with the consent and approval of the Territorial board of road commissioners, are hereby authorized and empowered to purchase in the name of and for and in behalf of the Territory of Alaska, the Seward Peninsula Railroad extending from the city of Nome, Alaska, to Shelton, Alaska, a distance of approximately 86 miles, together with the roadbed, rails, switches, spurs, lateral and other side lines, stations, roundhouses, and rights of way, and all really owned or used by and in connection with the operation of said road; and all or any part of the equipment of said road which in their judgment is deemed advisable to purchase, including locomotives, freight and passenger cars, and other cars of all and every kind, and tools of every nature and kind pertaining or appurtenant to said railroad, at the lowest possible price for which said railroad and equipment may be obtained: *Provided, however,* That such purchase shall not be made for a greater sum than \$20,000, nor unless agreement shall have been entered into by the said Federal Board of Road Commissioners and the said Territorial board of road commissioners to the effect that said Federal Board of Road Commissioners shall, from funds appropriated or assigned to it, place the said railroad, roadbed, and track in good condition for transportation of passengers and freight and operation as a public tram and highway: *And provided further,* That a full statement and inventory of the property, if purchased, so acquired shall be filed with the secretary of the Territory.

SEC. 2. That, when purchased, the railroad shall be, until otherwise provided for by law, under the management, control, operation, and regulation of the Federal Board of Road Commissioners, who shall, from funds appropriated or assigned to it for that purpose, repair, keep in condition, extend, and maintain said road, under such rules and regulations as they may promulgate, as a public highway.

SEC. 3. For the purpose of carrying out the provisions of this act there is hereby appropriated from the general funds of the Territory, not otherwise appropriated, the sum of \$30,000 or so much thereof as may be necessary to purchase said railroad.

In accordance with the provisions of the act above quoted the board had a physical valuation of the property made in connection with its examination of the entire transportation situation in the Seward Peninsula, required by act of Congress approved June 30, 1921.

Upon the recommendation of the board, the purchase was finally negotiated October 3, 1922, for \$24,000, title passing to the Territory as of December 29, 1921. The board assumed control of the property on October 4, 1922, and its rehabilitation for public use with cars using gas or dogs as motive power was begun.

EFFECT OF IMPROVEMENT.

The roads and trails constructed by the board have not only opened up to development nearly all sections of the Territory but have effected large savings in freight charges. Data collected by the board since 1911 indicate that the annual saving in cost of transportation of freight due to the construction of roads by the board is in excess of \$2,000,000. It is doubtful, however, if anything like that amount of freight would have been transported without the roads, and the indirect loss which would have been occasioned by the restriction on output and development if the roads did not exist can not be estimated.

The use of automobiles is increasing rapidly. Approximately 90 per cent of the traffic on the main wagon roads is handled by motor, which has greatly increased the cost of road maintenance. The use of tractors for drawing freight, particularly on the sled roads of the interior, is a valuable new development.

OPERATIONS AND RESULTS DURING FISCAL YEAR.

The work in the last fiscal year was largely directed to extending the general rehabilitation carried out recently to trails and roads in remote portions of the Territory. This gradual rehabilitation starting upon the more important projects has now reached trails extending to all parts of the Territory.

The important Richardson Road which was reopened in 1921 was maintained open during the entire season. Projects upon which new construction was carried out were prosecuted through the season. Construction work progressed well during 1922 in spite of a phenomenally wet summer.

The more important roads upon which new construction was performed were the Haines-Pleasant Camp, Ophir-Takotna, Cache Creek, Roosevelt-Kantishna, Circle-Chatanika and Long-Poorman. During the winter season of 1922-23 an extensive amount of bridge construction was performed. Bridges constructed during this period included the Ganes Creek Bridge in the Innoko, Solatna Bridge near Poorman, Chatanika River Bridge, Chulitna Bridge and the initiation of the very important Nizina River Bridge.

A very important addition to the duties and responsibilities of this board was made by the purchase of the Nome-Shelton tramway. This tramway was purchased by the Territory of Alaska and the duty of maintaining it has developed upon this board.

The total expenditures during the fiscal year amounted to \$740,082.49, of which \$314,195.89 was for construction and \$425,887.10 was for maintenance.

CONDITION AT END OF FISCAL YEAR.

The work of maintenance and rehabilitation has been pushed and the roads and trails under the jurisdiction of the board are in better shape than ever before. The total mileage of roads and trails constructed or maintained by the board aggregate 9,301 1/4 miles, consisting of 1,323 1/4 miles of wagon road, 1,115 miles of sled road, 6,150 1/4 miles of permanent trail, and 712 miles of temporary flagged trail. Work was performed on 5,987 1/4 miles of the system during the fiscal year.

The Valdez-Chitina-Fairbanks Road has been reopened for traffic over its entire length. The surfacing of this road with gravel is progressing rapidly with two power shovels, tractors and trailers.

The total expenditures to the end of the fiscal year June 30, 1923, amounted to \$7,028,293.66 not including outstanding liabilities or contributed funds, of which \$4,113,508.01 was expended for new work and \$2,914,785.65 for maintenance.

PROPOSED OPERATIONS.

In accordance with the 10-year program described under "Existing project," an amount of \$1,500,000 was required for the fiscal year ending June 30, 1924, to prosecute the work. Only \$650,000 was provided by the act of March 2, 1923. These funds will be expended on rehabilitation of the existing system. Little can be done to meet the pressing need for improvement and extensions of the system, especially in providing urgently needed feeders to the Government Railroad, now completed, without much greater annual appropriations.

The annual maintenance of the system after completion, as nearly as can be estimated at this time, will cost about \$450,000.

AMOUNT WHICH CAN BE PROFITABLY EXPENDED DURING THE FISCAL YEAR ENDING JUNE 30, 1925.

An appropriation of \$1,600,000 to be distributed approximately as follows, can be profitably expended on this work during the fiscal year ending June 30, 1925:

Name of route.	Mileage.	1. Repair and maintenance.	2. Improvement.	3. New construction.	Total.	Average per mile.
Southeastern Alaska:						
Haines-Pleasant Camp.....	43	\$11,000	\$20,000	\$33,000	\$64,000	\$1,500
Porcupine extension.....	20	3,000			5,000	250
Douglas-Gastineau Channel.....	2	1,000			1,000	500
Haines-Mud Bay.....	10	2,500			2,500	250
Strawberry Point.....	13	500	1,000	4,500	6,000	450
Total.....	78 1/4	20,500	21,000	37,500	79,000	1,025

Name of route.	Mileage.	1. Repair and maintenance.	2. Improvement.	3. New construction.	Total.	Average per mile.
Eagle subdistrict:						
Eagle Forty mile.....	47	\$10,000	\$30,000	10,000	\$50,000	\$1,064
Eagle-Sevcoy mile.....	20	2,000		5,000	7,000	350
Steel Creek-Chicken.....	12 1/2	3,700			3,700	296
Canyon Creek-Walkers Fork.....	10	2,500			2,500	250
Eagle Circle.....	190	1,900			1,900	10
Tanana Crossing-Chicken.....	192	1,400			1,400	14
Fourth of July-Nation.....	10	2,500			2,500	250
Total.....	397 1/2	24,000	30,000	15,000	69,000	174
Valdez district:						
Valdez-Willow Creek.....	92	46,000			46,000	500
Chitina-Willow Creek.....	39	19,500			19,500	500
Willow Creek Rapids.....	139 1/2	68,750			68,750	50
Valdez-Mineral Creek.....	10 1/2	2,500		5,000	7,500	719
Chisana-Nizina.....	78	7,800			7,800	100
McCarthy-Nizina.....	10	8,000	10,000	20,000	38,000	2,375
Strelana-Kushukona.....	16	4,000	3,000		7,000	438
Gulkana-Tanana Crossing.....	188	1,800	10,000	20,000	31,800	177
Chistochina-Slate Creek.....	40	4,000			4,000	100
Total.....	611	103,400	23,000	45,000	231,400	380
Southwestern Alaska:						
Nancy-Rainy Pass (Government railroad).....	152	2,000			2,000	13
Kujik-Willow Creek (Government railroad).....	53	26,500	7,400	10,000	43,900	82 1/2
Alaska Peninsula.....	40	10,000	10,000	10,000	30,000	750
Talkeetna-Cache Creek (Government railroad).....	40	10,000		80,000	90,000	2,250
Talkeetna-Iron Creek (Government railroad).....	47	3,000			3,000	65
Anchorage-Eagle River (Government railroad).....	10	5,000		5,000	10,000	1,000
Matanuska Valley (Government railroad).....	35	18,000			18,000	500
Anchorage Loop (Government railroad).....	15	7,500			7,500	500
Total.....	392	82,000	17,400	105,000	204,400	520
Fairbanks district:						
Fairbanks-Rapids (Government railroad).....	130 1/2	62,250			62,250	479
Fairbanks-Chitanka (Government railroad).....	30	15,000			15,000	500
Summit-Fairbanks Creek (Government railroad).....	11	5,500			5,500	500
Fairbanks-Ester Creek (Government railroad).....	13	6,500			6,500	500
Fairbanks-Chena Hot Springs (Government railroad).....	64	6,400	10,000		16,400	256
Chitanka-Circle (Government railroad).....	130	20,000	65,800	20,000	105,800	814
Chitanka-Beaver (Gov't R. R.).....	120	12,000			12,000	100
Chena-Livengood (Gov't R. R.).....	54	5,400			5,400	100
Beaver-Cape.....	75	7,500			7,500	100
Winter trails.....	105	4,650			4,650	28
Total.....	792 1/2	143,200	75,800	20,000	241,000	300
Nenana district:						
Dunbar-Port Gibbon (Government railroad).....	121	12,100			12,100	100
Dunbar-Brooks (Government railroad).....	63	6,300			6,300	100
Rampart-Bureka.....	27 1/2	13,750	20,000		33,750	123
Hot Springs Landing-Bureka.....	24	12,000			12,000	500
Hot Springs-Sullivan Creek.....	9	4,500			4,500	500
Roosevelt-Kantishna Government railroad-Kantishna (Government railroad).....	34	17,000			17,000	500
Coldfoot-Wiseman.....	31	1,100	20,000	80,000	101,100	1,276
Brooks-Terminal.....	13	4,000	10,000	10,000	24,000	1,846
Moose Creek (Government railroad).....	6	3,000			3,000	500
Carlson-Valdez Creek (Government railroad).....	55	5,500	10,000	10,000	25,500	464
Winter trails.....	716	7,160			7,160	10
Total.....	1,164 1/2	94,800	60,000	100,000	254,800	219

Name of route.	Mileage.	1. Repair and maintenance.	2. Improvement.	3. New construction.	Total.	Average per mile.
Kuskokwim district:						
Arby-Poorman	59	\$29,500	\$10,000	\$30,000	\$69,500	\$1,173
Ophir-Takotna	234	11,750	10,000	10,000	31,750	1,351
Takotna Forks	11	2,200	10,000	0,000	21,200	1,927
Perrys Landing-Nixon Forks	12	0,000	3,000		3,000	250
Iditarod-Flat	3	3,000			3,000	500
Summit-Outer Creek	6	3,000			3,000	500
Poorman-Ophir (summer)	125	1,250			1,250	10
Tasotna-Flat	80	500			500	25
Flat-Crooked Creek (summer)	65	650	1,000		1,650	10
Kalehagnut-Russian Mission	119	1,200			1,200	11
Winter trails	1,383	13,823	15,000		28,823	21
Total	1,891	74,200	30,000	40,000	172,200	91
Nome district:						
Nome-Council	82	21,000			21,000	256
Candle-Candle Creek	6	3,000			3,000	500
Deering-Immachuk	25	7,500			7,500	300
Davidsons Landing-Taylor	40	15,000			15,000	375
Marshall Road	3	1,500	1,500		3,000	1,000
Nome-Dahl	99	29,000		150,000	179,000	1,808
Dahl-Immachuk	65			100,000	100,000	1,538
Winter Trails	1,459	16,000			16,000	10
Total	2,279	96,000	1,500	250,000	348,100	153
SUMMARY.						
Southeastern Alaska	763	29,500	21,000	37,500	79,000	1,033
Eagle subdistrict	3974	24,500	30,000	15,000	69,500	174
Valdez district	611	163,400	23,000	45,000	231,400	380
Southwestern Alaska	395	82,000	17,400	105,000	204,400	520
Fairbanks district	7924	145,200	75,800	20,000	241,000	306
Nemna district	1,153	91,000	60,000	100,000	251,000	219
Kuskokwim district	1,891	74,200	49,000	40,000	172,200	91
Nome district	2,279	96,000	1,500	250,000	348,100	153
Total	7,604	700,800	277,700	621,500	1,600,000	216

COMMERCIAL STATISTICS.

Total commerce of Alaska for the calendar year of 1922.

IMPORTS.

Merchandise from the United States	\$26,777,800
Merchandise from foreign ports	870,927
Total imports	27,648,727

EXPORTS.

Merchandise to the United States	51,082,065
Merchandise and gold and silver to foreign ports	1,371,490
Domestic gold and silver to the United States	7,431,875
Foreign gold, etc.	1,190
Total exports	59,887,550
Grand total, exports and imports	87,536,281

The value of Alaska's mineral output in 1922 was approximately \$19,506,365, as compared with \$17,004,124 in 1921. Minerals are being produced in the following order of value: Copper, gold, silver, coal, gypsum, marble, lead, petroleum, palladium, and platinum.

The high prices, now happily over their peak, were an obstacle in the continued working and the further development of the great placer deposits in Alaska. Lode mining of gold has continued in southeastern Alaska, but under the same handicap. With decreased prices and the return of miners to Alaska, lode mining is to be

expected in the interior. One lode mine in the Kuskokwim at Nixon Forks has made substantial progress during the past year. The deposits of the Kantishna are exciting interest and with the completion of the Government Railroad development can be looked for.

The copper mining industry has revived during the last year due to increased price for copper. The mining and development of coal has gone on with more or less vigor through the last year. One large property has been opened near Healy and is accessible to the Government Railroad by means of a four mile standard gauge spur. The properties formerly operated at Eska and Jonesville have continued in operation through the season. In addition, two properties on Moose Creek in the Matanuska District came into production this season and following the very excellent progress made there a spur is being constructed from the Government Railroad to these properties during the present season. The production of oil continues in the Katalla fields. The very important drilling now going on at Cold Bay is expected to lead to very important results in oil production in the Territory. With increased transportation and lower and stabilized prices production in all classes of mining shows a substantial increase.

The fisheries are principally located on the shores of the North Pacific and Bristol Bay. The production of canned salmon is the principal product. However, large quantities of halibut, cod, herring, and whaling products are also exported. With more stabilized economic conditions at home and abroad all classes of canned salmon are finding a substantial market.

INVESTIGATION AND REPORT REQUIRED BY THE ACT OF CONGRESS APPROVED JUNE 30, 1921.

In compliance with the following proviso contained in the act of Congress approved June 30, 1921:

Provided further, That not to exceed \$10,000 of the foregoing amount shall be expended for a preliminary investigation and report on the feasibility, desirability, and cost of the best and most practicable connection between the Nome-Shelton system of communications and the coal deposits of the Kugruk River, Chicago Creek, and the Keewalik mining district, whether by wagon road, sled road, tramway, trail, or other means,

the board had a preliminary reconnaissance made of existing and prospective routes of communications on the Seward Peninsula in the fall of 1921. The investigation was completed during the summer of 1922. Report dated December 1, 1922, was transmitted to Congress and printed in House Document No. 514, Sixty-Seventh Congress, fourth session. A plan of improvement is presented to the extent of:

From Shelton to Dahl, extension of the Nome-Shelton tramway, 12 miles, at \$12,500 per mile	
From Dahl to Immachuk, improvement of winter trail to summer trail standard, including bridges, 65 miles, at \$3,000 per mile	\$150,000
From Immachuk to Candle Creek, construction of a tramway, 30 miles, at \$13,500 per mile	195,000
Total	505,000

Maintenance is to be provided for by the board with its own funds, supplemented by contributions from the Territory.

ADDITIONAL DUTIES OF THE BOARD.

At the request of the commanding officer of the post of Fort Wm. H. Seward, Alaska, the president of the board made a special examination of the water main across Chilcat Inlet, which supplies the post and the town of Haines, Alaska, and submitted a report with recommendations for the repair and reconstruction of the line. This report was approved by the War Department and the board was charged with supervision of the work. Two thousand seven hundred and fifty dollars of quartermaster funds were allotted to the post finance officer in payment thereof. At the close of last fiscal year, the breaks and leaks were repaired, the water service restored and the reconstruction nearly completed. Total expenditures, \$2,502.02.

The president of the board is also district engineer for the Juneau, Alaska, river and harbor district. The other two members of the board are placed under the immediate orders of the district engineer and the secretary and disbursing officer of the board is disbursing officer for the district. Total expenditures, \$21,143.12.

The president of the board, in addition to his other duties, was, under the provisions of acts of Congress approved June 17, 1910, and June 15, 1917, detailed for consultation or to superintend the construction or repair of any aid to navigation authorized by Congress in the Sixteenth (includes Territory of Alaska) Lighthouse District and was directed to report by letter to the Secretary of Commerce.

By informal agreement with the Territorial board of road commissioners this board has agreed, under the terms of the Territorial act of April 21, 1919, to permit its superintendent for the southwestern district and its assistant superintendent for the Yukon district to be appointed chairmen and secretaries of the Third and Fourth Territorial road districts, respectively, to supervise their operations and to certify vouchers to the Territorial treasurer for payment, following the same general procedure as for Federal vouchers.

Effective November 14, 1921, the president of the board was appointed consulting engineer for the Territory and assumed direct charge of all Territorial public works.

By letter of the Secretary of War, dated December 6, 1921, the president of the board was designated as the War Department representative upon the Inter-Departmental Alaska Council. Under the authority of the same letter the president of the board designated the engineer officer of the board to act in his absence.

By informal arrangement the president of the board agreed to act for the National Park Service, Department of the Interior, on certain matters relating to the improvement of the Sitka National monument and the development of Mount McKinley National Park.

Effective February 13, 1923, the president and the engineer officer of the board were, in addition to their other duties, detailed for duty with the Government railroad in Alaska under the provisions of an act of Congress approved March 12, 1914, and were appointed chairman and chief engineer and vice chairman, respectively, of the Alaskan Engineering Commission. They took over the management of the Alaska Railroad and allied activities of the Alaskan Engi-

neering Commission as of March 24, 1923. Expenditures for the fiscal year since that date, \$1,590,370.09.

The practical result of the foregoing orders has been the development, without legislation but through executive order or interdepartmental or interbureau agreement of a practical working arrangement through which the facilities of all the services involved are used interchangeably. A careful account is kept so that each appropriation is eventually expended for the purpose intended by Congress and no appropriation is either increased or diminished by such interchange of working funds or facilities. Separate accounts and reports are rendered to the departments under the direction of which the work is performed.

The result has been an immediate speeding up of development work upon a unified plan based upon a careful survey of the situation, a thorough knowledge of the entire Territory and its problems, and a coordination of all the various conflicting interests after full hearings before all parties at issue. Instead of interminable references between different bureaus which formerly sometimes required papers to travel to Washington and back several times, matters are handled promptly upon the ground, or where the approval of Washington is required, such approval has usually been obtained by a single telegram covering the various angles or the views of the bureaus concerned.

The following are the activities involved in this arrangement: The construction, repair, and maintenance of federal roads, tramways, ferries, bridges, trails, and related works, now aggregating over 9,000 miles, and extending from open-all-the-year-round south coast ports to all inhabited parts of the Territory; Territorial roads, bridges, ferries, and trails throughout the Territory; covered by cooperative agreements: shelter cabins; Nizina River Bridge; Nome-Shelton Tramway (87 miles operated by cars drawn by dogs); Tolovana Tramway; Kaltag Portage Survey; Improvement of Nome Harbor; Improvement of Wrangell Harbor; the preliminary examination or survey of Wrangell Narrows; Tolovana River, Yukon-Kuskokwim Portage, English Bay, and Gastineau Channel and adjacent waters; the investigation of port facilities; the survey and design for a Government dock at Juneau; the issuance of permits for fish traps and other structures in the navigable waters along the Territory's 26,000 mile coast line; miscellaneous inspections, public hearings, and contingencies of rivers and harbors; improvement of Sitka National Monument; Development of Mount McKinley National Park; construction, maintenance, and operation of the Alaska Railroad from Seward to Fairbanks, 470½ miles; railway spurs to the Esko, Jonesville, Chickaloon, and Healy River coal mines, 46 miles; from Fairbanks to the gold creeks as far as Chatanika, 29 miles narrow gauge; Moose Creek coal spur, 4½ miles narrow gauge; also river boat service on the Tanana and Yukon Rivers between Nenana and Holy Cross, 750 miles, with through billing arrangements covering freight service from Seattle or Tacoma to points on the Yukon River and its principal tributaries between the International Boundary at Eagle and Bering Sea at St. Michael; also an agreement covering automobile service on the Richardson Highway from Fairbanks to Chitina and Valdez, 410 miles; also operates coal mines, hospitals, hotels, and commissaries.

The organization chart looks like an hourglass with the central office at the waist. All authorities and appropriations are gathered in from the four departments and six bureaus and then spread out again over the various jobs. Similarly the reports and vouchers are gathered up from the various outlying districts, viséed, and then passed up to the various departments and bureaus under whose direction the particular work has been handled.

Financial summary.

Amount expended on all projects to June 30, 1923, including receipts from sales, etc.:		
During fiscal years 1905-1922	\$6,400,424.04	
Fiscal year 1923	618,869.62	\$7,028,293.66
Alaska special fund fiscal years 1920-1922	277,895.60	
Alaska special fund fiscal year 1923	121,212.87	399,098.47
		<u>7,427,392.13</u>
Total for new work	4,277,696.99	
Total for maintenance	3,149,695.14	
		<u>7,427,392.13</u>
Balance available		669,118.41
		<u>8,096,510.54</u>
Grand total to be accounted for		
Appropriations to June 30, 1923:		
Construction and maintenance of military post roads, bridges and trails, Alaska	4,945,000.00	
Wagon roads, bridges and trails, Alaska fund	2,652,892.56	
Increase of compensation, War Department	34,265.01	
Receipts from sales, etc.	48,694.11	
Refunds to Alaska fund	3,187.18	
Refunds to War Department appropriations	2,120.49	
Refunds to contributed funds	20.45	
Reimbursement from Navy Department	3,976.19	
Sales, etc., to accrue to Alaska fund	7,276.50	
Funds contributed by Territory of Alaska and towns, for public roads, bridges, trails and ferries, Alaska special fund	390,078.02	
		<u>8,096,510.54</u>
Total		

Fiscal year ending June 30.	1919	1920	1921	1922	1923
Expended for improvement and new work	\$114,829.11	\$185,190.66	\$432,243.90	\$236,251.91	\$314,195.39
Expended for maintenance	184,195.15	173,410.59	234,545.18	446,993.77	425,887.10
Total expended	299,024.26	358,601.25	666,789.08	683,247.68	740,082.49
Appropriated by War Department acts	100,000.00	100,000.00	350,000.00	425,000.00	1,115,000.00
Allotted from Alaska fund	52,372.31	124,692.96	213,237.10	173,029.19	34,298.23
Contributed by Territory of Alaska and others		115,517.94	113,746.01	56,421.05	113,412.57
Increase of compensation, War Department			940.00	4,322.99	28,857.72
Total	152,372.31	340,510.90	652,923.71	658,772.33	1,291,668.52

July 1, 1922, balance available	\$490,239.86
Amount appropriated by War Department act, approved Mar. 2, 1923	650,000.00
Amount accrued to Alaska fund during fiscal year 1923	119,227.10
Amount contributed by Territory of Alaska and others	113,412.87
Refund, War Department appropriation	21.35
Receipts from sales, etc., during fiscal year 1923	7,442.00
Increase of compensation, War Department, 1923	28,857.72
Total resources	<u>1,409,200.90</u>
June 30, 1923, amount expended during fiscal year, including receipts from sales, etc.:	
New work	\$314,195.39
Maintenance	425,887.10
	<u>740,082.49</u>
July 1, 1923, balance unexpended	669,118.41
July 1, 1923, outstanding liabilities	312,909.21
July 1, 1923, balance unobligated	<u>356,209.20</u>
Amount available from War Department act, approved Mar. 2, 1923	559,407.63
Amount available from Alaska fund on June 30, 1923	102,434.23
Receipts from sales, etc., during fiscal year 1923	7,276.50
Amount available for fiscal year ending June 30, 1924	<u>669,118.41</u>
Amount (estimated) required to be appropriated for completion of existing projects	8,460,000.00
Amount that can be profitably expended in fiscal year ending June 30, 1925:	
For new work	621,500.00
For maintenance	978,500.00
Total	<u>1,600,000.00</u>

APPROPRIATIONS.

Construction and maintenance, military and post roads, bridges and trails, Alaska.	
Total amount appropriated to and including June 5, 1922	\$4,295,000.00
(See detailed statement on p. 2252, Annual Report of the Chief of Engineers, 1922.)	
March 2, 1923	650,000.00
Total	<u>4,945,000.00</u>
Receipts from Treasury, United States, account "Alaska fund," wagon roads, bridges and trails, Alaska fund:	
Grand total to end of fiscal year 1921	2,422,871.88
(See statement on p. 51, Part II, Annual Report of the Alaska Road Commission, fiscal year 1921.)	
1922	97,461.62
Proceeds from sales	4,213.20
1923	119,227.10
Proceeds from sales	9,118.76
Total	<u>2,652,892.56</u>
Increase of compensation, Military Establishment:	
Fiscal year 1918	145.20
1919	
1920	

¹ Exclusive of available funds

Increase of compensation, Military Establishments—Continued.

1921	\$940. 00
1922	4, 322. 00
1923	28, 857. 72
Total	34, 205. 01
Grand total, Federal funds	7, 682, 157. 57

CONTRIBUTED FUNDS.

[Act of Congress approved June 30, 1921, Alaska special fund.]

1. By the Territory of Alaska:

Act of legislature approved Apr. 21, 1919—

Public roads, bridges, trails, and ferries—

Fiscal year 1920	\$115, 517. 94
1921	85, 746. 61
	\$201, 264. 55

Approved May 7, 1921, roads, etc.—

Fiscal year 1921	28, 000. 00
1922	43, 237. 28
1923 (includes \$20.45 refund)	88, 533. 53
	159, 770. 81

Approved May 5, 1921, Nizina River Bridge—

Fiscal year 1922	5, 000. 00
1923	20, 000. 00
	25, 000. 00

Approved May 7, 1921, Shelter Cabins—

Fiscal year 1922	6, 500. 00
1923	3, 500. 00
	10, 000. 00

Total, territory 396, 085. 16

2. By others:

Fiscal year 1922—

City of Valdez	220. 02
City of Wrangell	500. 00
City of Sitka	500. 00
Alpine Club of Skagway	463. 75
	1, 683. 77

Fiscal year 1923:

City of Valdez	601. 83
City of Juneau	777. 71
	1, 379. 54

Grand total, contributed funds 399, 093. 47ANNUAL REPORT OF THE ALASKA ROAD COMMISSION
FISCAL YEAR 1923REPORT UPON THE CONSTRUCTION AND
MAINTENANCE OF MILITARY AND POST
ROADS, BRIDGES AND TRAILS; AND OF
OTHER ROADS, TRAMWAYS, FERRIES,
BRIDGES, TRAILS, AND RELATED WORKS
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PART IIBOARD OF ROAD COMMISSIONERS
FOR ALASKAJUNEAU, ALASKA
1923

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ANNUAL REPORT OF THE ALASKA ROAD COMMISSION
FISCAL YEAR 1923

REPORT UPON THE CONSTRUCTION AND
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NINETEENTH ANNUAL
REPORT

1923
PART II

BOARD OF ROAD COMMISSIONERS
FOR ALASKA

JUNEAU, ALASKA
1923

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THE
ALASKA ROAD COMMISSION

(From the speech of President Harding in Seattle,
July 27, 1923)

.... "In another direction there is justification for a most liberal disposition; that of road and trail building. Much of the Alaska which will in another generation be rich and productive, is yet unexplored, to say nothing of being mapped and equipped with highways. There should be an organization capable of the readiest response to demands for roads and trails. No discovery of riches should be kept from national development for want of access to it. Alaska is so vast a region that merely to prospect it thoroughly is a matter of generations, with a far larger population than it now possesses. Roads constitute a prime need in every new country, and our long national experience in pushing our highways ahead of the onrolling wave of settlement, ought to convince us that the broadest liberality towards roads in Alaska will be certain to bring manifold returns.

"Aside from all this, there is the necessity to provide feeders for the railroad which the government has built and is now operating. More than \$56,000,000 has been spent on this 500 miles of railroad. It was not built in the expectation of immediate or even early profit; rather, it stands in much the same relation to Alaska that the Union Pacific did to our widely separated ocean fronts, east and west, when it was constructed far in advance of economic justifications. It is a pledge, a testimony of faith, a declaration of firm confidence in the future of all Alaska. It is but a beginning, as the present road system is but a beginning; and I AM WILLING TO BE CHARGED WITH A PURPOSE OF SOMETHING LIKE PRODIGALITY IN MY WISH TO SERVE ALASKA GENEROUSLY, AND MORE, IN THIS MATTER OF ROAD BUILDING."

ANNUAL REPORT OF THE ALASKA ROAD COMMISSION
FISCAL YEAR 1923

REPORT UPON THE CONSTRUCTION AND
MAINTENANCE OF MILITARY AND POST
ROADS, BRIDGES AND TRAILS; AND OF
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NINETEENTH ANNUAL
REPORT

1923
PART II

BOARD OF ROAD COMMISSIONERS
FOR ALASKA

JUNEAU, ALASKA
1923

Alaska Road Commission,
Juneau, Alaska, August 15, 1923.

The Honorable, the Secretary of War,
Washington, D. C.

Sir:

In compliance with the provisions of Sec. 2 of an Act of Congress, approved January 27, 1905, as amended by Act approved May 14, 1908, I have the honor to submit the attached report of the operations of this Commission for the fiscal year ending June 30, 1923.

Your attention is respectfully invited to the sections covering "Local Cooperation," "Additional Operations of the Board or of its Members," and especially to the "Department of Engineering and Public Works," as evidencing the close and cordial relations which the Commission has developed with other officials, both Federal and Territorial, and the great progress that has been made in solving Alaska's problems, so far as Public Works are concerned. The oft-repeated criticisms of governmental red-tape in Alaska or of the thirty-eight or more bureaus attempting to run the Territory at long range from Washington decidedly do not apply to the operations of this Commission.

Respectfully,

JAS. G. STEESE,

President.

TABLE OF CONTENTS.

	Page
Board of Road Commissioners for Alaska.....	7
Operations during the fiscal year.....	7
Organization	8
Machinery and equipment	8
Progress of the work	19
Territorial Road Legislation.....	13
Local Cooperation	14
General Problems of Construction.....	16
General Transportation Problem.....	18
Regions of Alaska.....	19
Traffic Movement	20
Detailed operations by districts.....	20
Juneau Headquarters	22
Washington, D. C. Sub-office.....	23
Seattle, Wash., District Engineer Office.....	23
Southeastern District	24
Eagle Sub-district	30
Ethel Sub-District	37
Valdez District	41
Chitina District	46
Southwestern District	50
Territorial Projects, Third Division.....	56
Yukon District	60
Territorial Projects, Fourth Division.....	74
Kuskokwim District	79
Nome District	91
Summary of funds expended by districts.....	115
Contracts in force.....	116
Commercial Statistics	116
Additional operations of the Board or of its members.....	120
Department of Engineering and Public Works.....	121
Statement of receipts and disbursements.....	122
Expenditures in detail.....	123
Expenditures in detail-Cooperative Fund.....	125
Distribution of expenditures.....	127
Appropriations	129
Contributed Funds	130
Expenditure of other funds supervised by the Board.....	139

ILLUSTRATIONS.

CHART—

Organization working season 1922.....fol

MAPS

Southeastern District

Eagle Sub-District

Bethel Sub-District

Valdez District

Southwestern District

Fairbanks District

Nenana Sub-District

Kuskokwim District

Nome District

The 1923 Alaska Terr.....Folded

Government Railroad and Highway Feeders....."

PHOTOGRAPHS—

Interlocking sheet-piles, Nizina River Bridge.....

Ready to drive Pier No. 5, Nizina River Bridge.....

Grading with Tractor, Seward Peninsula.....

Freighting poles for Corduroy, Seward Peninsula.....

Loading Gravel, Mile 963, Richardson Highway.....

Hauling poles with tractor in 3½ feet of snow.....

Nome-Council Road.....

Ophir-Takotna Road.....

Winter Trail, Broad Pass, Alaska Range.....

Snake River Bridge, Nome, May, 1923.....

Moose Creek Bridge, Mile 12, Talkeetna-Cache Creek Road.....

Trestle across Glacier Stream near Miller's, Mile 230, Richardson Highway.....

Driving new bridge across Valdez Glacier Delta after bad flood.....

Eleven dogs drawing 1300 pounds, Talkeetna-Cache Creek Road.....

Drag Line Working, Poplar Grove Pit, Mile 148, Richardson Highway.....

Spring Freighting during spring "Break-up".....

Freighting with tractors and trailers, Lower Tonsina, on Chitina-Fairbanks Road.....

Winter Freighting, Talkeetna-Cache Creek Road.....

Bridge at Takotna, Ophir-Takotna Road.....

Pinnacle Rock, Mile 28, Knik-Willow Creek Road.....

New Bridge at Wells, Mile 24½, Haines-Pleasant Camp Road.....

Heavy Rock Excavation, Keystone, Relocation.....

Mile 2, McCarthy-Nizina Road.....

Sub-grade completed, Anchorage-Eagle River Road.....

Nome-Council Road, Effort to locate culverts after snow has fallen.....

Typical Seward Road, Mile Terrain, Bossi-Banner Road.....

Unsurfaced Road, Surfaced Road, and Camp, Cape Nome Road.....

REPORT UPON THE CONSTRUCTION AND MAINTENANCE OF MILITARY AND POST ROADS, BRIDGES, AND TRAILS, ALASKA: and of other Roads, Tramways, Ferries, Bridges, Trails and Related Works in the Territory of Alaska.

REPORT OF THE BOARD OF ROAD COMMISSIONERS FOR ALASKA.

James G. Steese.....President
John C. Gorwals.....Engineer Officer
Pierre A. Agnew.....Secretary and Disbursing Officer

For Description of Project Under This Board see Part I of this Report, contained in Annual Report of the Chief of Engineers, United States Army.

OPERATIONS DURING THE FISCAL YEAR.

The work during the fiscal year ending June 30, 1923, was executed under appropriations for "Construction and maintenance of military and post roads, bridges and trails, Alaska, 1922-1923" and "1923-1924," approved June 30, 1922, and March 2, 1923, and from receipts from the "Alaska fund" act of Congress approved January 27, 1905, as amended by act approved May 14, 1906. Work was also done which was covered by funds contributed by the Territory of Alaska and others. Act of Congress approved June 30, 1921. The work consisted chiefly of maintenance of the existing roads, trails and bridges. The construction of several new projects was taken up mostly under cooperative agreements with the Territorial Board of Road Commissioners.

The Department of Agriculture has maintained a separate road building organization in the Territory since July 1, 1920. Prior to that date, the board also supervised the expenditure of Department of Agriculture funds in the National Forests. Until May 1, 1922, the board continued to allot part of its own funds to projects within the National Forests, the Department of Agriculture funds being inadequate to accomplish the work. By turning over these projects within the National Forests to the Department of Agriculture, whose funds are limited to those areas, funds of this board are thereby freed for use in the 95 per cent of the Territory not included in National Forests.

ANNUAL REPORT ALASKA ROAD COMMISSION.

The roads constructed by this board are in general good wagon roads. However, a more substantial type of road has now been built in many places, upon which automobiles and light trucks can be used economically. The demand for roads of this type is increasing, and effort is made in each case to provide a gravel surface for the road.

ORGANIZATION.

The headquarters of the board are located at Juneau; a service office is maintained at Washington, D. C., as required. The Territory is divided into seven districts. The Southeastern District comprises that part of Alaska south and east of the one hundred and forty-first meridian; for administrative purposes, the Eagle-Fortymile, Seventymile and Bethel sub-districts are attached to the Southeastern District. The Valdez District comprises the territory between the one hundred and forty-first and one hundred and forty-eighth meridians lying south of the Alaska Range, except as included in the Chitina District. The Chitina District includes the Richards Highway, from Ptarmigan Drop, Mile 32 to Rapids, Mile 233 and tributaries between these points. The Southwestern District includes the territory west of the one hundred and forty-eighth meridian and south of the Alaska Range; it includes the Alaska Peninsula and Kodiak Island. The Kuskokwim District includes the territory between the Alaska Range and the Yukon River west of the one hundred and fifty-fourth meridian. The Nome District includes the territory west of the Yukon River and also west of the one hundred and fifty-eighth meridian. The Yukon District includes the remainder of the Territory of Alaska, principally the Tanana, Koyukuk and Upper Yukon River valleys; the Nenana sub-district includes all sub-projects in the Yukon District west of Dunbar.

Each district is in charge of a superintendent. It is the duty of each superintendent to visit his working crews and to give them the necessary engineering supervision during the season. The foremen in local charge are in nearly all cases trained men who have been attached to this board for many years.

MACHINERY AND EQUIPMENT.

The following additional equipment was purchased during fiscal year:

- 2 Hoisting engines and boilers.
- 1 Road grader (Big Winner) tractor-drawn.

Additional quantities of surplus Army stocks, highly suited for this work have been received including:

- 5 Hoisting engines (gasoline).
- 25,000 Yds. canvas.
- 15 Tons TNT.

ANNUAL REPORT ALASKA ROAD COMMISSION. 9

The high cost of labor and of maintaining horses makes necessary the prosecution of the greatest part of our work with mechanical equipment.

The Board is now well equipped to handle engineering construction anywhere in the Territory. Its major items of equipment include the following:

- 3 Compressors, air.
- 1 Steamshovel, Marion.
- 2 Gasoline drag lines, Bucyrus.
- 4 Engines, hoisting, steam.
- 5 Engines, hoisting, gasoline.
- 7 Graders, road, Tractor-drawn (Big Winner).
- 17 Graders, road, Horse-drawn (Little Winner).
- 4 Pile Drivers.
- 64 Sleds, double enter and bob-sled
- 3 Jackhammers.
- 6 Radio outfits.
- 8 Trailers, highway.
- 5 Road rollers.
- 4 Saws, power.
- 2 Tractors, Case.
- 20 Tractors, Holt.
- 3 Tractors, Titan.
- 1 Tractor, Yuba.
- 66 Wagons.
- 5 Winches, hand.
- 28 Trucks, Dodge.
- 10 Trucks, Ford.
- 6 Trucks, GMC.
- 1 Truck, Gersix.
- 4 Trucks, Mack.
- 4 Trucks, Packard.
- 2 Trucks, Pierce Arrow.
- 9 Trucks, White.
- 7 Transits, surveying.
- 4 Levels, surveying.
- 2 Stone crushers.
- 1 Boiler, piledriver, steam.
- 2 Pumps, power-driven.
- 48 Road plows.
- 75 Scrapers, slip.
- 14 Scrapers, wheel.
- 1 Welding outfit.
- 1 Scarifier.
- 1 Machine shop portable.

Warehouses, car-houses, garages, barns, etc., are located at all points.

PROGRESS OF THE WORK.

The high scale of wages and supplies in the Territory is a large element in the cost of this work. The rate paid for labor varies from \$3.50 to \$4 per day with board for common labor. The cost of subsistence and forage is also correspondingly high. Besides these high costs, the nature of the work in Alaska adds to the cost in a way to make comparisons with road work in the United States difficult. In the roads built here the cruising, clearing, grubbing and construction of the road includes all work done upon the roads in the settled parts of the United States from pioneer days. Even with this the mileage cost of our roads can be looked upon with a great deal of gratification.

Since assuming charge at the beginning of the 1920 working season, the present board has been engaged in overhauling the entire road and trail situation, rehabilitating or abandoning the projects which have fallen into disrepair or disuse, and drawing up a progressive and comprehensive plan of operations covering a period of years. A brief resume of this situation as it has developed will now be given.

The total mileage of roads and trails constructed by the board during its first sixteen years of existence (1905-1920) aggregates 4590 miles, consisting of 1631 miles of wagon road, 636 miles of sled road, and 3223 miles of trail.

In addition, some 712 miles of temporary trail have been flagged as required. Not all of this mileage has been maintained year by year; some has been in disuse or practically impassable for many years and a small mileage has been superseded by other routes or methods of transportation as will appear more in detail below.

The specific routes included in this 5602 miles are enumerated in Tables I and IV, Annual Report for 1921. The following table summarizes the status of the work of investigation and rehabilitation begun three years ago. The funds available enabled substantial progress to be made and the investigation should be practically completed during the current season.

STATUS	WAGON ROAD			SLED ROAD		TRAIL		MILEAGE	
	Wagon Road	Sled Road	Trail	Total	Flagging Only	Grand Total			
1905 Report	1,631	636	3,223	4,590	712	5,602			
ADDITIONS:									
New Mileage	435 1/2	515	3,281	4,231 1/2		4,231 1/2			
Grand Total	1,466 1/2	1,151	6,504	9,121 1/2	712	9,833 1/2			
DEDUCTIONS:									
Turned over to other bureaus	117 1/2	9	49 1/2	175		175			
Abandoned	25 1/2	27	375	527 1/2		527 1/2			
Net Total	1,323 1/2	1,115	5,150 1/2	7,589 1/2	712	8,301 1/2			
Net Work 1923	913 1/2	228	2,639	3,780 1/2	192	3,972 1/2			
1921 Report	1,116	587	3,470 1/2	5,173 1/2	820	5,993 1/2			

*Exclusive of sub-projects subsequently turned over to other bureaus.

ANNUAL REPORT ALASKA ROAD COMMISSION. 11

During the past fiscal year the expenditures were distributed as follows for the following mileage:

	Wagon Road	Sled Road	Trail	Flagged Trail	Total
Eastern Alaska	11		2		13
Central Alaska	16	162	173		351
Western Alaska	4		3		7
Northwestern Alaska	24		46		70
Southwestern Alaska	692		1,120		1,812
Arctic Alaska	52		9		61
Alaska	16		1,144	520	1,330
Totals	816	162	1,477	520	3,035

The Board has expended the following funds since the beginning of road and trail development in the Territory:

FEDERAL APPROPRIATIONS:

Alaska Fund, 1905-1920	\$2,155,000.00*
Army Acts, 1905-1920	3,058,041.44**
Increase of Compensation, 1918-1920	145.20
Treasury Adjustments, 1905-1920	22,570.75
Alaska Fund, 1921-1923	425,064.52
Army Acts, 1921-1923	1,832,421.01
Increase of Compensation, 1921-1923	84,119.11
Total	\$7,025,293.75

CONTRIBUTED FUNDS:

Territory of Alaska, 1923	\$ 101,284.56
Territory of Alaska, 1921-1922	294,650.00
Miscellaneous, 1922-1923	3,068.31
Total	\$ 399,003.47
Grand Total	\$7,427,392.15

Under the following adjustments:

Appropriations	\$2,123,555.05
ADDITIONS:	
Receipts from sales	\$45,264.74
Payments, voucher corrections	1,822.25
Total	\$2,173,096.47

DEDUCTIONS:

Disbursing officer shortage***	18,575.25
Net Total	\$2,155,000.00

Under the following adjustments:

Appropriations	\$3,053,000.00
ADDITIONS:	
Navy Dept. reimbursement	\$2,229.10
Payments, voucher corrections	238.89
Total	\$3,059,267.99

DEDUCTIONS:

Disbursing officer shortage***	1,228.55
Net Total	\$3,058,041.44

***The officer was dismissed and service by 700 No. 4. War Department Report P-5 10 1921.

12 ANNUAL REPORT ALASKA ROAD COMMISSION.

In addition to the above funds, disbursed through the U. S. Treasury, the Board has supervised the expenditure of the following funds disbursed by other agencies for road and trail development:

Road tax, labor, and miscellaneous contributions, 1905-1920	\$266,906.80
Department of Agriculture, 1920	202,702.67
Quartermaster General, 1901-1902	100,000.00
Chief of Engineers, 1904-1905	31,631.73
Territorial Divisional Commissions, 1921	750.00
Territorial Divisional Commissions, 1922	29,177.19
Territorial Divisional Commissions, 1923	26,572.50
Seward Peninsula Tramway	24,019.67

Total\$817,845.17

*Expended prior to organization of the Alaska Road Commission.

The annual cost of maintenance of routes in Alaska varies considerably with the locality, the range of climate being greater than that of the United States, and the cost of labor varying greatly. The experience of this Board indicates that for all Alaska proper average maintenance costs, including a fair allowance for flood etc., are about as indicated in table following:

Classification	Mileage	Annual Maintenance per mile	Total
Wagon Roads	1,323.21	\$399.00	\$397,125.
Sled Roads	1,115	25.00	27,875.
Trails	6,157.2	10.00	61,505.
Flagged Trails	712	3.00	2,136.
Totals	9,307.41	\$ 52.75	\$488,641.

The above does not provide for any improvements or extensions. The intermediate, or interior, sections of many of the through routes need improvement to the same standard as the rest so that the entire route may be used throughout by the same traffic without the necessity of breaking loads. A certain amount of new work on extensions must be provided for each year to keep pace with developments. This has only been possible up to the present time at the expense of needed maintenance work.

The magnitude of the task and extent of territory covered by the wide-flung activities of this board may be realized from the fact that it would take two years of continuous traveling with the best facilities available for a single individual to make a complete inspection of the entire mileage for which the Board is responsible.

Actually the President and the Engineer Officer spend about 80% of their time in the field. They have visited every district and have inspected most of the projects a number of times. The Secretary and Disbursing Officer has been engaged in overhauling the property, accounts and office methods and has started a routine of inspection of the district offices to standardize methods and accounts.

TERRITORIAL ROAD LEGISLATION.

By the Act of April 28, 1915 (Chapt. 27, Session Laws 1915), the territorial road districts, corresponding to the judicial divisions, were created. There was also authorized an elected road commissioner for each district to receive as compensation five per cent of all money expended by him. He was authorized to appoint assistants in each precinct as inspectors for the compensation and no provision was made. Seventy-five per cent of the Forest monies were appropriated for this work.

By the Act of April 30, 1917 (Chapt. 17, Session Laws 1917), \$100,000 was appropriated for shelter cabins, this money to be expended under the general supervision of the Governor of the Territory by the road commissioners who were to receive, also, ten per cent of this fund for their services.

The Act of May 3, 1917 (Chapt. 36, Session Laws 1917), created the present Territorial Board of Road Commissioners and authorized the submission of estimates to the Legislature covering the work considered necessary and desirable. Under this law in each road district there was created a Divisional Board consisting of a chairman and secretary to be elected. His salary was fixed at \$1,000 per year and he was authorized to expend, in addition, necessary amounts to cover office, clerk hire, et cetera. The other two members of the Divisional Boards were appointed by the Territorial Board and received actual expenses during such time as they were employed. The Divisional Boards were required to submit an annual report to the Territorial Board upon January first.

Funds were provided by the Act of May 3, 1917 (Chapt. 36, Session Laws 1917), to the amount of \$400,000, for the biennium, divided equally among the four road districts. A supplemental Act of the same date (Chapt. 50, Session Laws 1917) appropriated \$100,000 for the construction of the Nizina River Bridge.

The present road law in the Territory, known as the Cooperative Road Act, was passed on April 21, 1919 (Chapt. 11, Session Laws 1919). It was made necessary by the federal appropriation for National Forests, which could be expended only provided cooperative funds were appropriated by the Territory, the Department of Agriculture funds becoming available in the ratio of about three dollars of federal funds to one dollar of territorial funds. Under the Act the Territorial Board of Road Commissioners, consisting of the Governor, the Secretary, and the Treasurer of the Territory, was authorized to enter into cooperative agreements with the Department of Agriculture, the Alaska Road Commission, or other federal bureau, and to turn over to the disbursing officers of such bureaus the funds to be expended by them upon the cooperative

The Territorial Board was also authorized and directed to submit to the Legislature estimates for further work. The Divisional Boards consisted, as before, of one elected commissioner at an annual salary of \$2,500 and two appointed members who should be reimbursed for their expenses for such time as they should actually serve. The Divisional Boards, also, were required to submit annual reports upon January first.

This law further provided that after March 1, 1921, the Divisional Chairman should be appointed from qualified civil engineers in the Territory who should serve without pay and provided for two elected commissioners in each division who should receive a per diem of \$10.00 for such time as they should actually serve but whose total compensation should not exceed \$1,000 in any one year.

Funds were provided by the Act of May 1, 1919 (Chapt. 38 Session Laws 1919), in the sum of \$375,000 for the biennium, to be equally divided among the four districts. The same Act also appropriated \$5,000 for shelter cabins to be constructed under the general supervision of the Governor.

For the past biennium the supplemental provisions of the law of April 21, 1919, were in effect. The Act of May 5, 1921 (Chapt. 39 Session Laws 1921), appropriated \$25,000 for a new Nizina River Bridge to be built by the Alaska Road Commission, provided the Alaska Road Commission should contribute at least an equal amount. The Act of May 5, 1921 (Chapt. 39 Session Laws 1921), appropriated \$20,000 for the purchase of the Seward Peninsula Railway, provided the Alaska Road Commission would agree to rehabilitate it and operate it as a public tram or highway. The Act of May 7, 1921 (Chapt. 45 Session Laws 1921) appropriated \$250,000 for roads and trails for the current biennium and an additional sum of \$10,000 for shelter cabins. In addition to funds appropriated by the Territorial Legislature, 25% of certain revenues from timber sales in the National Forests accrue to the Territory; 75% of the Territory's port dues are available for general road work throughout the Territory.

LOCAL COOPERATION.

Under the authority of the Territorial Cooperative Road Act approved April 21, 1919, and the Act of Congress approved June 30, 1921, the Board has made numerous cooperative agreements for the prosecution of work supported in part by federal funds and in part by funds appropriated by the Territorial Legislature. In the first and second Divisions, Southeastern and Western Alaska, respectively, no Divisional chairmen were appointed during the past year all available funds being allotted to cooperative projects. In the other two Divisions, a superintendent and an assistant superintendent of the Board were appointed chairmen of the respective commissions.

ANNUAL REPORT ALASKA ROAD COMMISSION. 19

The President of the Board was appointed as the Consulting Engineer for the Territory and supervised the work of the Divisional Chairmen as well as of the other public works supported by Territorial funds.

The following general road funds have been expended upon operative projects and the work supervised by the Board:

Fiscal Year	Territorial	A. R. C.	Total
1921	\$101,244.56	\$ 82,447.74	\$ 183,692.30
1922	27,821.04	21,444.47	49,265.51
1923	57,133.25	21,817.25	78,950.50
1924	62,530.82	21,417.77	83,948.59
Totals	\$251,730.67	\$146,127.23	\$397,857.90

Expended by Territory for current working season _____ \$5,000.00

Under authority of the same Act of Congress, the Board received and expended during the fiscal year 1922 appropriated funds the amount of \$1,683.77. During the fiscal year 1923 the Board received and expended \$1,379.54 contributed as follows: \$770.00 from the city of Juneau in reimbursement of services in connection with improvement of the city streets; and \$609.54 from the city of Valdez to cover repairs to the Valdez Dam constructed by the Board in 1913, Account No. 50.

During the fiscal year 1922, \$5,000.00 of the appropriation for the Nizina River Bridge were expended. The remaining \$20,000.00 were expended during this year. The Board also expended during the two years \$39,267.27 of its own funds on the same project.

An examination of the Seward Peninsula Railway was made in connection with an investigation of the entire transportation structure on the Seward Peninsula, required by Act of Congress approved July 23, 1921.

This railroad was purchased for \$24,000 with certain stipulations in respect to maintaining the roadway over mining property owned by the Pioneer Mining Company. Its rehabilitation has been supervised by the Board.

The Chairman of the Third Divisional Commission was allotted \$18,712. Allotment for current working season—\$10,000. The Chairman of the Fourth Divisional Commission was allotted \$15,717. Allotment for current working season—\$10,000. Detailed statements of operations are included under the district reports and of expenditures under the financial summary.

The general appropriation Act of the Territory also provided for shelter cabins for the year to be expended under the supervision of the Governor. This fund, also, was supervised and work performed by the Board. The entire sum was expended.

Vouchers for \$2,300.00 of the amount allotted for the fiscal year 1922 were received and placed in the "Sinking Fund" account. The balance is available for the current working season and has been

SHELTER CABIN FUND.

	Alotted Previous to F. Y. 1923	Alotted F. Y. 1923	Expended F. Y. 1923	Alotted F. Y. 1924	A
2nd Division	\$1,500	\$1,500	\$1,500	\$2,500	
3rd Division	2,000	1,000	1,800	2,000	
4th Division	1,500	2,500	4,000	3,000	
Totals	\$5,000	\$5,000	\$7,300	\$7,500	

The Cooperative Road Act has worked satisfactorily the conditions imposed. Certainly, the amount of road accomplished for the money expended has been far in excess of anything heretofore possible. Had the Territory attempted to expend its \$30,000 per division under an independent organization nearly one-third of the available funds would have gone into head, salary and expenses of a divisional chairman and clerk light, etc. All of this service was furnished free by the Road Commission and at no additional cost to itself. In addition the extensive plant and mechanical equipment of the Alaska Road Commission, representing a capital investment of about \$500,000 were furnished where needed in the Territorial work without charge except for fuel and ordinary running repairs. Due to the extensive organization of the Alaska Road Commission, it has been possible to apply Territorial money to outlying projects the maintenance of an independent organization would have been impossible or prohibitive in cost. Finally, all available money has been lumped together and expended upon a comprehensive system, a continuity in plans and a consistency in operations over a long period of years.

The Alaska Road Commission, also, is a gainer under the Cooperative Road Act. By having greater funds available, it is able to consolidate purchases and supplies and thus to secure lower prices. Its overhead is divided over a greater output, thus reducing unit costs. Conflicts in plans and complications in operation are avoided. By having funds becoming available all the year, the difficulties resulting from fiscal year appropriations beginning or terminating about the middle of the open working season are minimized, and the entire organization and conduct of operations are rendered more flexible.

GENERAL PROBLEMS OF CONSTRUCTION.

In the laying out of new work and execution of our plans in Alaska, familiarity must be had with both the topographic features and climatic conditions of all parts of the Territory. They vary widely. The climate of the coastal region of Southern and Southwestern Alaska is very similar to the Puget Sound region of Washington, while the climate of the interior river valley is similar in a degree to the interior country to the east of the

in the Northwest states. Temperatures in winter time are, even, much lower than those encountered in Eastern Washington or Western Montana. The summer time in the interior is, while of short duration, often for a short period brings temperatures as high as any encountered in the interior portions of the Northwest states. Continuing the same parallel with the lowest states, the coastal country is subjected to a very heavy fall, occasionally turning to snow with the lowest winter temperatures, and the interior on the other hand, receives light rain and snow fall. During the long winter of the interior, clear days and low temperatures prevail, and with the light snow fall excellent conditions are provided for winter sledging.

In topography, Alaska is essentially a country of bold relief. As one proceeds inland from the coast, the exceedingly rugged Coastal Range is first passed. Then one drops into a semi-interior valley country, extending to the main Alaska Range. The main Alaska Range rises to great heights and after passing it one enters the great interior river valley of the Yukon. Even within this broad valley rolling hills are encountered everywhere, rising into elevations which are almost mountains. This diverse topography continues almost to the Arctic slope.

The forests of the coastal country contain a very dense growth of spruce and hemlock timber. In the interior the usual timber is spruce, hemlock not appearing, and in addition cottonwood and birch are found in many places. The glaciers, resulting from the heavy snowfall in the Coastal Range, are a conspicuous feature of the mountain system and are likewise encountered on the south side of the Alaska Range and to some extent on the north slope. Under streams, created by the seasonal melting of these glaciers, are one of the most annoying obstacles encountered in road construction.

In respect to the commerce of Alaska, this Territory is, and will be, essentially a producer of raw materials, metals or precious minerals, and in addition on the coast, fish. Furs are produced in lesser proportions, but are a very important element in the commerce of Alaska and are distinguished by their rare quality in the fur markets of the world. Efforts continue to produce pulp, but the unsettled prices of the last two years have made such development difficult. Oil prospecting has commenced vigorously and high hopes exist for the bringing in of a large field of the high grade refining paraffine base oil found in the coal developments, chiefly in the Matanuska fields, and the Healy River, have made progress. The production of oil has been an important item of local production in the Seward Railroad Area. It is improbable, in view of the extremely high rates prevailing for ocean shipping from our west coast

to the Orient and through the Panama Canal to the east coast. That Alaskan coal can be exported for sale to our Pacific States. Agriculture, effort, mainly directed to the production of the hardier cereals and root crops, has continued and is of high value for local consumption. The extension of the agricultural effort, of course, rests upon increased population engaged in mining or other local industries.

With the above outline, the character of the commerce existing between the United States and Alaska can be readily seen. Alaska is essentially an overseas country based on the ports of our Northwest states. Its population is maintained by the shipment of raw materials to the Northwest states in exchange for which indispensables, chiefly foodstuffs and manufactured articles, are sent to Alaska.

GENERAL TRANSPORTATION PROBLEM.

The traffic movement based on the commerce of Alaska and complying with the exactions of climate and topography, gives the key to the solution of the transportation problems of Alaska. As a basis for all this traffic, the first element is that of the ocean going ships plying from Seattle, or other Northwest ports, to the ports in Alaska. From these vessels material and personnel are distributed, first by railroads, of which three are in operation, i. e., the White Pass and Yukon from Skagway to Whitehorse, the main artery serving the Yukon Territory; second the Copper River & Northwestern Railway from Cordova to the Kennecott Copper Mines; and third, the recently constructed Government Railroad from Seward, on the Gulf of Alaska, to Anchorage at the head of Cook Inlet, and thence along the Susitna Valley crossing the Alaska Range through Broad Pass to Nenana on the navigable waters of the Tanana River, and thence to Fairbanks, the center of the Fairbanks mining district and the interior terminus of the Valdez Fairbanks wagon road. From the ports established in Alaska to the interior, great service is rendered in addition by the splendid interior waterways of the Yukon, Kuskokwim, Tanana and Koyukuk in the distribution of supplies. While these rivers are open only five months in the year, the service they render is and always will be extremely important.

With the above two means of communication enters into service the wagon roads, sled roads and trails, constructed by this Board. In respect to railroads, however, the service rendered by wagon roads is of immensely more importance than that performed in our prairie states. No such general development will follow the construction of a railroad in Alaska as followed the construction of the railroads through the prairie states of the West following the great period of American railroad construction. It

Western agricultural states, farms at once became accessible to the great Eastern markets, though located as far as fifty miles from the main railroad line after the construction of the same. On the other hand, it is practically impossible to proceed with loaded vehicles anywhere in Alaska without some form of prepared wagon road. The need for some form of overland transportation is met at lesser cost in many parts of Alaska by the use of sled roads and trails. These provide a means of penetrating inaccessible country and of bringing it into a stage of development warranting the heavier cost of construction of a located and graded wagon road. This form of development has been successfully carried out by this Board, the dog trail and sled road permitting entry into an area at low cost and being later improved to a summer road if the development warrants it. It is this judiciously guided expenditure upon roads and trails in all the area of Alaska capable of providing traffic for the Government Railroad, which is necessary before the great federal endeavor can receive all the traffic with which this great Territory can provide it. To insure all this traffic to reach the railroad, eventually it will be found that an amount very nearly equalling the cost of the Railroad will have been spent upon wagon roads, trams, sled roads and other means of overland transportation within the Territory.

REGIONS OF ALASKA.

Our problems are outlined by reviewing the physical features of Alaska and the lines of communication already established. The plan of Alaska now under development naturally divides itself the way into the following districts:

First, Southeastern Alaska, embracing the islands and coastal land east of the 141st meridian. This region is served almost wholly by water borne commerce and little new construction is necessary except in providing short tributary roads to the coast.

Second, Copper River Valley, embracing Cordova, Valdez and Fairbanks, and penetrated by the Copper River Railroad with the Fairbanks road serving as a tributary.

Third, the Susitna Valley, including the country traversed by the Government Railroad in the Susitna Valley and on the Kenai Peninsula, including Seward, Anchorage, and the Matanuska coal fields. The Alaska Peninsula and Kodiak Island, served by boats from Seward, are closely attached in development to this region and are included therein.

Fourth, the Kuskokwim Valley, including the lower Yukon and that of the Kuskokwim. This region is very meagerly served with transportation means and the most important project proposed aims at its relief and attachment to the Government

Fifth, the Yukon, including Fairbanks and the Yukon, Koyukuk and Tanana Valleys. This rich placer mining district is of high importance for development and if producing quartz mines can be added to the placer mining production, an important tonnage will be produced for the Government Railroad.

Sixth, Nome, including the Seward Peninsula and the Arctic slope of Alaska. This region is served by summer roads of minor importance and throughout by highly important winter dog trails.

TRAFFIC MOVEMENT.

The traffic census was continued through the last calendar year. Due to poor communications, reports of this census are still incomplete. Such fragmentary reports as have been received show a very gratifying reaction from recent work performed by this Board, and an astonishing aggregate of traffic upon trails lying in remote sections.

DETAILED OPERATIONS BY DISTRICTS.

The nature of the construction work varies from primitive pioneer cruising and blazing of pack trails to surveying and locating well graded gravel roads. In Southeastern Alaska and the centers of population of Southwestern Alaska and of the Interior, several hundred miles of road exist, well surfaced and well graded and meeting adequately the increased motor transportation thereon. A considerable amount of work is constantly required in improving portions of old roads, involving regrading, realignment, and gravel surfacing. The condition of roads here in Alaska continues to improve by thawing and drying out from year to year. For this reason, the carrying along of construction through protracted periods has not always been a disadvantage. The cruising, location and clearing of the right-of-way and the gradual grading results in a road structure at less total cost than would have been possible had the construction been completed the first season. In many cases the construction of the road in one season is impossible. This applies to the large areas of marshy and permanently frozen ground which always require two or three seasons of exposure to the sun's rays to become dried out and compacted.

The work of the Board is carried out almost entirely by its own forces. A few small contracts are let. In the general case in our work no organization competent to do our work can be found in the district in which it is executed. The preparing of our work for letting by contract would involve elaborate surveys and constant engineering supervision, finally resulting in an overhead cost totally out of proportion to the extent of our funds. At the same time, no location without elaborate clearing and digging of test pits and trails previous to construction, predetermine the road

cross section on the road alignment. After a road has been opened up and cleared many improvements can be made in alignment and grade. This is so done. The work is so scattered that the foreman, assisted from time to time by the district superintendent, must be competent to make local improvements and locations.

The high cost of labor and its scarcity during the war years was a serious handicap through these years. Except in the interior, labor will be plentiful and efficient at reasonable wages during the present season. The cost of maintaining horses through the winter time has always been a serious loss to this Board. Through the last two seasons an excellent mechanical equipment has been received and distributed. This, including tractors and dump trucks, is expected largely to remove the loss of maintaining horses through the winter time and to increase the quantity of work performed. One advantage in the use of mechanical equipment is that Alaska now has, and will have increasingly, a local coal and oil supply. The lignite from the Nenana fields can now be purchased at Fairbanks at \$9.00 per ton. Katalla distillate is available in quantities in the Prince William Sound region at 26 cents per gallon. The development of new coal fields and oil prospects will decrease these costs of fuel. Both developments are very important for the prosecution of our work.

In wagon road construction a maximum grade of ten per cent and curvature of not less than one hundred feet radius are permitted. The width of our roads is generally such as to afford one wagon track. In a few cases, where congested traffic occurs, the road section has been widened out to provide for two tracks. The location of wagon roads to provide a firm road bed in summer time requires considerable meandering to reach thawed and firm ground. Such roads, on the other hand, require a clearing of all stumps to a width of eight feet and are located, as nearly as possible, on the level. An effort is made to locate winter and summer roads on identical routes. Winter dog trails, of extreme importance in the interior, must, above all, be carefully blazed and marked so that travelers can easily follow them. Shelters must be provided. It is inconvenient, if not dangerous, to camp out in the interior in the winter time. The marking of pack trails is equally important with that of winter dog trails. These, again, require careful alignment to avoid swamps and thawed spots absolutely impossible in the summer time.

In general, in the interior, winter time affords access to every locality therein. The dry cold, with the light snow of the interior affords opportunity for the use of dog teams in reaching every working. On the other hand, the open streams in summer time, by the use of river and poling boats, afford access to every locality equally well. Between each of these periods there exists a period, during the "break-up" period in which the ice goes out of

the streams and the snow disappears and the "freeze-up" period in the fall when the rivers close and the snow begins to cover the ground. The first coming at the commencement of work at the many small mines of the interior, and the latter at the close of work, are of immense importance for the interior operator and must be given grave consideration by this board. In accordance with these conditions it is the general policy of the board to construct first a sled road to a working which it is desired to make accessible and to follow this with the bridges and the necessary detours around lakes and swamps to make the route passable in summer time. This, then, gives a means of access to the interior operator's workings in the two most important periods of the year for him, that is, the "freeze-up" and the "break-up." Work so conducted very substantially increases the working period for the interior miner.

JUNEAU HEADQUARTERS.

The general office of the Board is located at Juneau, the capital of the Territory. This is the headquarters for all activities of the members of the Board except those pertaining to The Alaska Railroad. The railroad headquarters is located at Anchorage and all field activities are handled by a consolidated organization directed from Anchorage. The field activities of the Board extend to uninhabited parts of the Territory, but the largest projects and the bulk of its expenditures are located in the central part of the Territory tributary to the Richardson Highway and The Alaska Railroad. Close liaison is obtained with all other Federal or Territory bureaus or officials.

The President of the Board has general charge of the operations of the Board, conducts hearings, investigates new projects, allots available funds, and approves and certifies, on behalf of the Board, all vouchers and expenditures. He spends a majority of his time in the field keeping in close touch with the progress of the work and of conditions generally in the Territory.

The Engineer Officer supervises the work of construction in the field, prepares estimates, requisitions, etc., and oversees the design of major structures. He spends most of his time in the field and undertakes a great deal of pioneer reconnaissance work. The President and the Engineer Officer interchange functions in different parts of the Territory, thus expediting the handling of emergencies.

The Secretary and Disbursing Officer is in general charge of the office, handles purchases and supply, and disburses the funds of the Board. He has a bonded disbursing clerk in each office who draws overdrafts on the nearest bank or commercial house to make prompt payments for labor and supplies. The

Accounts are met monthly by the disbursing officer and carried "cash advanced" until the covering vouchers arrive: usually 12 months and frequently two years later. He visits each district office periodically to standardize methods and accounts. By use of the cable, telegraph, and radio, the general office is in constant touch with each district office.

WASHINGTON, D. C., SUB-OFFICE.

Routine business with the War Department is carried on through the Chief of Engineers, U. S. Army. The President of the Board is required to defend the annual estimates of the Board in detail before the Appropriations Committees of Congress. He is called upon to testify upon Alaskan affairs before various committees and to confer with other bureau chiefs in Washington. To meet these conditions, he maintains a sub-office in Washington, D. C., for several weeks each winter.

SEATTLE, WASH., DISTRICT ENGINEER OFFICE.

By informal arrangement, the District Engineer, U. S. Engineer Department, Seattle, Wash., has consented to act as a purchasing agent of the Board. Upon request he advertises and assesses bids, inspects and ships supplies, answers inquiries, secures information, and, in general, represents the Board in Seattle. For this service he charges the Board only for the actual time of his subordinates as may be actually engaged in this work. This accommodation results in a considerable saving to the United States, as otherwise the Board would be compelled, during the winter season, to maintain a high-priced representative in Seattle to provide for office space, fuel and light, clerical help, etc. The services rendered to this Board through such purchases and shipments are invaluable. The low prices obtained and the prompt shipments made have been an important factor in extending the life of the Board.

SOUTHEASTERN DISTRICT.

Supervised from the Juneau Office.

Capt. A. H. Bond, Supt., to August 2, 1922.
1st Lieut. P.A. Agnew, Supt., since March 1, 1923.

There are 25 sub-projects in this district, most of them short local roads tributary to the principal towns. Due to the rugged character of the country and to the excellent system of sheltered waterways, the main transportation will always be by water. There exist in the district, however, two main through projects: first, the Haines-Pleasant Camp project, extending from tide-water up the Chilkat and Klehini River Valleys to the International Boundary, and thence through the Rainy Hollow Mining District, and by trail on to Lake Kluzane and the White River Country in Yukon Territory; and, second, the Juneau-Eagle River project, extending from Juneau along the coast to the Mendenhall River, Auk Bay, Eagle River Valley, and eventually probably to the Berner's Bay Region. The most difficult topographic obstacles to road building are encountered in this district, as well as the greatest density of wheeled traffic, but the supply problem is quite simple.

The lower costs in this district due to lower freight rates from the United States more than counter-balance the topographic obstacles in the construction costs. The long working season and mild climate also have an important effect in keeping construction costs low.

The following former sub-projects of this Board have been turned over to the Department of Agriculture, working in cooperation with the Territory of Alaska:

Sub-Project No.	Name of Route	Wagon Road	Sled Road	Trail	Total Miles
1	Prize of Wales Island	4		7	11
2A	Auk Bay Extension	2			2
2B	Mendenhall Glacier Extension....	3			3
2C	Eagle River Extension	6		14	20
2D	Juneau-Duck Creek	19			19
14	Shesha-Indian River	2½			3½
29	Juneau-Sheep Creek	2			2
23	Petersburg-Snow Bay	5		1	6
44	Skagway Valley	2½			2½
44A	Skagway-Smuggler's Cove			3	3
45	Silver Bow Basin	4			4
150	Skagway River			10	10
150A	Northman-Ward's Cove				
150B	Hyder-Salmon River				
150C	Wrangell Oil Dock	½			½
52	Juneau River	3			3
51	Yukon			1½	1½
	Totals	49½		36½	83

The following sub-projects, being located entirely outside the limits of the National Forests, are being retained by this Board. All are cooperative projects with the Territory.

SUMMARY OF ROADS.

Name of Route	Wagon Road	Sted Road	Trail	Total Miles
Mendenhall Glacier Extension				
Haines-Wells	25			25
Pleasant Camp Extension	13			13
Porcupine Extension	24			24
Haines-Mud Bay	10			10
Haines-Chalkoot	3			3
Sitka National Monument			2	2
Sitka Military Cemetery			1/2	1/2
Douglas-Gastineau Channel	2			2
Skagway-Smuggler's Cove				
Chod Creek-Salmon River	1 1/2			1 1/2
Totals	77		2	82

EXPENDITURES

Project No.	Federal	Territorial	Construction	Maintenance	TOTAL
30*	\$ 33.17			\$ 59.17	\$ 92.34
31*	4,757.39	5,000.00		2,757.39	12,514.78
32*	5,623.47	15,154.55	\$25,000.00	783.32	46,561.34
33*	1,300.00	200.00		300.00	1,800.00
34*	700.00	1,500.00	1,500.00	700.00	3,400.00
35*	14.25	15.00		31.35	49.25
36*	100.00	200.00		300.00	600.00
37*	33.25	150.00		203.25	286.50
38*	8.05			8.05	16.10
39*	134.43	1,000.00	1,354.43		2,488.86
TOTAL	\$11,535.11	\$20,213.55	\$26,354.43	\$12,170.52	\$85,054.96

* Turned over to Department of Agriculture; expenditure was for 1921.

HAINES SYSTEM.

Joe McKenzie, General Foreman.
R. J. Shepard, Location and Supply.

ROUTE 3A—HAINES-WELLS (25 MILES WAGON ROAD)

This is the most important project in Southeastern Alaska, consisting of the first 25 miles of the route to Porcupine, Rainy Lake, and the interior.

Work on this section of the road was all maintenance. Using M. C. dump truck the entire road was gravelled from Haines to Mile 18. These eighteen miles of road are now in excellent condition. In addition, general repairs were made to the road throughout including repair of culverts and bridges and removal of slides.

Alaska Road Commission	\$1,757.39
Territory of Alaska	5,000.00
Total	\$6,757.39

26 ANNUAL REPORT ALASKA ROAD COMMISSION.

ROUTE 3B—PLEASANT CAMP EXTENSION... (18 MILES WAGON ROAD)

This road is a very important one, being an extension of Route 3A along the north bank of the Klehini. When completed it will afford access to the high upper Klehini Valley and to the Rainy Hollow District in British Columbia where important developments are under way; also to the Porcupine district where mining has recently been resumed.

Starting at the new bridge across the Chilkat at Wells the road was graded and graveled to make connection with the mile of grading completed last season around the bluff at Fish Point. The following quantities are represented in the season's work:

Clearing	13 acres.
Excavation	15,000 cu. yds.
Graveling	1,425 cu. yds.
Bridge	One 100-ft.
Chilvans	8

In the early winter location was made and right-of-way cleared for an additional seventy-eight hundred feet, preparatory to the next season's work. Due to an unusually early spring, work was resumed on May 1, 1923, and rapid progress was being made at the end of the fiscal year.

Expenditures:

Alaska Road Commission.....	\$ 5,628.47
Territory of Alaska.....	15,154.85
Total.....	\$20,783.32

ROUTE 3C—PORCUPINE EXTENSION... (20 MILES WAGON ROAD)

This is the old Porcupine Road on the south side of the Klehini River. Since the old bridge at Wells was condemned it has been reached by fording the Klehini from Route 3B.

Minor repairs and clearing out of brush and windfalls was carried out.

Expenditures:

Alaska Road Commission.....	\$ 100.00
Territory of Alaska.....	200.00
Total.....	\$ 300.00

ROUTE 3D—HAINES MUD BAY..... (10 MILES WAGON ROAD)

This road extends southward from Haines along the west side of the Haines Peninsula to the Cannery on Lemnikoff Cove and thence across the Peninsula to Mud Bay on the east side of the Peninsula.

This year's work made it passable for through traffic and the section, Haines to the cannery, was regularly used by automobiles. The chief work of the season was the graveling and regrading on the first two miles of road beginning at Haines.

Expenditures:

Alaska Road Commission.....	\$ 700.00
Territory of Alaska.....	1,500.00
Total.....	\$ 2,200.00

ROUTE 3E—HAINES-CHILKOOT.....(3 MILES WAGON ROAD)

This road was built by the Territory from Haines to the cannery and several homesteads on Chilkoot Inlet.

It is in fair condition.

No expenditures.

HAINES SYSTEM

Total expenditures,

Alaska Road Commission.....	\$11,153.86
Territory of Alaska.....	21,854.85
Total.....	\$33,040.71

ROUTE 14A—SITKA NATIONAL MONUMENT....(2 MILES TRAIL)

This route includes the cable suspension footbridge and trails in the Sitka National Monument. It was included in former reports with Route 14, Sitka-Indian River-Sawmill Bay, prior to May 1, 1922, when the latter was transferred to the Department of Agriculture. During the summer of 1922 various signs were erected as outlined in last year's report and minor repairs were made to footbridges and walks. In the spring of 1923 the following work was authorized, to be paid for by funds contributed in part by the National Park Service, in part by the Territory of Alaska, and in part by the Alaska Road Commission.

- Re-erection, painting and repairs to totem poles;
- Crescoting and repairs to suspension bridge;
- Rebuilding 30-foot footbridge, repairing and providing additional benches;
- Clearing and graveling additional trails and walks;
- Raising and extending bulkhead along Indian River adjacent to suspension bridge.

Peter Trierschield, Foreman, Alaska Road Commission, was named Custodian of the Monument, at a nominal salary, by the National Park Service.

23 ANNUAL REPORT ALASKA ROAD COMMISSION.

Expenditures:

Alaska Road Commission.....	\$ 16.35
Territory of Alaska.....	15.00
Total.....	\$ 31.35

ROUTE 14B—SITKA-MILITARY CEMETERY.....(½ MILE WAGON ROAD)

The old abandoned post cemetery in which are buried officers and enlisted men of the Army, Navy, Marine Corps, and Coast Guard Service, formerly members of the Sitka Garrison, or on duty in adjacent waters, was rehabilitated through the combined efforts of the Governor of the Territory and the citizens of Sitka, the expense being borne partly by the town and partly by an allotment from the Navy Department. A road was built to connect the cemetery with the town. Additional work was authorized for the current season.

Expenditures:

Alaska Road Commission.....	\$ 100.00
Territory of Alaska.....	200.00
Total.....	\$ 300.00

ROUTE 40—DOUGLAS-GASTINEAU CHANNEL...(2 MILES WAGON ROAD)

With the decline of population and activity on Douglas Island the use of this road has decreased.

Minor repairs to bridges and culverts were made to render them safe.

Expenditures:

Alaska Road Commission.....	\$ 53.25
Territory of Alaska.....	150.00
Total.....	\$ 203.25

ROUTE 21—GOOD CREEK-SALMON RIVER...(½ MILES WAGON ROAD)

(Strawberry Point)

The draw-bridge across Good Creek, with approaches, was completed. Plans have been drawn and contract let for a bridge across Salmon River. Purchase of materials for its erection has been made. Local ranchers cooperated in contributing labor and the Territory cooperated with funds.

Expenditures:

Alaska Road Commission.....	\$ 354.43
Territory of Alaska.....	1,000.00
Total.....	\$ 1,354.43

DISTRIBUTION OF EXPENDITURES

Type	Miles*	Expenditures	Unit Cost Dollars per Mile
As Road	77		
	2		
Totals	79	\$34,959.74	\$422.50

*Includes only routes maintained during fiscal year.

EAGLE SUB-DISTRICT.

Supervised from the Juneau Office.

Fred Price, Foreman in Charge.

This sub-district includes the territory east of the 144th meridian between the Yukon and Tanana Rivers. There are twenty-two sub-projects in this district affording communication between Eagle and the Seventymile country to the north and northwest and the Fortymile country to the south and southwest. With the completion of these sub-projects by the United States and the extension of the Dawson-Miller Creek Road by Canada to the International Boundary, there will be provided a through route for wheeled travel from Eagle to Dawson, the main distributing center for the Klondike and Yukon Territory. Eagle, or Fort Egbert, nearby, is the northern terminus of the Valdez-Fort Egbert trail and telegraph line, the original American route to the Yukon.

SUMMARY OF ROADS.

Sub-Project No.	Name of Route	Wagon Road	Sled Road	Trail	Total Miles
	Eagle-O'Brien Creek	12	15		27
	Wade-Gutch-Liberty			15	15
	O'Brien Creek-Fortymile		23		23
	Steel Creek-Jack Wade	24	12 1/2		36 1/2
	Steel Creek-Jack Wade			15	15
	Steel Creek-Walker's Fork		21		21
	Eagle-Seventymile	14 1/2	15 1/2	40	70
	Jack Wade-Chickson			20	20
	Steel Creek-Moose Creek		15		15
	Liberty Cabin-Dome			10	10
	Dome-Steel Creek			12	12
	Seventymile-Franklin		27		27
	Seventymile-Steel Creek		5		5
	Franklin-Chickson		10		10
	Franklin-Chickson		20		20
	Jack Wade-Walker's Fork			15	15
	Eagle-Ortle			190	190
	Kechumsruk-Tanana Crossing			60	60
	Chickson-Kechumsruk			23	23
	Branch of July Creek			10	10
	Woodschopper Creek			5	5
	Totals	76	182	418	676

EXPENDITURES.

Sub-Project No.	Federal	Territorial	Construction	Maintenance	TOTAL
	\$2,538.39			\$2,538.39	\$2,538.39
	150.00			150.00	150.00
	294.00			294.00	294.00
	93.00			93.00	93.00
	150.00			150.00	150.00
	691.39			691.39	691.39

ANNUAL REPORT ALASKA ROAD COMMISSION. 31

	Federal	Territorial	Construction	Maintenance	TOTAL
	147.00			146.00	293.00
	112.00			112.00	224.00
	80.00			80.00	160.00
	63.00			63.00	126.00
	250.00			250.00	500.00
	500.00			500.00	1,000.00
	100.00			100.00	200.00
	\$ 5,134.39			\$ 5,134.39	\$ 5,134.39

ROUTE 11A—EAGLE O'BRIEN CREEK....(12 MILES WAGON ROAD,
15 MILES SLED ROAD)

This is the main route from Eagle to the Fortymile District. The first 12 miles have been improved to summer wagon road standard. This section starts from Eagle and follows up the right bank of American Creek to Discovery Fork, thence along the right bank of Gravel Gulch to Mile 12. From Gravel Gulch a winter sled trail follows to the summit and down the right bank of King Solomon to the mouth of Liberty Fork, at Mile 27.

During the past season this section was well maintained, culverts repaired and rebuilt, slides removed and drainage reconstructed. A bridge was erected across American Creek and bank grading was performed for three miles south of Gravel Gulch.

Expenditure: \$2,538.39.

ROUTE 11AA—GRAVEL GULCH-LIBERTY.....(15 MILES TRAIL)

From Gravel Gulch and the mouth of Liberty Fork a sled trail leaves Gravel Gulch. Following the ridge along the Boundary and the north fork of King Solomon Creeks it goes along the high, dry ground to Liberty Cabin at the mouth of Liberty Creek. The distance is the same as by the winter trail included in Route 11A.

Repairs were made to assist in summer freighting resulting from the increased activity at Dome Creek.

Expenditure: \$150.00.

ROUTE 11B—O'BRIEN CREEK-FORTYMILE....(23 MILES SLED ROAD)

This is a continuation of Route 11A from Liberty Cabin to O'Brien Creek on Fortymile River, a distance of 23 miles from Eagle.

During the present season windfalls were cleared out and slides removed along the rock bluffs, destroyed by fire the previous

year. Bridges were repaired and a small amount of grading done at "The Hump."

Expenditure: \$294.00.

ROUTE 11C—STEEL CREEK-JACK WADE... (2½ MILES WAGON ROAD, 12½ MILES SLED ROAD)

This winter sled road starts at the mouth of Steel Creek, at the end of Route 11K, follows up the left limit to the summit of the ridge, crosses over and down the left limit of Jack Wade to the post office, a distance of 15 miles, or 73 miles from Eagle.

The section of the road leading to the summit of Steel Creek was widened out. Additional work is planned during the coming season on the approach to Jack Wade.

Expenditure: \$98.00.

ROUTE 11CC—STEEL CREEK-JACK WADE... (15 MILES TRAIL)

This is the alternate summer pack trail crossing the ridge to the northeastward of the winter sled road.

Minor brushing out only was performed.

Expenditure: \$150.00.

ROUTE 11D—CANYON CREEK-WALKER'S FORK... (21 MILES SLED ROAD)

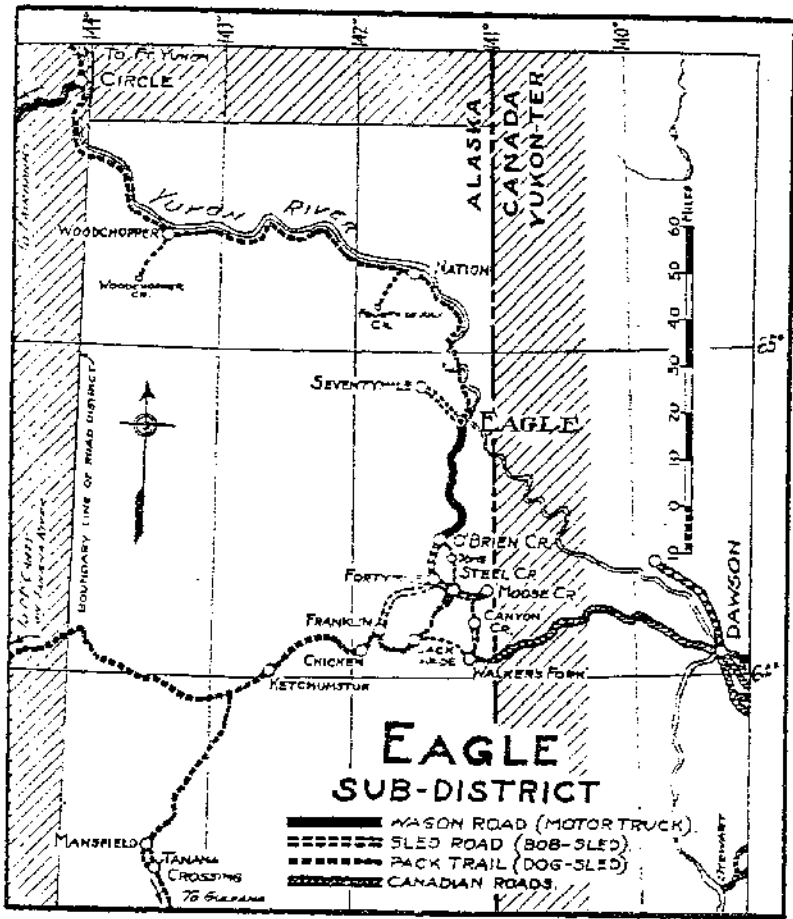
This sled road branches off Route 11C near the mouth of Canyon Creek six miles east of Steel Creek, and follows up Canyon Creek to its head and then crosses and follows the right limit of Walker's Fork to within five miles of the boundary line. The total distance from the mouth of Steel Creek is 27 miles, and from Eagle is 85 miles.

An examination of this route was made but no work was accomplished during the season.

Expenditure: None.

ROUTE 11E—EAGLE-SEVENTYMILE... (1½ MILES WAGON ROAD, 18½ MILES SLED ROAD, 40 MILES TRAIL)

The route to Seventymile leaves Eagle through the old army post of Fort Egbert, following the wagon road across American Creek a mile and a half. It then continues as a winter sled road for 18½ miles up Ex. Creek, across a low summit and down the right limit of Rock Creek to its mouth at Seventymile. The pack trail leaves the sled road at Rock Creek Bridge several miles above the mouth of Rock Creek, crosses over a low divide into Bryant Creek and follows up the right limit to a mile below the falls where it crosses and continues up the left limit to Barney Creek. Here another crossing is made to the right limit and again back to the



... and across Placer Creek near its mouth. The trail then
... the ridge which it follows for a distance of 10 miles, dropping
... again and crossing the Seventymile just below Nugget Creek.
... continues up the right limit of Seventymile to Alder and
... Creeks, a total distance of 60 miles from Eagle.

Ten miles of new trail were constructed between Barney
... and Nugget Creek following the ridge. A small amount of
... was done on the Rock Creek section of winter sled road
... night brushing throughout.

Expenditures: \$651.50.

ROUTE 117—JACK WADE-CHICKEN.....(20 MILES TRAIL)

This trail climbs the ridge west of Jack Wade post office,
... going around the head of Uhler, Polly and Napoleon Creeks
... drops down at the crossing of the Fortymile River at Franklin
... ridge, again climbs the ridge, following around the heads of
... George and a fork of Chicken, where the winter sled road is
... upon the right limit of Chicken Creek to Chicken Post
... The distance from Jack Wade to Franklin by this route
... miles, and from Franklin to Chicken 3 miles.

An examination of this route was made and some minor repairs
... for the current season.

Expenditures: None.

ROUTE 118—STEEL CREEK-MOOSE CREEK....(15 MILES SLED ROAD)

This winter road extends from the mouth of Chicken Creek
... the left limit of Fortymile River, a distance of 15 miles, to
... international boundary near Moose Creek.

... additional miles of sled road were brushed out for the
... operators on Moose Creek, Fortymile and Walker's Fork.

Expenditures: \$147.00.

ROUTE 119—LIBERTY CABIN-DOME.....(10 MILES TRAIL)

From Liberty Cabin a summer pack trail follows the ridge
... the head of McKinley Creek and down the right limit of
... Creek to the hydraulic workings near the mouth of Dome

... approach leading from Liberty Cabin to the ridge was
... and graded to allow heavy freight to get to Dome Creek.
... is still in bad condition. Additional work is planned for
... season.

Expenditures: \$110.00.

ROUTE 11I—DOME-STEEL CREEK.....(12 MILES TRAIL)

This is a continuation of Route 11H from Dome Creek up the right limit of Dick Dale Creek, around the heads of Flat and Twin Creeks and down a steep bench to Steel Creek.

No work was done on this trail during the year.

Expenditure: None.

ROUTE 11J—FORTYMILE-FRANKLIN.....(30 MILES SLED ROAD)

This sled road is a continuation of Route 11B, extending from the mouth of O'Brien Creek up the Fortymile River to Franklin post office at the mouth of Franklin Gulch, a distance of 30 miles, or 50 miles from Eagle.

This route was examined with a view to its improvement but no work was done during the year.

Expenditure: None.

ROUTE 11K—FORTYMILE-STEEL CREEK....(8 MILES SLED ROAD)

This winter sled road branches off Route 11-B at the mouth of O'Brien Creek and follows down the Fortymile River a distance of 8 miles to the mouth of Steel Creek, 58 miles from Eagle.

Minor repairs and routine maintenance were performed.

Expenditure: \$50.00.

ROUTE 11L—FRANKLIN-CHICKEN.....(10 MILES SLED ROAD)

This winter sled road is a continuation of Route 11J and follows up Franklin Gulch to the mouth of Kettle Creek, then over a low divide, along the right limit into a fork of Chicken Creek. It follows down the right limit to the post office, a distance of 10 miles, or 60 miles from Eagle.

This route was examined but no work was performed.

Expenditure: None.

ROUTE 11LL—FRANKLIN-CHICKEN.....(20 MILES SLED ROAD)

This is an alternative winter sled route which follows the main Fortymile River to the mouth of Dennison Fork and then across to Chicken post office.

This route is little used and no work is contemplated.

Expenditure: None.

ROUTE 11M—JACK WADE-WALKER'S FORK....(18 MILES TRAIL)

This pack trail leaves Jack Wade Creek at Robinson Creek, climbs to the top of the ridge and follows around the head of Squaw Bay, Long and Twelvemile Creeks to the head of Canyon Creek.

It then picks up the winter sled road, Route 11D, and follows it to Walker's Fork.

A thorough examination of this route was made. Repairs are planned for the current season.

Expenditure: None.

ROUTE 58—EAGLE-CIRCLE.....(190 MILES TRAIL)

This winter trail follows the Yukon River from Eagle to Circle. This route has been reconnoitered with the end in view of eliminating dangerous sections on the ice and shortening the route by passages across several long bends.

This has been accomplished so far in two places, viz: four miles below Eagle at the mouth of Boulder Creek the winter mail line makes a big cut-off from the Yukon River, coming out near the mouth of the Seventymile. This cut-off is 10 miles long. The trail then crosses the Yukon River and follows the Monck Cut-off reaching the Yukon River again near the mouth of Sheep Creek. The total distance over the improved section is 17 miles and avoids several long bends in the main river.

Expenditure: \$63.00.

ROUTE 55D—KECHUMSTUK-TANANA CROSSING.....(63 MILES TRAIL)

This is a continuation of Route 55E, and extends from Kechumstuk along the left bank and across Little Indian and Indian Creeks to Mitchell's Ranch, a distance of 15 miles. From Mitchell's Ranch it crosses the flats, then across Lake Mansfield and Marsh Lake and on to Tanana Crossing, a total distance from Kechumstuk of 63 miles.

Work was performed in renewing grades, brushing out and repairing culverts. Additional work is planned during the current season.

Expenditure: \$250.00.

ROUTE 55E—CHICKEN-KECHUMSTUK.....(28 MILES TRAIL)

From Chicken this pack trail crosses the flats, then across Mosquito Fork and around Taylor Mountain, and down across Mosquito Fork again at Kechumstuk.

General repair work was performed in renewing the rail crossings.

Expenditure: \$500.50.

ROUTE 24—FOURTH OF JULY CREEK.....(70 MILES SLED ROAD)

The winter sled road leads from the landing on the Yukon River on the right bank of Fourth of July Creek to the hydraulic

workings of the July Creek Placer Company, then crosses the creek and follows up the left bank to the camp.

A small amount of work was done in brushing out the trail. In view of the increased activity in this district, extensive additional repairs are planned during the current season.

Expenditure: \$100.00.

ROUTE 87—WOODCHOPPER CREEK.....(8 MILES TRAIL)

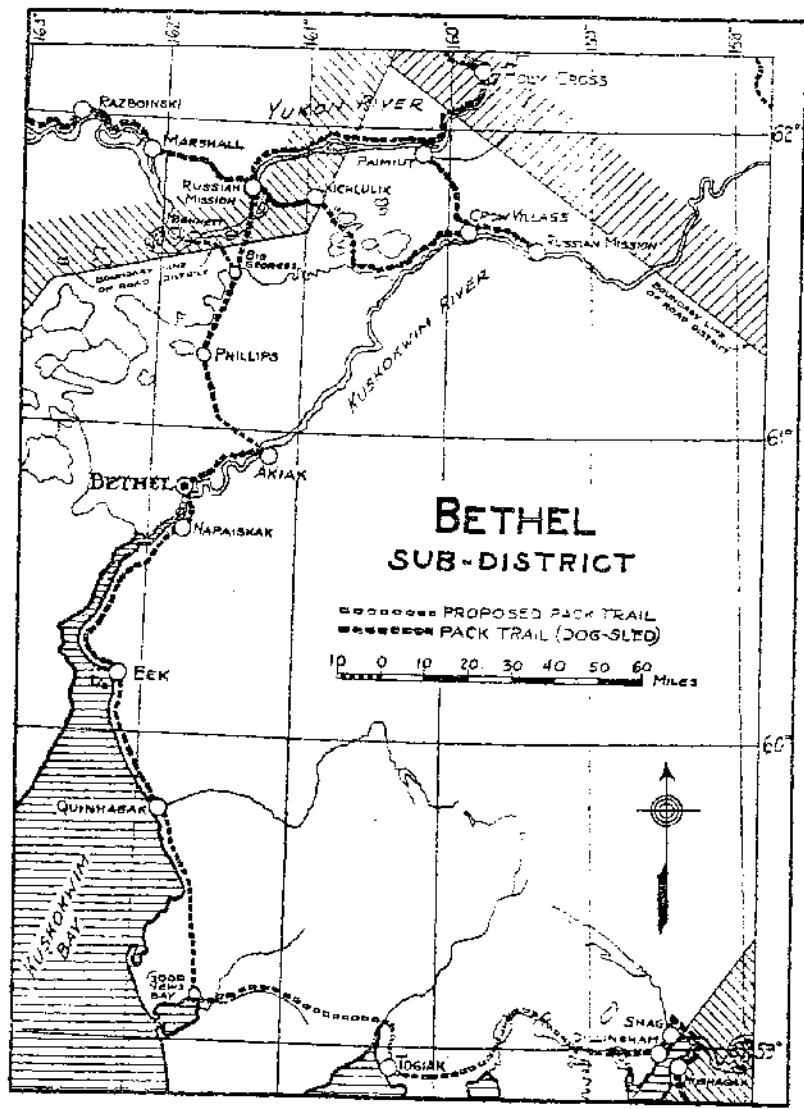
This eight miles of trail up Woodchopper Creek has been examined and a small amount of work, principally in the construction of bridges, is proposed.

Expenditure: None.

DISTRIBUTION OF EXPENDITURES.

Type	Miles*	Expenditures	Unit Cost Dollars per Mile
Wagon Road	16		
Sled Road	102		
Trail	358		
Totals	476	\$ 5,134.39	\$ 10.80

*--Includes only routes maintained during fiscal year.



BETHEL SUB-DISTRICT.

Supervised from the Juneau Office.

Earle M. Forrest, District Superintendent, Bureau of Education,
Inspector.

This sub-district includes the lower Kuskokwim Valley, and the Yukon-Kuskokwim Portage routes. There are six sub-projects in this sub-district making the hinterland accessible from Bethel, a deep sea port at the mouth of the Kuskokwim River, having direct communication by sea with Seattle and San Francisco during the open summer season.

Prior to the fall of 1921, neither this Board nor the Territory had expended any funds for road or trail construction in this region. In September, 1921, the President of the Board accompanied by the Surveyor-General of the Territory made a reconnaissance trip down the Kuskokwim River to Bethel and then crossed the portage to the Yukon River at Russian Mission. As a result two contracts were let while they were at Bethel, and systematic work has been taken which will result in a few years in giving this remote section a complete system of overland communications for winter use.

The work is supervised from Juneau by means of the new radio station established during the current fiscal year at Bethel. Inspections are made through the courtesy of Mr. Earle M. Forrest, District Superintendent for the Bureau of Education, located at Akiak, 28 miles up the Kuskokwim River from Bethel. All sub-projects are paid from cooperative funds contributed by this Board and the Territory of Alaska.

SUMMARY OF ROADS.

Project No.	Name of Route	Wagon Road	Sled Road	Trail	Total Miles
1	Shelter Cabins				
2	Bethel-Quinhagak			90	90
3	Bethel-Akiak			28	28
4	Akiak-Russian Mission			75	75
5	Bennett's Cut-off			13	13
6	Yukon-Kuskokwim Portage			125	125
7	Quinhagak-Goodnews Bay			50	50
	Totals			381	381

EXPENDITURES.

Sub-Project No.	Federal	Territorial	Construction	Maintenance
92D				
92A	\$ 736.00	\$ 1,000.00	\$ 1,756.00	
92B				
92C				
92D				
92E	500.00	100.00		\$ 500.00
92F				
Totals	\$ 1,236.00	\$ 1,100.00	\$ 1,756.00	\$ 500.00

ROUTE 92A—BETHEL-QUINHAGAK.....(90 MILES)

This is the winter mail trail between Bethel and the village of Quinhagak to the south and on the east side of the estuary Kuskokwim River.

A contract was let in September, 1921, to Alex Hately permanent staking of this trail for \$1,756.00. The work accomplished that fall and consisted of the following items:

Erection of 296 tripods and 10 stakes 10 feet high.

Erection of 59 beacons with directing arms, 12 feet high at edges of lakes.

Cutting down of 2 approaches.

Clearing quarter mile of brush, 12 feet wide.

Setting of temporary stakes upon the ice on the wide

Expenditure of \$11.50 last year was for inspection. No maintenance was required during the current year. The contract was paid during the current year.

Expenditures:

Alaska Road Commission.....\$ 736.

Territory of Alaska.....1,000.

Total.....\$ 1,736.

ROUTE 92B—BETHEL-AKIAK.....(26 MILES)

This is a winter mail trail. Akiak is upstream from Bethel.

A contract was let in September, 1921, to John Lundstr for the improvement of this trail for \$810.00. The work was finished and inspected and the contractor paid the following winter work consisted of the following items:

Erection of 18 tripods, 10 feet high.

Erection of 22 beacons, with directing arms, 12 feet high at edges of lakes or sloughs.

Cutting down of 13 approaches to portages across bars on the Kuskokwim River.

Clearing of 3 miles of brush, 12 feet wide.

Straightening and shortening old trail.

ANNUAL REPORT ALASKA ROAD COMMISSION. 13

A contract was let in October, 1922 to Wilfred Sanderson for the construction of a 60-foot bridge across a creek on this trail for \$395.00. Work has been completed and inspected, and the contractor has been paid, but the voucher has not yet reached the account.

Expenditure: None.

ROUTE 92C—AKIAK-RUSSIAN MISSION.....(75 MILES TRAIL)

This winter mail trail extends from Akiak on the Kuskokwim River to Russian Mission on the Yukon River, via Phillips and Big Georges.

A contract was let in October, 1922, to Joseph Cheney for the permanent staking of this trail and Route 92D for \$1,500.00. The work has been completed and inspected and the contractor paid, but the voucher has not yet reached the account. Report of work accomplished has not yet been received.

Expenditure: None.

ROUTE 92D—BENNETT'S CUT-OFF.....(18 MILES TRAIL)

This winter mail trail extends from Big Georges on Route 92C to Bennett's Trading Post on the Yukon River, about 24 miles below Russian Mission. The permanent staking of this cut-off was included in the contract for Route 92C. The work has been completed, inspected and paid for, but voucher is still in transit.

Expenditure: None.

ROUTE 92E—YUKON-KUSKOKWIM PORTAGE..(120 MILES TRAIL)

This summer portage is passable with difficulty for canoes and other boats from Russian Mission via the Yukon River, Portage Slough and the Tulakwikeak River to the High Portage, then by a series of grassy lakes and sloughs, from Crooked Creek, up Johnson Creek and over Portage No. 4, to Mud Creek, and down to the Kuskokwim River.

A contract was let in July, 1922, to Oscar Samuelson for staking the portage for \$500.00. About 90 stakes with directing arms were set up in the grassy lakes, sloughs and crooked streams to indicate the route. The work was completed and inspected last fall and the contractor has been paid.

A preliminary examination and survey, with a view to its development as a waterway, was authorized in the last River and Road Act of Congress and report is in course of preparation.

Expenditure:

Alaska Road Commission.....	\$ 400.00
Territory of Alaska.....	100.00

Total.....	\$ 500.00
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ROUTE 92F—QUINHAGAK-GOODNEWS BAY...160 MILES TRAIL.

This winter mail trail is an extension of Route 92A down the east shore of the estuary of the Kuskokwim River to Goodnews Bay.

A contract was let in March, 1923, to H. M. Hanson, for the permanent staking of this trail for \$2,800.00. The necessary timbe will be assembled this summer and the work finished next fall. The specifications were the same as for Route 92A.

Expenditures: None.

ACCOUNT NO. 90D—SHELTER CABINS.

A contract was let in October, 1922, to J. F. Demandel for two shelter cabins on Route 92C, one to be located at Phillips, the other at Big Georges. The price bid for the job was \$1,000.00. Inspector's report had not been received at the close of the fiscal year.

In May, 1923, a contract was let to H. M. Hanson for two shelter cabins on Route 92F. The price bid for the job was \$1,200.00. As both cabins are located on the treeless tundra, the necessary timber must be secured and floated down river several hundred miles during the open season. The erection will be completed next fall after the freeze-up.

Expenditures: None.

DISTRIBUTION OF EXPENDITURES.

Type	Miles*	Expenditures	Unit Cost Dollars per Mile
Wagon Road			
Sled Road			
Trail	210	\$ 2,280	\$ 10.86
Totals	210	\$ 2,280	\$ 10.86

(*—Includes only routes maintained during fiscal year.