the Alaska Road Commission in constructing a new section of the Richardson Highway along the floor of Keystone Canyon." Commission engineers had "overlooked the simple engineering fact that rock cut out of the canyon wall and dumped into the adjoining river bed would block the channel and raise the water level in the canyon higher than its previous level." At the first high water, the road was under water.[3]

Alaska Road Commission Criticized

Committee members found evidences of "inefficiency and employment on a political rather than a businesslike basis..."For this reason, the committee members recommended that Alaska be included in the provisions on the Federal-Aid Highway Act (P.L.521) to cover road building operations. Since most of the Territory's land surface was a part of the public domain, however, Congress should make an exception so that the Territory not be assessed more for its share of the cost of these improvements than it can equitably bear. Futhermore, the responsibility for road construction should be transferred to the Public Road Administration with its proven management record so that the federal government would receive more value from its highway investments in the future.[4]

Donald MacDonald Objects to Criticism

Donald MacDonald, a former locating engineer for the Commission and an ardent advocate of a highway to Alaska, immediately took exception to the criticism leveled at the Commission. He briefly summarized the history of the Commission and the history of the Alaskan labors of the Public Roads Administration in Alaska. The former agency employed a day labor system, the result of trial and error. The Commission had adopted the system because the contractor method required imported labor, heavy equipment, and supervision. All of this would have to be imported at a high cost. In addition, the contractor system required an elaborate engineering staff for the measurement and cost estimation of every step in the construction process. This necessitated a big overhead expense,

all out of proportion to the jobs performed. The Commission, with very limited funding, very early decided to build the many miles of light pioneer roads required by the residents. To build heavy duty roads, as the Public Roads Administration had done in Alaska's National Forests, would have been unsound engineering for the Commission. The Alaska Road Commission had always attempted to build the maximum mileage with every available dollar, and eliminate every possible dollar of management and engineering overhead. As a result, the district superintendents had to be engineers, as far as possible, because they had to perform whatever engineering was required. The Commission only used locating engineers, topographers, draftsmen, chairmen, calculators and rodmen on long jobs of road location. In short, MacDonald stated, a Commission engineer was "a man who could do with one dollar what any bungler could do with ten."[5]

In contrast, MacDonald pointed out, the Public Roads Administration of the Department of Agriculture was one of "the most powerful organizations in Washington," and supervised the expenditure of greater sums than any other agency with the exception of the War and Navy Departments. It directed the expenditure of huge sums of money for road construction in all the States and Hawaii under the provisions of Federal-Aid Highway Act. As a result, it had built great engineering and administrative offices in Washington and throughout the States. This staffing was necessary and commensurate with its responsibilities. MacDonald argued that such a sophisticated organization was totally unsuited for the construction of the lightly-gravelled pioneer roads through Alaska's vast wilderness.[6]

Jessen's Weekly Defends Alaska Road Commission

MacDonald was not the only one to defend the Commission. The editor of Jessen's Weekly of Fairbanks remarked that "when a Congressional Committee assigned to an 'investigation' of the reputed extravagance and waste on the Alcan Highway comes north chaperoned by the very big shots, the head of the P.R.A. and the Colonel-in-charge of that construction, whitewash the Alcan and then step clear out of its way to slap down the

defenseless little Alaska Road Commission with an utterly unwarranted baseless calumny it's time resident Alaskans oiled the old gun and started looking for smelly varmints." The editor disputed the committee's assertion that it had carefully surveyed the Commission's work on the Richardson Highway. That was impossible, because the work was scattered along the whole length of the highway's 370 miles. In fact, the members of the subcommittee had not requested any facts and figures on the yardage of dirt moved, length and number of the many wooden bridges replaced by steel ones, labor costs, and weather conditions, among others. Furthermore, why did the Committee ignore the Glenn Highway constructed by the Commission, the editor asked? The total cost of the project, including two year's maintenance, came to $19,484 per mile. Knowledgable engineers claimed that the Commission built the highway through more difficult terrain than the Alcan Highway in Alaska, yet its cost amounted to just one-fifth as much per mile.[7]

Editor Points to Long Alaskan Experience

The editor also refuted the committee's statement that "there was no precedent in road construction in a remote and virtually unexplored wilderness." That just was not true, for the Alaska Road Commission had accumulated over forty year's of experience, and constructed thousands of miles of roads and trails in Alaska's wilderness, "an incomparable record of achievement." Strangely, however, "neither the Army nor the P.R.A. in their infallibility ever consulted this demostrable rich source of information. They knew it all from birth." Some members of Congress now wished to transfer all Alaska road work to the Public Road Administration in Washington, the editor complained, resulting in the complete loss of local control. In conclusion, the "little A.R.C. is involved in the ambitions of a great Bureau seeking instinctively to extend its powers."

Judge Dimond Protests

Federal District Court Judge Dimond protested to the chairman of the Committee, Congressman J. W. Robinson, that more than forty years residency in the Territory had given him ample opportunity to become familiar with the work of the Alaska Road Commission. In his judgment, shared by 95 percent of his fellow citizens, "the Alaska Road Commission has been, and is, one of the most efficient and competent of all government agencies." It had given the North better roads for the little money it had to work with "than anyone had a right to expect." Naturally, these roads were not of the "highest type, but they are eminently suited to the primitive conditions existing in Alaska" where the prime need still was for pioneer roads. Judge Dimond stated that "I grieve over the injustice" done by the Commission's report "to the honorable, hard-working and intelligent men who, in the past, have served, as well as those who are at present serving in the Alaska Road Commission."[9]

Delegate Bartlett Jumps Into the Fray

Alaska's Delegate E. L. "Bob" Bartlett likewise defended the Commission. He complained that, although a member of the Committee on Roads, he had not been given an opportunity to examine the report before its publication. Bartlett resented the "highly derogatory" comments in the report pertaining to the Commission. These statements had been widely publicized in the Territory, he continued, and had "done irreparable harm to a group of men whose loyalty, ability and efficiency are by words in Alaska." These comments were, in fact, without merit. Chairman Robinson quickly assured both men that "our Committee had no thought of doing an injury" to the Alaska Road Commission which had done some good work. Every member of the Committee, however, shared the feeling "that too many engineering mistakes had been made." Robinson stated that any statement made was not intended to criticize but merely call these facts to the attention of the Alaska Road Commission. He concluded that if the reputation of the Commission had been damaged "we will do what we can to rectify it."[10]

Division of Territories and Island Possession Critical of House Report

In the meantime, the Division of Territories and Island Possession in the Department of the Interior which supervised the work of the Alaska Road Commission analyzed House Report No. 1705 and found it wanting. In fact, it "definitely" was a "whitewash" of the construction activities of the War Department, and more particularly, of the Public Roads Administration. Despite all of this, it did contain much valuable data related to the construction of the Alaska Highway. Division personnel was disheartened and disillusioned "to see what unfair and unwarranted conclusions can be adopted by a presumably open-minded committee of the Congress." Not a word had been uttered on the excellent job the Commission had done in building the Glenn Highway, a fact the editor of Jessen's Weekly also had pointed out. The Keystone Canyon job criticized so bitterly was only approximately five miles long. Even if mistakes were made, it was "a fly speck compared to expenditures written off on the Alaska Highway job so uncritically. The Committee made no attempt to learn the facts for either the Division or the Commission, "although it is evident throughout the whole report that a sympathetic ear was lent to both the PRA and the War Department for explanations of every conceivable kind which would tend to throw the most favorable light on the Alaska Highway job." The accusation concerning politics within the Commission was groundless. In fact, the Public Roads Administration probably played more politics to get this report out of the subcommittee on Public Roads than had been played in the whole history of the Alaska Road Commission.[11]

Chief Engineer Taylor took time to refute everyone of the statements made by the Committee, and concluded that the "indictment of the Alaska Road Commission in the report is decidely unfair as no real investigation of our work was made and available cost records were not examined or requested." Alaska's Governor Ernest Gruening was blunt in his evaluation of the report. He called it thoroughly unfair and unfounded, and further observed that "it arises from nothing more than the desire of Thomas MacDonald [the head of the P.R.A.] to take over road construction in Alaska bag and baggage." Gruening recalled that a group of officials

from the Division of Territories and Island Possessions visited MacDonald late in the fall of 1944 to discuss Alaska's possible inclusion in the Federal-Aid Highway Act and the chance of receiving some federal funds for for Territorial road construction. MacDonald, Gruening remarked, expressed his attitude virtually as an ultimatum. In essence he stated that "I can get you some money provided the Public Roads Administration builds all the roads and is put in charge." If not, there would be no funds. The governor did not regard the Commission as perfect, for it had made mistakes, but "there is no evidence that any such were demonstrated to the House Roads Committee." Gruening though it "a grim jest" that the same report which condemned the Alaska Road Commission accorded unqualified praise to the Army Engineers. "More major bungling, the evidence of which is visible on every hand, was performed by the Army Engineers than was ever seen before in the Territory." The Haines lateral road was an excellent example altough there were plenty of others. The Alaska Road Commission had built the first 42 mile stretch extending from Haines to the boundary with British Columbia in the 1920s. It had always been a very satisfactory road. Then the Army Engineers came in and extended the road to link up with the Alaska Highway. They went ahead and "improved" and straightened the Haines road, locating it along the Chilkat and Klehini Rivers. Commission personnel warned that the new location would wash out, "but no one could tell the Army Engineers anything." So the road washed out, not once but four times, and each time they rebuilt it at greater expense on the same location along the river bed. Finally, after more than a mile had been completely washed out, the Army Engineers went back to the Alaska Road Commission location. Gruening knew many other examples of such incompetency, and "while it is not pleasant to bring up the errors of other government agencies," it was mandatory in this instance in order to point out how unfairly the Alaska Road Commission had been treated in the report.[12]

Report Shows Vulnerability of Alaska Road Commission

The fury about the derogatory remarks about the Commission contained in House Report No. 1705 soon subsided. The comments by Committee members

about the performance of the Alaska Road Commission demonstrated the vulnerability of the organization. Alaskans were practically united in their defense of the Commission, but long term loyal and effective service in the Territory did not necessarily impress members of Congress. The whole affair also demonstrated that the Division of Territories and Island Possessions had not represented the Commission adequately in budget hearings before Congress. This was a cumulative failure, going back to the day the Commission was transferred from the War Department to the Department of the Interior in 1932. Between 1932 and 1936, the Department failed to effectively lobby Congress in behalf of the Commission, and when the Division of Territories and Island Possessions became responsible for the Commission in 1936, it also neglected to effectively represent Alaska's transportation needs before the Congress.

Federal-Aid Highway Act for Alaska

Committee members had urged that Alaska be included in the Federal-Aid Highway Act. That was not a unique recommendation for various territorial legislatures had memorialized Congress on the same subject, and Alaska's delegates to Congress from time to time had introduced measures designed to achieve the same purpose - always unsuccessfully. After 1946, Alaskan politicians and administrators realized that sooner or later Congress would include the Territory in the Federal-Aid Highway Act. When that happened, the Alaska Road Commission would cease to exist. This prospect must have made some members of the Commission uneasy.

Division to Render more Help

In the wake of this controversy T.W. Taylor, the Administrative Officer of the Division of Territories and Island Possessions visited Alaska with the purpose of discovering in what fashion the Division could be more help to the Commission. Taylor noted that there seemed to be no general plan for Alaskan development. For example, the exact potential-

ities of the various mining districts were not known. The Valdez Creek Mining District furnished a good example. A pamphlet dealing with the area stated that placer mining had been conducted in this district since the first discovery of gold there in 1903. Considerable placer gold had been produced, and would continue to be produced for many years because many of the creeks had not been thoroughly prospected yet. Miners had also discovered some hard rock properties, but these had as yet produced very little gold. Conditions for substantial gold production were favorable, however, and therefore further prospecting and exploration were well justified. Taylor pointed out that these generalities were inadequate for supporting budget estimates before Congress. The same was true for farmlands. Nobody quite knew how much suitable farm land there was in Alaska. No precise data was available for the Kenai Peninsula where the Commission had a road under construction. There was a need for farmers, because most foodstuffs were imported. In 1945, for example, $12,000,000 worth of foodstuffs had been imported. Obviously, there was an unutilized market for food products, but nobody knew how large this market was. This potential would not be known until some definite development plan had been worked out. All of this information was necessary to decide where to build roads in Alaska. Taylor acknowledged that roads under construction and those proposed for the future were in areas known to be promising. The lack of specific data, however, made it difficult to "make a real case for such roads" before Congress on the basis of economic value.[13]

Bureau of the Budget Critical of Commission

The Bureau of the Budget had repeatedly told the Alaska Road Commission that its justifications for fund requests had not been specific enough. Chief Engineer Taylor had largely overcome this objection for the fiscal year 1948. He also had requested survey money, which, if granted two years in advance of construction, would enable him to base his estimates on specific projects. Administrative Officer Taylor pointed out, however, that the Chief Engineer simply did not have the staff to

prepare the kind of estimates and specifications which were customary for the Public Roads Administration. The Bureau of the Budget also complained the the Alaska Road Commission always "over-layed maintenance difficulties due to weather." Obviously, the Bureau of the budget had no idea what Alaska's climate was like, and Officer Taylor therefore decided to collect photographs which graphically demonstrated these difficulties.[14]

Army Proposes Massive Road Construction

The Division of Territories and Island Possession obviously intended to represent the Alaska Road Commission more adequately before Congress. Before the Division could formulate its plans, however, the Department of the Army intervened. On October 28, 1947, Kenneth C. Royall, the Secretary of the Army, told Secretary of the Interior Julius A. "Cap" Krug that the limited capacity of the Alaska Railroad and the deficiencies of "the road system in mainland Alaska jeopardize the mission of National Defense." The Army considered the support of it bases in the north and the development of new sources of strategic raw materials vital necessities for effective national defense. These two requirements depended on the existence of a road and railroad system "not only adequate for peacetime use but capable of sustaining the increased traffic which an emergency would impose." Royall stated that Alaska had to be defended for its own security as well as to protect the contiguous states against an attack. Any planned operation needed to be put into action rapidly and completely. Therefore, any Alaskan economic development, particularly if it made the Territory selfsufficient, would materially aid the national defense mission. Adequate transportation routes from the contiguous states to Alaska and within the Territory were of utmost importance for the logistics support of the military. Specifically, Royall suggested improvements to all-year, all-weather standards of the main routes, namely the Alaska Highway, the Haines Cutoff, the Richardson and Glenn Highways, the Anchorage-Seward road, and the Tok extension of these main routes north and westward. If extended, these should connect existing

and planned military installations. The Fairbanks area north of the Alaska Range was the most important to be served by an adequate road system, followed closely by Anchorage. Royall pointed out that the dependence on the Alaska Railroad for the transportation of goods and supplies to the armed forces in the Fairbanks area constituted a weak link in Alaska's defensive system which had to be remedied by building adequate roads to Fairbanks, consisting ideally of alternate all-weather roads. In addition, the Army intended to construct a petroleum pipeline to Fairbanks, and it urged the surfacing of the main road system.[15]

Within a year, Congress approved a massive six-year road development program for Alaska blessed by the Army. This program was to continue the social and economic revolution wrought by World War II.

Footnotes

1. U.S. Congress, House, 79C., 2S, The Alaska Highway, An Interim Report From The Committee on Roads Pursuant to H. Res. 255, H. Rept. No. 1705 (Washington, D.C.: Government Printing Office, 1946), pp. 1-2.

2. Ibid., p. 2.

3. Ibid., p. 62.

4. Ibid., pp. 62, 71.

5. Jessen's Weekly, December 28, 1945.

6. Ibid.

7. Clipping, no date, Jessen's Weekly, in Anthony J. Dimond Papers, folder Roads, A, box 32, University of Alaska Archives, Fairbanks, Alaska.

8. Ibid.

9. Dimond to Robinson, April 6, 1946, Anthony J. Dimond Papers, folder Roads, A, box 32, University of Alaska Archives, Fairbanks, Alaska.

10. Bartlett to Robinson, April 9, 1946, Robinson to Dimond, April 12, 1946, Anthony J. Dimond Papers, folder Roads, A, box 32, University of Alaska Archives, Fairbanks, Alaska.

11. Flakne to Arnold, April 4, 1946, R.G. 126, Central Classified Files, 9-1-55, N.A.

12. Taylor to Gruening, April 8, 1946, Gruening to Arnold, April 9, 1946, R.G. 126, Central Classified Files, 9-1-55, N.A.

13. Taylor to Arnold, August 26, 1946, R.G. 16, Central Classified Files, 9-1-55, N.A.

14. Ibid.

15. Royall to Krug, October 28, 1947, R.G. 126, Central Classified Files, 9-1-55, N.A.

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14. Ibid.

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CHAPTER SEVENTEEN

POSTWAR REORGANIZATION AND A PROPOSED FERRY SYSTEM

Events in distant places have always determined Alaska's fate. That had been the case when Alaska was Russia's colony, and continued when the United States took Russia's place. The Territory had experienced an economic boom during World War II as thousands of construction workers moved north to build military installations. The armed forces garrisoned Alaska, and by 1943, about 150,000 troops defended the Territory. On May 11, 1943, American and Canadian troops began their amphibious assault on the Aleutian Island Attn. At the end of that month, the island fell into American hands after fierce fighting. Subsequently, on August 15, 1943, an amphibious landing was made on Kiska. The troops, however, discovered that the enemy had evacuated the island at the end of July under the protection of heavy fogs. Following this action, the military command reduced ground forces in Alaska, and by March 1945, only 50,000 troops were left. Forts closed, bases were dismantled, and airfields turned over to the Civil Aeronautics Administration.[1]

Many Alaskans regretted the departure of the military, for without the heavy federal expenditures, Alaska's economy threatened a return to its traditional seasonal character, dependent on mining and the fishing industry.

The End of World War II

After the allied defeat of Germany in May 1945, and Japan's surrender a few months later, in August, the nation celebrated the victories. There was much to be thankful for. It had been a costly conflict which had brought suffering and death to millions on both sides. In the early summer of 1945, most Americans admired the gallant Russian allies who had helped defeat the Nazis. In fact, seven out of ten Americans liked the Soviets so well that they endorsed the idea of sending German males to Russia to help rebuild the

cities devasted by war. By the middle of 1946, disillusionment with the Soviet Union had begun. Almost six of ten Americans felt that the Soviet Union's actions in Eastern Europe and elsewhere expressed their desire to rule the entire world, and about one in four was ready to go to war immediately to stop these ambitions. Alvin Richman, a public opinion specialist who had studied American attitudes concluded that the negative trend toward the Soviet Union had been unusually steep from September 1945 to March 1948. He concluded that by early 1948 about 70 percent of the American public viewed the Soviet Union unfavorably.[2]

Cold War Revives Alaska's Economy

The collapse of good feelings and the start of the Cold War rescued Alaska from the economic doldrums. Not only did it revive Alaska's economy, but military necessity gave Alaska's lagging road construction program a tremendous boost. Increased military preparedness in Alaska, and the building of major military installations throughout the Territory made urgent the interconnection of these bases with paved highways. The Congress of the United States authorized a six-year road program costing in excess of $125,000,000. Since 1906 the Board of Road Commissioners for Alaska, or later the Alaska Road Commission as it was renamed, had appealed to Congress for funds to provide Alaska with an integrated system, but to little avail. As late as 1941, Congressional appropriations were under $800,000 annually, and that was a good year, for in 1940 it had been only $410,541,000. The demands of war led to an appropriation of $1,892,925 in 1942, and rose to over two million dollars from 1943 to 1946. In 1948, Congress appropriated $3,936,842 and also approved a massive six-year road construction program for Alaska. In 1949, Congress appropriated $15,352,935, and in 1950 that climbed to $23,633,376, and in 1951 rose still higher to $29,389,476. Between 1905 and 1948, Congress appropriated approximately $38,696,545 for Alaskan road, trail and bridge construction and maintenance. In contrast, between 1949 and 1955, it appropriated about

$135,395,031. In other words, in the short span of six years, Congress appropriated more than three times as much as it had in the previous forty-three years.[3]

Structural Changes for the Commission

There also has been structural changes over the years. As previously stated, the Secretary of the Interior had designated the ex-officio Commissioner for Alaska, namely the governor, to administer the duties relating to the road functions officially transferred to the Department on June 30, 1932. On December 3, 1932, the Secretary issued Departmental Order No. 605 which provided that the Board of Road Commissioners for Alaska officially become the Alaska Road Commission. Actually, that name had already been used since the mid-1920s, but the order legitimized it. Under the order, the Commission form of organization ceased, and primary responsibility for its function was placed with one individual. The chief engineer now became the chief operating official, an arrangement that lasted until July 31, 1948. Together with the vastly increased Congressional road construction program for Alaska, the Department of the Interior reorganized the Alaska Road Commission. On July 19, 1948 the acting Secretary of the Interior issued Departmental Order No. 2448 which created the position of a Commissioner of Roads for Alaska. The order did not change the name of the organization but simply replaced the chief engineer as operating official with a Commissioner of Roads for Alaska. This individual now exercised the authority conferred upon the Secretary of the Interior in the transfer act of June 30, 1932. The Commissioner reported to the Secretary through the Director, Division of Territories and Island Possessions. The chief engineer already had utilized this organizational structure since 1936. Ike P. Taylor retained his position as chief engineer. On January 3, 1949 Commission headquarters in Juneau announced that Angelo F. Ghiglione would take Taylor's place effective February 1, 1950. Ghiglione had a long Alaskan background. He had started work for the old Board in 1929 as an instrument man on harbor work in south-

eastern Alaska. A few years later the Commission promoted him to the position of resident engineer in charge of the Juneau Douglas bridge construction. Ghiglione continued his employment with the Commission as Assistant Superintendent of the Anchorage District until assigned to the main office in Juneau as Assistant Chief Engineer in April 1948. In August of that year he became the Chief of the Construction Division of the Juneau Office. A graduate of the University of Washington with a degree in civil engineering, Ghiglione received a Master of Civil Engineering from the Massachusetts Institute of Technology which he attended on a competitive scholarship. During the Second World War, Ghiglione, as a commander in the U.S. Navy Civil Engineers Corps, served as a contract superintendent for the Thirteenth Naval District, overseeing approximately $100,000,000 worth of Naval construction in the northwest.[4]

Colonel John R. Noyes Becomes Commissioner

On August 1, 1948 the Secretary of the Interior, Julius A. Krug, chose Colonel John R. Noyes as the Commissioner of Roads for Alaska. Noyes was no stranger to the North. A 1923 graduate of the U.S. Military Academy at West Point, and with a civil engineering degree from Cornell University, Noyes has begun the practice of his profession as a young officer for the old Board of Road Commissioners for Alaska in 1926. Subsequently, he held a position with the U.S. Army Corps of Engineers in Alaska from 1932 to 1934. During World War II Noyes served in Europe, and accepted the new position in 1948 on loan from the U.S. Army.[5]

Alaska Road Commission Expands

Increased appropriations also necessitated a moderate expansion of the headquarters personnel of the Commission in Juneau. The Department of the Interior created four divisions, together with the required staff, designated, respectively. Administrative, Engineering, Contracts, and Construction.[6]

Noyes Assumes His Responsibilities

Colonel Noyes assumed his new responsibilities on August 1, 1948. The prospects for vastly increased funding must have pleased him, particularly since he represented a link with the past. He remembered when the headquarters staff in Juneau consisted of three army officers, a president, engineer officer, and a secretary and disbursing officer, together with a handful of civilian employees. In those days, civilian superintendents located at Anchorage, Fairbanks, Valdez, Chitina, and Nome, and a couple of subdistrict offices performed the field operations. When Noyes started his work in 1926, some of the road work was still performed by hand, although much mechanical equipment had already been acquired. In the 1920s the organization still cut much brush and flagged trails used during the winter by dog teams and horse sleighs. For years, the Alaska Road Commission maintained this extensive trail system, but started to abandon it in the 1930s when air travel had become common. In fact, in its 1947 annual report the Alaska Road Commission listed the following total mileage of all roads:

	Road	Sled Road	Trail	Flagged Trail	Grand Total
June 30, 1946.....	2813.1	1238.4	4110.8	161.0	8323.3
Fiscal year 1947:					
New mileage.....	30.7	-----	------	-----	30.7
Reclassified, abandoned and transferred.....	-59.0	-11.0		-59.0	-129.0
Total.....(a)	2784.8	1227.4	4110.8	102.0	8225.0
No work of either maintenance or improvement during fiscal; year 1947:	131.9	1033.4	3958.8	-----	5124.1

(a) Includes 80 miles tram road.[7]

The above figures show that the Commission had practically abandoned its system of sled roads, trails, and flagged trails. The above mileage of roads consisted of the following systems:

Principal Connected Road System

	Miles	
Richardson Highway	368	
Glenn Highway	189	
Steese Highway	162	
Tok Cutoff	136	
Alaska Highway and Branches	210	1065

Local Systems

Nabesna Branch	44	
Feeder Roads, Richardson Highway	72	
McCarthy Tram and Road System	31	
Feeder Roads to Steese Highway	134	
Livengood Road and Branches	87	
Anchorage Local Roads	56	
Fairbanks Local Roads	46	
Palmer System	200	
Nome System	167	
Seward Peninsula Mine Roads	94	
Seward Peninsula Tram Road	80	
Takotna System	71	
Flat System	36	
Manley Hot Springs System	48	
Ruby System	66	
Haines System	65	
Kenai Peninsula System	47	
Feeders to the Alaska Railroad	94	
Eagle System	32	
Iliamna System	26	
Forty Mile Road System	29	
Isolated Roads connecting with river or ocean transportation	104	
Mount McKinley Park Roads	91	1720
Total		2785 [8]

The Colonel's Alaskan Experience

Colonel Noyes had helped construct the Richardson Highway, the first main route connecting Valdez with Fairbanks. By 1948, there existed a network of main roads besides the Richardson Highway, linking the ice-free ports of Seward and Haines with the cities of Anchorage and Fairbanks as well as with the contiguous states via the ALCAN, the Alaska-Canada Military Highway. Better yet, when Noyes took over, the paving of the principal connected road system began, making travel

speedier, easier, and above all, dustfree. The remaining mileage, consisting of the local systems, served approximately three-fourths of Alaska's land area. Not only did the Commission maintain this mileage, but it also continued to pioneer additional routes, meant to connect developing resource and population regions with other modes of transportation, such as river and ocean navigation and airfields.

Planning for a Ferry System

Soon planners for the massive six-year road construction program maintained that any truly integrated system of highway transportation in the North had to be joined with an appropriate water transportation system for southeastern Alaska. On March 1, 1949, James P. Davis, the director of the Division of Territories and Island Possessions in the Department of the Interior to whom the Alaska Road Commission reported, suggested to Secretary Julius A. Krug that he authorize a feasibility study for a system of car ferries. Davis argued that southeastern Alaska contained one-third of the Territory's population and resources. The region had a difficult geography, composed of many islands separated from each other and from the rest of the Territory by deep fjords and steep mountains. Given this topography, it was impossible to develop an effective highway system. Southeastern Alaska, however, was connected with the outside world by a highway extending from Haines through Canada to Haines Junction where it met the Alcan Highway; by the White Pass Yukon Railway extending inland from Skagway to the Alcan Highway at Whitehorse, Yukon Territory; and finally by a railroad and highway connecting Prince Rupert in Canada's province of British Columbia, just south of southeastern Alaska, with the United States. Davis argued that car ferry service connecting Prince Rupert, Ketchikan, Juneau, Haines and Skagway would connect southeastern Alaska with the various roads and railroads, attract tourists, and most importantly, promote the national defense. David recommended that the Alaska Road Commission hire a competent marine engineer familiar with car ferry operations to make a feasibility study. If the proposal appeared

sound, David intended to ask Congress to fund construction of such a system. Secretary Krug approved the Davis proposal a few days later.[9]

Noyes Searches for a Transportation Expert

Noyes accepted the charge with alacrity, and immediately contacted a number of friends with the request to help him find "the right man to make a feasibility study this summer." For example, he contacted General Robert H. Wylie, the Manager of the Board of State Harbor Commissioners, Port of San Francisco, and asked him to find a suitable transportation expert to conduct the study. Anticipating criticism, Noyes told Wylie that "you may laugh at this if you want, but I would remind you that various highway departments do operate car ferries and, therefore, the idea is not as far-fetched as it sounds. Noyes appeared anxious to hire a consultant from San Francisco rather than the Seattle area, home of the Alaska Steamship Company, which served the Territory. He believed that Seattle experts, with a substantial interest in the Alaska trade, would be unable to render an "independent judgment" on the feasibility of such a system.[10]

John T. Danaher to Conduct Study

Within a very short period, Noyes hired John T. Danaher, the Assistant Vice President, Passenger Traffic, American President Lines, of San Francisco, California to undertake the study. Danaher delivered the finished product on June 4, 1949. Danaher pointed out that he had carefully reviewed a preliminary study of this project, published in June, 1944, entitled "Feasibility of Automobile Ferry Service Connecting Southeastern Alaska with the Canadian Highway System at Prince Rupert and with the Alaska Highway via Haines." Susannah Mirick, James C. Rettie, George Sundborg, and Charles McKinley of the North Pacific Planning Project had authorized the study. In addition, Danaher had also consulted a number of articles which had appeared on the subject from time to time.[11]

Danaher Travels in Southeastern Alaska

Danaher traveled through southeastern Alaska in company with Noyes. His first impression was that a ferry service, extending the Alcan Highway from Haines Cutoff to Haines and thence by ferry via Juneau to Prince Rupert "not only was a practical operation, but would so favorably affect the economy of the area through which the traffic would move that it should receive favorable consideration" and be put into operation at the earliest possible time. Later reflection did not change his mind.[12]

Danaher's Recommendations

Specifically, Danaher recommended the establishment of a daily ferry service between Tee Harbor and Haines, Alaska. This service was to consist of two sections. The first and major operation was to serve the ports of Ketchikan, Wrangell, Petersberg, and Juneau. Two steam turbine ferries capable of a speed of 18.5 knots each would complete a sailing from either Prince Rupert or Juneau every 24 hours. The second operation was to be undertaken by a ferry of the type of the San Leandro, a former San Francisco Bay ferry, with landing slips fore and aft, operating across Lynn Canal, a distance of about 50 miles between Tee Harbor and Haines. This ferry was to operate continuously throughout the 24 hour period, Danaher suggested, for this bay ferry-type vessel might not always be capable of accommodating all the traffic from the Prince Rupert-Juneau ferry on a single trip. Furthermore, continuous operation would assure southbound traffic a connection to Juneau.

Potential Ferry Traffic

Danaher pointed out that the success of any transportation operation, particularly water service, depended upon the available and potential traffic. The consultant was convinced that the potential

was extremely attractive, including both civilian and military travelers and vehicles. Danaher argued that the greatest possible travel would occur within a ninety day tourist season from mid-June to mid-September. He was convinced that the ferries would earn enough revenues during this period to permit a daily service throughout the year without the necessity for a subsidy. In addition, he expected the trucking traffic during the winter months to contribute to the daily operating costs outside of the ninety day tourist season, thus permitting rapid amortization of the cost of the facilities.

Tourism

Danaher predicted that the greatest single source of tourist traffic, approximately 72,000 individuals, would be passengers without automobiles who came to Prince Rupert by railroad and bus. The year-round sustaining traffic would consist of trucks or trailers destined for Anchorage and Fairbanks. He estimated that these would transport 400 to 500 tons of freight daily and occupy 750 linear feet per day per vessel, with an average of a driver and one occupant.

Canadian National Railway Interested in Ferry

Danaher had discovered that the Canadian National Railway was vitally interested in the establishment of this ferry system, because they hoped that it would place their railroad line between Jasper and Prince Rupert on a profitable basis. The Southern Pacific Railway also was intrigued in a daily ferry service at attractive low fares. Officials of the railway hoped that this Alaskan ferry service would help support their new "Cascade Daylight" train which they planned to put into operation between San Francisco and Portland. California had experienced a substantial population increase during the war. Many of these people, the railroad executives pointed out, would find Alaska an attractive destination with a low-cost railroad, bus, package tour arrangement. Danaher also has ascertained the interest of the

Western Canadian Greyhoud Lines, Ltd., of Calgary, Alberta in such an Alaskan ferry service. Greyhound operated buses between Vancouver and Prince George over the Cariboo Highway. With daily ferry service from Prince Rupert, the Greyhound executive promised that his line would extend its route into that city in the process producing a substantial number of Canadian tourists bound for the North.

Potential Revenue

Danaher estimated that through trucks from Prince Rupert to Haines, both north and southbound, would generate an annual revenue of $1,525,182, private automobiles $1,166,832, while tourists during the ninety day season would produce another $910,080, for an annual revenue of $3,602,094 offsetting the cost of the ferry service.

Type of Vessels to be Used

The consultant suggested that the Alaska Road Commission ask Congress for funds to construct two steam turbine propelled vessels, 320 foot in length, with a 57 foot beam, making 18.5 knots per hour and having no more than a 13.5 foot draft in order to navigate the Wrangell Narrows at low water. He urged that the design eliminate passenger staterooms and instead cater to deck passengers who would be provided with modern, reclining seats similar to the streamlined coaches and overseas airlines. Vessels should be able to carry about 850 passengers each. A snack bar concession was to provide the food, and there also might be a liquor bar concession. Danaher estimated that each ferry would cost approximately $3 million to build.

Ask Army for a Ferry

Danaher proposed that the Alaska Road Commission ask the War Shipping Administration to surplus the San Leandro, under charter to the Army and formerly one of the San Francisco Bay ferries. The San

Leandro was a steel hull, double-ended ferry with turbo-electric drive with a speed of about 12 knots. Danaher pointed out that the ship would need modifications costing about $200,000 to handle the standard height of a 35 foot trailer.

Estimated Annual Operating Expenses

Danaher estimated the annual operating expenditures of the three ferries at $1,187,170. Subtracting this expense from the estimated revenue of $3,602,094 left a net income, to be applied against depreciation, amortization, and surplus of $2,414,924. The consultant also pointed out that port facilities would have to be constructed, but asserted that these would be fairly inexpensive because most locations already possessed docks, ramps, and piers which, in some instances, needed modifications. In summary, Danaher estimated that Congress would have to appropriate approximately $8,500,000 to construct the ferries, port and dock facilities. He was convinced that the resulting traffic would greatly stimulate the economics, not only of Alaska, but of British Columbia and the Yukon Territory as well.

The Alaska Steamship Company Critical

The Alaska Steamship Company, the chief carrier in the Alaska trade, quickly criticized the Danaher report. The company had looked at the ferry proposition "based on private development", and concluded that the present volume of traffic "could not begin to support the investment" necessary to launch the ferry system. Furthermore, Danaher's estimate of $8,500,000 was rather moderate, considering the necessity to construct two ocean-going ferries, buy a third one and rebuild it, and build and adapt seven essential terminals.[13]

F. A. Zeusler, a retired Admiral and spokesman for the Alaska Steamship Company, pointed out that the feasibility of the whole plan

depended on a broad, comprehensive highway development program in Alaska and Canada. This would include year-round maintenance and asphalt surfacing at a minimum to afford the degree of comfort to which American and Canadian automobile tourists had become accustomed.

Share Cost of Ferry System

The Alaska Steamship Company favored such a highway improvement program because it would benefit the North. The company was convinced, however, that "it would be impossible for private enterprise to underwrite" the ferry scheme. In fact, Danaher agreed with this assessment because he specifically recommended that the Army and the Department of the Interior share the cost of the project, to be operated by the Alaska Road Commission. The Alaska Steamship Company, however, was "unalterably opposed to any branch of the United States Government running the ferry system in competition with private enterprise. "Steamship service undertaken by the unsubsidized American entrepreneur to Alaska was already "in critical straits," Zeusler pointed out, and government competition "could have a most disastrous effect." If the federal government insisted on establishing the ferry operation, Zeusler continued, it should do so in cooperation with private enterprise and not in competition with it. Finally, Zeusler came to the core of his company's concern. He concluded that "since the Alaska Steamship Company is the sole American operator offering general service to all of Alaska, we feel that we should be the logical carrier to be considered in such an arrangement." In short, the Alaska Steamship Company wanted to make certain that its nearly monopolistic control of the Alaskan market not only be reaffirmed but also be strengthened.

Noyes Surprised About Criticism

Colonel Noyes perhaps was a bit surprised at the criticism. He told Zeusler that the Commission had approached the whole matter from

the standpoint of the development and use of the highways in connection with the six-year Alaskan road development program Congress had approved. He assured Zeusler that his organization was fully aware of the many difficulties faced in maintaining and keeping open the roads in Alaska and Canada to connect with the car ferries. He reassured Zeusler "that you and I are in substantial agreement as to the desirability of private operation of the car ferries. Above all, Noyes protested that he was "not interested in running them [the ferries] and would do so only if a suitable private operator could not be found."[14]

Noyes Warned About Running Ferry System

Noyes had no reply to an old friend from the U.S. Army Corps of Engineers who warned him that such a project might well ruin his reputation as an engineer. "The fascination that the Inside Passage has for some engineering minds is beyond me," this friend asserted. "I hope for your sake anyway that you are not successful in putting it [the ferry project] over." It was not a clean engineering problem that could be accomplished through the application of logic. Instead, the friend seemed to warn Noyes, it was a project burdened with politics, and potentially dangerous for Noyes' reputation.[15]

Noyes Ignores Advice

Noyes listened to the advice but did not accept it. Instead, he pressed ahead with the ferry plans. He was pleased when told that the Division of Territories and Island Possessions had been very pleased with Danaher's study. If the Secretary of the Interior approved the plan, the Division intended to include money for the project in the Commission's 1951 budget estimates. Noyes assured the Division that the ferry service would "attract an entirely new type of traffic to Alaska which will supplement, but not seriously compete with the existing traffic." Noyes did not believe that the ferries would pose

a serious threat to the operation of the Alaska Steamship Company nor the scheduled airlines. Commissioner Noyes, however, was concerned about the Coast Guard which insisted that full passenger vessels required lifeboats, stewards' department, and staterooms, among others. These requirements would increase costs substantially. Noyes had told the Coast Guard that the vessels which would allow the elimination of the stewards' department and part of the lifeboat facilities, substituting liferafts for most passengers. So far, however, the Coast Guard had not relented in its opposition to this plan.[16]

Secretary of the Interior Approves Ferry Plans

By the late fall of 1949, the Secretary had approved the ferry project and it had been forwarded to the Bureau of the Budget as a part of the estimates of the Department of the Interior for the fiscal year 1951. Noyes, however, had developed some doubts about the proposed project. For example, he had discovered that the approach roads in Canada leading to Prince Rupert and Haines were in poor condition. He had negotiated with the Canadians asking for improvements of these routes, but so far the Canadians had shown a lively interest but promised no "actual performance." Furthermore, recent detailed looks at the blueprints for the two big ferries had revealed that certain technical details needed further study. This was particularly true for the projected use of the ferries to carry railroad cars as well as motor vehicles. This probably necessitated design changes, Noyes stated, and therefore it appeared premature to ask Congress for ferry boat construction funds in fiscal year 1951.[17]

No Money For Ferry System

In the end nothing came of the Commission ferry scheme. A private company, the Chilkoot Motorship Lines, Inc., operated a small ferry between Juneau, Haines and Skagway. When it ran into financial troubles, the Territory purchased the vessel and operated it. In the meantime,

late in 1947, entrepreneurs experimented in freighting on large barges towed by tugs from Puget Sound to the railbelt. It proved feasible, and the terminal port could be either Seward or the wartime port of Whittier on Portage Bay on Prince William Sound. Most of the barging operations were shortlived, but eventually Al Chezzi, a Fairbanks resident and teamster, developed a barge and trucking operation under the name of Alaska Freight Lines. Ghezzi had driven freight over the Alcan Highway which the military had made available to civilian traffic after the war. This overland operation proved unprofitable, and gradually Ghezzi worked out a method by which he drove trucks from the Seattle or Tacoma warehouses to the docks of these cities. Once there, he disconnected motor and chassis, and had the truck body containing the freight lifted onto the barge which then was towed to the Alaska terminals of Haines or Valdez, and later, when the highway connecting Seward to Anchorage had been completed, to Seward. At these ports, the truck bodies would be swung onto wheels, hitched to the motive power and driven to Anchorage, Fairbanks, or intermediate points. Not until after statehood, however, did the new state government inaugurate the ferry system Colonel Noyes had dreamed about. Accomplished without federal subsidy it brought a partial solution to one of the hitherto-unsolved transportation problems.

FOOTNOTES

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5. Evangeline Atwood and Robert N. De Armond, Who's Who in Alaskan Politics: A Biographical Dictionary of Political Personalities, 1884-1974 (Portland, Oregon: Binford and Mort, 1977, p. 73.

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9. Noyes to Zeusler, January 14, 1949, Davis to Krug, March 1, 1949, R. G. 30, Alaska Road Commission, Box 65426, Federal Records Center, Seattle, Washington.

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12. John T. Danaher, "A Study of the Feasibility and the Effect on the Economy of Alaska, British Columbia, and the Yukon, of the Operation of an Automobile, Truck-Trailer and Passenger Ferry Service between Haines, Alaska, and Prince Rupert, British Columbia, thus Extending the Alaska Highway System through Southeastern Alaska," June 4, 1949, R.G. 30, Alaska Road Commission, Box 65426, Federal Records Center, Seattle, Washington. The subsequent discussion of the ferry scheme is based on Danaher's study.

13. Zeusler to Noyes, June 25, 1949, R.G. 30, Alaska Road Commission, Box 65426, Federal Records Center, Seattle, Washington. The subsequent discussion is based on Zeusler's statement.

14. Noyes to Zensler, July 6, 1949, R.G. 30, Alaska Road Commission, Box 65426, Federal Records Center, Seattle, Washington.

15. Mac to Noyes, June 5, 1949, R.G. 30, Alaska Road Commission, Box 65426, Federal Records Center, Seattle, Washington.

16. Noyes to Gruening, August 11, 1949, R.G. 30, Alaska Road Commission, Box 65426, Federal Records Center, Seattle, Washington.

17. Noyes to Davis, October 14, 1949, R.G. 30, Alaska Road Commission, Box 65426, Federal Records Center, Seattle, Washington.

18. Ernest Gruening, The State of Alaska, (New York: Random House, (1968), pp. 423, 506.

CHAPTER EIGHTEEN

PECULIAR ALASKAN PROBLEMS, THE STRUGGLE FOR PREEMINENCE, AND THE GENERAL ACCOUNTING OFFICE

The winter of 1951-1952 was very cold one in Alaska's interior with temperatures dipping below minus fifty degrees, and staying there for days on end. In mid-January, the Alaska Road Commission announced that all construction activities had ceased for the season and all operations were entirely on a maintenance basis. The Commission warned travelers to make certain that their vehicles were in first class shape, and urged that proper clothing be worn and carried along when traveling. For the motoring public, it announced that the Richardson Highway, Route No. 1, was open from Valdez to Big Timber Junction at Mile 130, and from Big Delta Junction at mile 268 to Fairbanks at mile 365. The highway between Big Timber Junction and Big Delta Junction was closed for the winter, and all Fairbanks traffic from Valdez and Anchorage was directed over the Glenn Highway, Route No. 3, to Tok Junction, the Alaska Highway to Big Delta and thence to Fairbanks. Route No. 2, the Alaska Highway, was open and in good condition from the Canadian border, mile 1221, to Fairbanks. The Taylor Highway from Tetlin to Eagle was closed for the winter, but Route No. 4, the Anchorage-Seward was open, as was Route No. 5, the Sterling Highway, from its junction with the Anchorage-Seward Highway at mile 39 to its terminus at Homer, including the branch road to Kenai. Closed for the winter were Routes Nos. 6 to 9, the Steese and Elliott Highways, the McKinley Park roads, and the Haines Highway.[1]

Spring

Northern residents probably more than any other people on earth welcome the spring after a long, cold and dark winter. By February the days are getting noticeably longer, and in March the sun is even warm in interior Alaska. By April spring breakup has arrived, and mud replaces snow. This period was always hazardous for the roads, and the Commission

once again announced that weight and speed limits where necessary. By April contractors were back working on the Richardson Highway out of Valdez, and construction also was underway from mile 120, the Gulkana airfield, to mile 199, Paxson, and again from mile 237 at Rapids to mile 268 at Big Delta. In short, construction activities were in full swing by the end of April

Long Alaskan Experience of Commission

Obviously, in a country with such wide temperature extremes and the existence of so much permafrost extraordinary care had to be taken when building roads. The Alaska Road Commission had accumulated much useful information on construction problems in northern climates from its inception in 1905 to 1952. For example, it had found that paved roads had to be of the flexible mat type. Flexibility was necessary because of the continued surface movement caused by seasonal frost or deformation of the underlying permafrost. Commission engineers had discovered that "asphaltic pavements of either road-mix penetration or hot plant-mix type" were successful. Contractors were paving Alaska's major highways with a 20 foot wide, two inch thick mat of hot plant mix laid over a four-inch crushed-rock base. The latter was primed with a medium curing cutback asphalt, while rapid curing cutback asphalt was used in the plant mix.[2]

Improve Highways To Standards

The major highways were to be improved to the following standards:

	Through Roads		Feeder Roads		Local Roads	
R/W Width	300'		200'		100'	
Width of Roadbed	28'		24'		20'	
Width of Paving	20'		none		none	
	max.	desirable	max.	desirable	max.	desirable
Sharpest curve, °	18	11	25	11	25	--
Maximum Grade, %	7	--	7	--	10	--
	min.	desirable	min.	desirable	min.	desirable
Non-Passing Sight Distance	240	415	240	415	--	--

The principal gravel roads are surfaced with crushed gravel, while low-standard roads are surfaced with an all-weather pit-run gravel layer. Fortunately good gravel is plentiful along most of hte Alaskan highways; therefore, very few roads are limited by adverse weather conditions.

Bridges

Bridges on through highways are designed for H-20 loading and have a roadway width of 24 feet. Bridges on secondary roads are designed for H-15 loading with 20-foot roadway width. Steel, concrete, and treated-timber bridges are used, and replacement of all native timber structures is now nearing completion.[3]

Short Work Season

Alaska's construction was short, generally lasting no longer than six months. This necessitated the seasonal employment of crews, long periods of idle equipment and increased unit costs. The Commission often scheduled bridge work for the winter season because it permitted longer employment for key personnel and the more efficient utilization of equipment. The Commission also had learned that the winter transportation of supplies and materials to advanced construction sites reduced costs, as did winter camp preparation and equipment overhaul.

The Permafrost Problem

One of the biggest problems confronting Alaskan construction was permafrost, and an accompanying phenomenon called "icing". The latter occurred when successive sheets of surface water froze, eventually forming a mass of ice. Thick and localized ice was called "Icing mound," and when it survived the summer it was known as "Taryn".

Stripping the protective moss cover off ground underlain with permafrost resulted in thawing, practically suspending the soil in water and creating an impenetrable mire which greatly hindered the operation of

road building equipment. On these types of soils, the Commission employed what it called "stage type construction," with slow excavation as the thawing progressed, and subsequent reshaping of the grade as differential settlement occurred. The type of soil encountered in thawing permafrost greatly affected the difficulties encountered. Porous, granular, gravel-type soils gave little trouble since water easily drained away, and then the soil became stable. Silty, kaolin or water-susceptible soils were avoided whenever possible because of its instability.

Place Fill Material Over Protective Cover

Long experience had shown that it was best to construct new roads without disturbing the protective insulating cover of the ground. This resulted in less differential settlement, and icing did not develop as often. Such construction consisted of placing borrowed fill material over the natural ground as carefully as possible so as not to disturb the natural cover. In fact, "even the location parties and tote road equipment are required to detour and travel off the final line whenever possible in order to avoid disturbing the natural ground cover". Still, while roads built without disturbance to the natural ground cover were less subject to icing and settlement, they needed to be reshaped repeatedly until a new equilibrium had been established between the various factors inherent in the permafrost areas.

Locate Roads Carefully

Careful observance of location criteria for roads and airfields could reduce construction problems to a minimum, the Commission had learned. For example, wherever possible locations should be developed on the south rather than the north slopes of hills and mountain ranges. Southerly exposures utilized the greatest heating effects of the sun, normally had lighter snowfalls and less permafrost, and therefore reduced subsequent maintenance problems caused by early freezing, late thawing, and icing. To be avoided were wet side hills or slopes with water seep-

ages since crumbling of the slopes and major mud slides could be expected, and ground icing was to be expected.

Problems of Bridge Construction

Bridge construction had to consider permafrost foundations, winter icing dangers, stream ice breakup and flow, termed "Debacle," and major channel shifting so common in Alaska's glacier streams. Additionally, many glacier streams and rivers experience extreme flash floods, caused by the bursting of glacier-dammed lakes or streams. Such flash floods irregularly raised such rivers as the Nizina, Knik, and Kenai by as much as twenty feet and caused heavy ice flows, bank erosions and drift problems. Such floods could occur at any season and when occurring in the winter caused considerable damage by carrying heavy broken lake and river ice against the bridges. During the spring these floods carried ice down from the glaciers and much ordinary drift materials consisting of trees, stumps and debris, all lodging against bridges.

Steel Piling Trestle Bents Practical

Experience had shown that clear span type structures, and mid-channel piers were very undesirable since special ice-breakers and protective structures always had to be built. On wide, flat streams most subject to icing, it often was uneconomical to utilize clear spans. Since "Debacle" was not an important factor in such streams, the use of steel piling trestle bents had proved very practical. The steel bents were designed without bracing in order to avoid hanging ice. While several feet of ice often did build up and cling to the steel piling, no actual loads resulted. Thawing temperatures had to prevail before the stream cut under the ice, and during such temperatures the heat conduction quality of the steel piles released the ice mass and permitted gradual settling.

Useful Piers Developed

In 1934, the Alaska Road Commission developed piers for bridges which were mostly of the steel "H" piling bent type and which proved highly to be very successful. They equalled concrete piers in permanence, and were practical particularly in isolated locations because of the comparatively simple handling and erection facilities required. They cost relatively little since they required no expensive excavation, from work, cofferdam or caisson construction, or underwater work common to concrete piers. They also were well adapted for use in frozen ground and could be installed as easily in the dead of winter as in the summer, an important factor in Alaska where much bridge work was performed in the winter when concrete pouring would require costly heating measurements.

Modified Steel "H" Piling Bent

In more recent times, the Alaska Road Commission adopted a modification of the steel "H" piling bent in the utilization of salvaged railroad rails. Commission employees fabricated piling by welding three rails together bell to bell. Using a seventy pound rail, this piling provided a section structurally superior to the ten inch "H" piling used previously. The ease of manufacture and driving had saved over one dollar per foot in place.

Maintenance Problems

Alaska also presented many unusual maintenance problems connected with the unusual effects of permafrost changes, ice phenomena, and arctic and subarctic operational hazards. Summer maintenance was very similar to that performed in the midwestern states. After the spring thaw, roads dried out and gravel sections became very dusty even though permafrost might only be a few feet below the grade. Regardless of the stability of the road foundation, underlying permafrost usually caused deformations over a period of years. Such uncontrollable forces as seasonal weather

changes and annual fluctuations in weather averages affected the thermal balance within the permafrost regime. Changes in the permafrost showed in subsidence or heaving of road sections. Under those circumstances, the flexible-type pavements used suffered the least damage from such deformations, although extensive crack sealing and spot paving, and occasional leveling, were still necessary to reestablish uniform vertical alignment. Chores such as brush cutting, ditch and culvert cleaning, spot graveling, and other maintenance jobs had to be performed during the summers. In addition, road crews also prepared for winter maintenance during the summers by placing culvert and snow stakes, erecting snow and ice fences, and flattening the gravel road crown in the fall to minimize the dangers of sliding into ditches on icy roads. It also included the creation of stock piles of sand and cinders for winter surface sanding.

Coping with Ground-Ice

Of necessity, the Alaska Road Commission developed methods of preventing and coping with winter ground-ice formations endangering highways and highway structures. Most of Alaska's roads experienced the effluent ground seepage ice, while river or stream icing was prevalent only in the interior. Therefore, maintenance crews most often had to cope with the former. It normally formed on side hill cuts, resulting in a sloping ice surface on the roads. This increased traffic dangers by crowding vehicles to the outer edge of the roads. Often this type of icing built too many feet in depth, and often formed slopes prohibiting the passage of any traffic. The Alaska Road Commission had developed a fairly inexpensive and workable method for controlling icing. Termed "ice fencing", it dammed off the seepage and controlled its freezing before it reached the roads. Since the actual head of water to be diverted is never more than the depth of the seepage film, the term "dam" was actually misleading and the actual fence used could be of light temporary construction. The Commission placed this fence between the seepage and the road, controlling the water by diverting the flow parallel to the road until it froze. The resulting vertical wall of ice could and did

build up considerably, and often required a second, and sometimes even a third lift of the fence during the winter. Vertical feet of ice as much as twenty feet high had formed parallel to the roads and had required only occasional lifting of the lightly constructed barrier.

Interception Ditches

Ice fences had considerably simplified the control of icing, but sometimes it was possible to avoid the problem entirely through the construction of interception ditches graded to pick up the seepage before it reached the road and thereby divert it into other drainage channels. This method was particularly effective where the ground water flowed near the surface and could be intercepted some distance away from the road.

Similar interception ditches had been very effective where the water preserved sufficient latent heat to keep from freezing until it had passed through the road drainage structures. Icing still occurred, but it was below the road and therefore posed no danger to the traffic. At times, the Commission had covered or insulated these diversion ditches protecting the chanelled flow against rapid freezing, further delaying icing. Drainage structures and ditches in icing areas, therefore, had to be deep and narrow rather than shallow and wide open.

Where Icing Not Controlled Presents Spring Problem

Where roads are not maintained during the winter and icing has been allowed to build up uncontrolled, many problems result in the spring opening for traffic. In very bad cases, ice has covered sections of road several thousand feet in length to depths exceeding twenty feet. Removal requires blasting, cutting with tractor and bulldozer, use of heavy ice rooters, and repeated blading as the surface thaws during the spring. Sprinkling dirt or ashes to accelerate the sun's thawing effect works well, and the use of rock salt will speed the ice removal.

Snow Removal

Most roads in Alaska's connected highway system were maintained on a year-round basis. They required snow removal operations six months of each year. Commission crews removed snow with light one-way throw blades, mounted on three and five yard trucks. These trucks traveled at about 30 to 35 miles per hour when blading snow. At that speed, the blade deposited the snow at a considerable distance from the road ditch.

Thompson Pass Snow Removal Spectacular

Very deep snow conditions occurred in Alaska's mountain passes. The Alaska Road Commission's most spectacular winter maintenance operation was that of keeping open Thompson Pass through the Chugach Mountains. Less than 3,000 feet above sea level, the pass lies 2,000 feet above the timber line. Snowfall averages about 350 inches a year, and gail force winds often rake the pass. Subzero temperatures are normal with extremes as low as minus 60°F. Snow removal equipment for Thompson Pass was huge. The Commission converted four large Kenworth trucks, each with a gross weight of 106,000 pounds into rotary and V-type plows. The rotary plows were equipped with the largest manufactured Bros. Model M-9 rotary heads powered with twin General Motors Corporation diesel units with a total of 400 horse powers. The Commission modified these rotary plows by extending the main plow cutting edges to provide sufficient clearance for the extra wide trucks. Specially designed V-plows and wing blades manufactured for mounting on these large trucks can clear a twenty foot wide swath of road at one pass. Additionally, Commission crews used standard road maintenance equipment on Thompson Pass consisting of a fleet of heavy tractor-dozers, several large twelve foot blade motor graders, and five yard dump trucks equipped with one-way front snow blades. Despite this array of equipment, the Commission had found it impossible to keep Thompson Pass open during severe storms, and it was normal to discontinue operations and halt traffic during such inclement weather. Closures ranged all the way to five days, but with total closed

time in any one winter not exceeding fifteen days. The Commission monitored traffic over the pass with shortwave radio stations on both ends, and through the maintenance camp in the center of the pass. When conditions were unsafe for travel, Commission crews erected road blocks at strategic control spots, and they also advised the various roadhouses situated along the approach to Thompson Pass of weather conditions. Good road markers were also necessary for locating the road after severe storms. Equipment had to be winterized in a special fashion and the Commission had built warm storage facilities at the critical points in order to keep the plows, graders and dozers in ready condition. In short, winter maintenance was very expensive, and Alaska posed many problems for road construction and maintenance not found in the contiguous states. Through trial and error the Alaska Road Commission had devised many techniques uniquely suitable for operations in Alaska's climate.

President Truman Requests Report On Commission

While the Alaska Road Commission coped with the vastly expanded road construction program in the Territory, President Harry S. Truman requested a report on the desirability of having the Commission perform some or all of the activities of the Bureau of Public Roads in Alaska. The Bureau response was swift and negative. Here was a large, powerful, and growing bureaucracy which had no intention of allowing the Alaska Road Commission to absorb its functions in the Territory.

Bureau of Public Roads Unwilling To Relinquish Alaska Functions

The Bureau stated that the proposal conflicted with legislation under which it was charged with the responsibility of administering the forest highway program in Alaska. Furthermore, the Bureau claimed, such a proposal would be contrary to Congressional intent reflected in legislation and hearings, all directing that the Bureau of Public Roads maintain an adequate organization in Alaska to administer its own functions and also to perform engineering and supervisory functions for the Alaska Road Commission on some of its major construction projects.[4]

Bureau of Public Roads Justifies Its Role

In fact, the Bureau felt very strongly that the Department of the Interior must have given misleading information to the president and the Bureau of the Budget concerning the nature and scope of the Bureau's Alaskan activities. Above all, Congress recognized the Bureau of Public Roads as the principal road planning and construction agency of the federal government. The Bureau reminded the president and the Bureau of the Budget that the Bipartisan Commission on the organization of the Executive Branch of the government, commonly referred to as the Hoover Commission, had recommended that federal transportation activities, then located in the various executive departments, be concentrated in the Department of Commerce. The Hoover Commission had recommended the transfer of the Bureau of Public Roads to the Department of Commerce. This had happened in 1949. One of the major functions of Commerce as expressed in its Organic Act was to "foster, promote, and develop the transportation facilities of the United States." For this reason the road building functions of the federal government were transferred to the Bureau of Public Roads.

Multiple Responsibilities of Bureau of Public Roads

That was not all. In addition to the Federal-Aid Highway program which involved the expenditure of about one billion dollars annually of federal and state funds, the Bureau, by law, was responsible for the administration of major highway programs in cooperation with other federal agencies. This included, for example, highways in national forests and parks, Indian reservation roads, public lands highways, defense access roads, and Bureau of Land Management roads. Additionally, it had taken an important part in major projects such as the Alaska Highway and the Inter-American Highway, and rendered technical assistance, advice and services to numerous nations abroad under various foreign assistance programs. The Bureau also cooperated in conducting research in highway planning, financing, administration, construction, operation, and maintenance in order to maximuze benefits from the expenditure of public funds.

Congressional Intent Clear

The foregoing made it clear that Congress had wanted to center all highway construction activities in one agency, and that was the Bureau of Public Roads. Legislation over a period of years had confirmed Congressional intent. These enactments related exclusively to the Bureau of Public Roads and specifically authorized it to perform services for other federal agencies in connection with the construction of roads and bridges, including the preparation of plans, designs, specifications and estimates, the execution of contracts, supervision of the work, and the payment for such work involving the transfer of funds.

Bureau of Public Roads Criticizes Alaska Road Commission

Finally, the Bureau zeroed in on the Alaska Road Commission. Before 1948, it reminded President Truman and the Bureau of the Budget, the activities of the Alaska Road Commission had been largely confined to maintenance and force account work under very limited appropriations. When funds for vastly expanded Alaska road construction became available in 1949, the Commission concluded several agreements with the Bureau which provided that the survey and construction of major road projects would be handled under the engineering direction of the Bureau.

Transfer ARC to BPR

During the past several years, Alaska's delegate to Congress and the Territorial legislature had asked Congress to extend the Federal Aid Highway Act to Alaska. If extended, the functions and duties of the Alaska Road Commission would be transferred to the Bureau of Public Roads. In 1946, two Congressional Committees had recommended that such a transfer be effected, and in 1947 the Department of the Interior supported the proposal.

Bureau of Public Roads To Take Over Alaska Tasks

Taking all of the above into consideration, the Bureau recommended that it be given the responsibility of supervising all highway work in Alaska, at least until Alaska attained statehood. At that point, the Bureau would supply leadership and key personnel in helping the new state establish a highway department. The Bureau also would lend the new Alaska highway department a nucleus of personnel thoroughly trained in federal aid procedures and also intimately familiar with Alaska highway problems.

Conference To Resolve Problem

On November 20, 1952 the Bureau of the Budget called officials of the Departments of the Interior and Commerce to a meeting designed to resolve the conflict over which agency should handle road construction and maintenance responsibilities in Alaska. At the meeting, recriminations abounded. Bureau officials accused the Commission of having wasted funds through its concept of stage construction in cases where the pioneer road had to be abandoned when Congress authorized major improvements. The Commission charged that the Bureau had built preciously few miles in Alaska's forests for all the monies it had received over the years. Interior Officials pointed out that Territorial officials had not been dissatisfied with the performance of the Commission, while they had been critical of the work performed by the Bureau. In fact, the Commission always had developed its construction programs for community recommendations and advice received from Territorial officials. In the final analysis, there was no resolution of the conflict, and the Department of the Interior decided to leave conditions as they were, if at all possible.

Enter The General Accounting Office

While the struggle between the Bureau and Commission went on, the General Accounting Office had reviewed the operations of the latter. It issued its report in the summer of 1952. Although lauding the Commission

for the progress made in road construction, the General Accounting Office was highly critical of the methods and procedures through which it obtained, controlled, and expended appropriated funds. It also noted that the construction standards of the Commission and the Bureau differed substantially. Moreover, each agency maintained a complete and distinct organization in Alaska, and each considered that it should be the responsibility for administering federal funds appropriated for territorial highway construction.[5]

General Accounting Office Observations

The General Accounting Office also noted the relationship of the Territorial Board of Road Commissioners to the Commission. The Board did not maintain its own organization, but through annual cooperative agreements with the Commission had it perform the construction and maintenance of Territorial local roads. These projects were financed by contributions from the Commission and the board. Unhappily however, Commission contributions had increased each year since 1948, while Territorial appropriations had decreased significantly. For example, in 1952 $1,060,350 had been expended under this agreement, of which $810,350 the Commission contributed and $250,000 came from the Territorial legislature. In 1948 of the $688,000 spent the Commission had contributed $347,000 and the Territory $341,000. The Territory collected these funds from a part of the proceeds of the Alaska motor fuel tax and operators' registration fees. The General Accounting Office criticized the gasoline tax of two cents a gallon, lower than in any state except Missouri. Motor license taxes went into the Territory's general fund and were not used for road construction or maintenance. Trucks operating in Alaska paid only a $75 annual license fee, less than any of the 48 states charged.[6]

Territory Neglects Obligations

Although the Territory was responsible for highway regulation, it had largely neglected to perform this function. The Commission, therefore, had taken the initiative in enforcing many of the regulations

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required to protect the highways. For example, in April, May, and September 1952 the Commission installed three vehicle weighing scales on Alaska's major highways, and also operated them.[7]

Principal Activities of Alaska Road Commission Since 1948

Since 1948 the principal activities of the Commission consisted of administering contracts for the reconstruction and butuminous surfacing of portions of the Richardson and Glenn Highways, the reconstruction of the Haines Highway, and the force account construction of connecting roads to the main highway system. These included the Sterling Highway, and the Tok-Eagle road, both begun in 1946; and the reconstruction of the Tok Cutoff begun in 1947. The Bureau of Public Roads administered contracts on some sections of the Alaska, Richardson, and Glenn Highways with funds appropriated to the Commission. In 1948 began the construction of the Anchorage-Seward Highway with Commission funds. The Bureau of Public Roads, however, built most of the highway because it traversed the Chugach National Forest. Consequently, the responsibility of the Commission on this project was largely confined to holding the funds. It did build 12 miles of road between Anchorage and Potter in the summer of 1948, and supervised the paving of about 39 miles from Anchorage to Girdwood.[8]

The GAO pointed out that the conflict of standards between the Commission and the Bureau became evident when both submitted estimates for the reconstruction of the road between Seward and mile 58. The Bureau's estimate according to its standards, adopted by the Department of the Interior, was about $2,000,000 higher than the Commission's estimate.[9]

GAO Objects To Commission Budgeting Practices

The GAO objected to certain Commission budgeting practices. For example, on the construction of the road from the Naknek airport to the Village, the Commission transferred $550,000 from its paving funds to the Corps of Engineers before requesting Congress to appropriate the monies. Another example concerned the justification for a major project with a

cost estimate that was obsolete when it submitted an $11,000,000 request for the Cordova-Richardson Highway. The Commission had arrived at that total by adding $1,000,000 to an engineers report made in 1949. Yet in 1952, the project still had not reached a stage of planning where a reasonably accurate estimate of final costs could be made. The GAO recommended that the Commission fully inform Congress when funds approved and available for certain projects were transferred to cover obligations on other major highway projects in excess of the amounts approved in the Commission's budget justifications.[10]

Commission Temporary Employees

The GAO observed that the Commission hired a large number of temporary employees, both wage board and classified, at the beginning of each construction season. With wage board employees temporary appointments were limited to one year or less. Under the law, such individuals were not entitled to compensation for holiday pay unless they worked. In 1952, however, the Commission paid these temporary workers for Memorial and Independence Days in amounts of approximately $13,500.[11]

Commission Accounting System Changing

The Commission accounting system was in the throes of change in 1952. On June 30, of that year, the amounts recorded in the assets and liability accounts, as well as the cumulative project costs, were mostly inaccurate. The Commission distorted overhead charges by distributing them to individual work orders, and it had the permission to use appropriated construction funds without time limit. Monies received for operation and maintenance, however, could only be legally obligated during the year for which the appropriation was made. In 1952, the Commission reclassified certain projects from construction to operation and maintenance with the result that on June 30 the annual appropriation of $2,940,000 which had been received for operation and maintenance had been entirely obligated. The GAO found that an equitable allocation of

overhead would cause the appropriation for operation and maintenance to be exceeded.[12]

GAO Recommendation

The GAO recommended that Congress create an interdepartmental transportation authority for Alaska which would promote the establishment of a sound and equitable revenue base to provide for further highway construction and the maintenance of those already built. It also urged Congress to review the need for two independent federal road building agencies in Alaska since it was not conducive either to economy or to effectiveness of effort.[13]

Obviously, the status quo was not to be preserved as the Department of the Interior had hoped. Indeed, the General Accounting Office was to scrutinize the Alaska Road Commission repeatedly until its demise in 1956.

Footnotes

1. Alaska Road Commission, "Condition of Alaska Highways, Quarterly Report," January 15, 1952, R. G. 30, Alaska Road Commission box 65415, Federal Records Center, Seattle, Washington.

2. Alaska Road Commission, "Alaska Road Construction and Maintenance Techniques," June, 1952, R. G. 30, Alaska Road Commission, box 65415, Federal Records Center, Seattle, Washington. The subsequent discussion is based on this paper.

3. Ibid.

4. Statement of the Department of Commerce Regarding Performance of Road Construction and Maintenance Activities in Alaska, July, 1952, R. G. 30, Alaska Road Commission, box 65509, Federal Records center, Seattle, Washington. The subsequent discussion is based on this memorandum. Bureau of the Budget to Administrative Assistant Secretary of the Interior, November 18, 1952, Miller, Memorandum, "ARC-BPR relationship in Alaska, November 20, 1952, Miller, memorandum to Files". Study of BPR-ARC operations on roads in Alaska, "November 21, 1952, R.G. 30, Alaska Road Commission, box 65418, Federal Records Center, Seattle, Washington.

5. General Accounting Office, "Report on Survey and Review of the Operations of the Alaska Road Commission for the Fiscal Year Ended June 30, 1952," pp. 1-3.

6. Ibid., pp. 3-4.

7. Ibid., p. 4.

8. Ibid., pp. 5-6

9. Ibid., p. 6.

10. Ibid., p. 7.

11. Ibid., pp. 7-8.

12. Ibid., pp. 8-9.

13. Ibid., p. 12.

CHAPTER NINETEEN

THE FLUSH YEARS

In early November 1948, Colonel Noyes announced that he would hold a public hearing in Fairbanks on December 15 for the purpose of receiving and discussing information from all interested individuals about the use that would be made of highways if the Commission kept additional routes open during the winter.[1] As already stated, Congress had approved a massive six-year road construction program for the Territory which was to get underway in 1949. Inspired by military considerations, Noyes knew that the main roadways would have to be kept open anyway. Which additional ones warranted year-around maintenance, he asked himself? The hearing was to provide data on which to base decisions.

Supplying Roadhouses Along The Richardson Highway

The mere mention that highways might be kept open during the winter months delighted northern residents. G. H. Gilson, the manager of the Gilson Mercantile Co. of Valdez was one of these. Although the Valdez Chamber of Commerce intended to send a representative to the Fairbanks meeting, Gilson was eager to tell Noyes about the future plans of his own organization should the Richardson Highway be kept open. In July of 1948, Gilson recounted, he had inaugurated a weekly wholesale delivery service out of Valdez designed to supply the major needs of the small roadhouses and trading posts all the way to Eureka on the Glenn Highway; to Paxson on the Richardson Highway; and beyond Tok to Nell Kelly's trading post. The response to the new service had been very good, and within a month his firm supplied 26 businesses with fresh frozen meats, fresh produce, groceries, beer, clothing, and hardware. About the first of September, Gilson's customers inquired whether or not the road was to be kept open during the winter, and when it became known that it would not, many put in a winter supply of goods to hold them over until "we should show up again in the Spring." Gilson argued that Valdez was the logical distribution

center for the part of central Alaska his business served. In fact, he had competed very successfully with Anchorage and Fairbanks in supplying the various roadhouses. Despite the fact that he got a late start, many of the roadhouse owners had already laid in a large stock of supplies, and he only operated three months, he still did a gross volume of business worth $48,000. Territorial Representative William A. Egan from Valdez likewise supported the winter maintenance of the Richardson Highway. Egan believed that as much freight would be hauled over the route in the winter as in the summer, and R. D. Kelsey, the manager of the Valdez Dock Company, promised to spend several thousand dollars to construct a warm storage facility to properly care for winter freight. Representative Egan, good politician that he was, added that winter maintenance not only benefited Valdez, but that the highway had to be kept open for reasons of national defense. Any difficulties could be solved during the first season, and if "any nation should attack us, we would already have established a vital permanent, speedy supply line to our troops at Interior bases. We should not then, after the trouble had started, have to wonder and theorize how best to establish an overland route from the coast to our northern outposts."[2]

Support For Winter Maintenance of Richardson Highway and Other Routes

Robert Atwood, the president of the Anchorage Chamber of Commerce and the editorial and publisher of the Anchorage Daily Times told Noyes that the Chamber endorsed winter maintenance of the Richardson Highway on a one year trial basis. This would certainly determine if the funds required warranted continued operation. In any event, such a move would certainly aid not only the Valdez economy but all of the cities of the interior. The Whitehorse Board of Trade firmly backed the idea of keeping open the various roads between the Yukon Territory and Alaska, but it was particularly interested in winter maintenance of the Haines road, a sentiment echoed by the Port Chilkoot Terminal Company, the Haines Chamber of Commerce, and the Veteran's Alaska Cooperative Company. Like the other supporters, the groups from Haines stressed that Alaska's

transportation network was the key to economic development and also a vital, "perhaps deciding factor in the defense of our Territory, the Dominion of Canada, and the United States." In fact, the more alternate routes were available, the easier it would be to supply and move an adequate fighting force. John Berdahl, the proprietor of Circle Hot Springs, was more modest in his request. He merely asked that the Commission make an effort to keep the Steese Highway open until October 15, two weeks longer than at present, and also have the road open for traffic by May 15 of each year. He did not claim national defense necessities, but merely pointed out that the highway served the historic Circle District where miners had produced gold since 1894. Although only a dozen placer mines operated in 1948, improved transportation undoubtedly would stimulate others to reopen mines, and best of all, the region, together with Circle Hot Springs, offered splendid recreational opportunities for residents and tourists alike.[3] Some eighteen organizations and individuals had furnished Noyes with information on the desirability of winter maintenance for various Alaskan roads. Twenty-three individuals, representing as many organizations attended the public hearings in Fairbanks.

Hearing on Winter Maintenance

Colonel Noyes opened the hearing by remarking that the meeting was not designed to formulate a policy, but rather to collect information on which a policy could be based. Noyes also asked whether or not those favoring the opening of the main passes would be willing to make a cash contribution to help the Commission. Of those testifying, only three declared themselves willing to contribute funds for winter maintenance, but all urged the Alaska Road Commission to keep the highways open on a year-round basis, and if that was not possible, then at least extend the open season in the fall and clear the roads earlier in the spring. Major Allan Nesbitt of the 925th Engineer Aviation Group at Fort Richardson urged that the Richardson Highway be kept open for military purposes, a statement Noyes particularly appreciated because Armed Services support was essential for obtaining the additional funds needed.[4]

First Appropriation For Six Year Program and Bureaucratization

The hearing made it clear that Alaskans desired winter maintenance of their roads, but it also showed that they were unwilling, and often unable, to contribute funds for this purpose. As already stated, Congress appropriated the first installment of the massive six-year road development program for the 1949 working season, consisting of $15,352,935.21. Thereafter, talk about local contributions subsided. The year 1949 also was a turning point for the Alaska Road Commission. With the infusion of millions of dollars, it quickly ceased to be the pioneer road constructing agency it had been for all of its existence since 1905 and rapidly developed into a modern highway construction and maintenance agency. As a consequence of this development, Commission procedures became more formal and bureaucratic. Many of the Commission employees, who had shaped the policies for so many years, were close to the end of their careers. Chief Engineer Taylor, replaced as head of the Alaska Road Commission in 1948 by Noyes, completed his twenty-eighth consecutive year of service with the Commission on June 1, 1949. G. H. Skinner, the Chief of the Administrative Division, topped Taylor's record with his thirty-one years of service. Noyes hired new faces. For example, Wayne C. Richie from Washington, D.C. became the chief of the Accounts Section, while George M. Tapley, a seventeen-year veteran of the Corps of Engineers, became the Chief of the Commission engineering Division; Eugene J. White joined the Engineering Division as the Chief of Surveys and Investigation Section. He formerly had worked for the General Tire and Rubber Company of Pasadena, California. Harold B. Schultz, previously bridge engineer with the Iowa State Highway Commission joined the Commission in charge of all bridge and structural design. F. E. Baxter, a former employee of the Nevada State Highway Department, joined the Commission as chief engineer of the Drafting Section, while his colleague Hamilton A. Higbi from Nevada became a draftsman for the Alaska Road Commission. Harry R. Bates transferred from the Bureau of Reclamation at Ephrata, Washington to the Commission as safety engineer, and Walter H. Daub, chief of the contracts Division, had come to Alaska directly after having served two

years in Korea as Chief Construction Engineer for the Department of Transportation, U.S. Army, while Guy E. Carter, Chief of the Contract Analysis Section came to Alaska from the Idaho Bureau of Highways. Scores of new employees joined the Alaska Road Commission, rapidly changing the character of the Commission.[5]

Sterling and Taylor, Pioneers

One of the pioneers of the Commission, Hawley W. Sterling died in Seattle in September 1948. For sixteen years he had served as Assistant Chief Engineer of the Commission. He had supervised the construction of the Steese Highway from Fairbanks northeastward to the Yukon River at Circle; he had laid out and generally supervised the construction of the Glenn Highway connecting Anchorage with the Richardson and Alaska Highways; and he had laid out and started construction of the 120 mile long highway extending down the Kenai Peninsula from the western boundary of the Chugach National Forest to Kenai, Kasilof, Ninilchik, and Homer. In December 1949, the Secretary of the Interior, with the approval of Alaska's governor, honored this pioneer road builder by designating the Kenai Peninsula road the Sterling Highway. Already open to limited traffic, it was slated for completion in the summer of 1950. And at the end of December 1949, Chief Engineer Taylor announced his retirement, to be effective February 1, 1950. He had spent thirty-six years in federal service, all but two in Alaska. Taylor had come north in 1916 and gone to work as a young engineer for the Alaska Engineering Commission which built the Alask Railroad. In 1921, he started working for the Alaska Road Commission as superintendent for the Fairbanks District. He was promoted to assistant Chief Engineer in 1923, and to Chief Engineer in 1932, assuming complete responsibility, under the governor of Alaska, for the operations of the Alaska Road Commission. An industrious and efficient man, he had utilized the small Congressional appropriations to the utmost. It must have pleased Taylor to be able to participate in the paving of the main roads which began a year or so before his retirement.[6]

Pioneer Nash

A year later, in October 1950, the Commission announced the impending retirement of Frank Nash, the district engineer for Fairbanks. Nash had started his career with the Commission on June 1, 1924, serving as a surveyor, foreman, and engineer until 1929 when he assumed the duties of acting superintendent for the Fairbanks District, a job later reclassified to district engineer. When Nash started his career with the Commission, Fairbanks still was a raw little pioneer community, and much of the travel in the interior was still by dogteam. He was an expert dogmusher, and had made many long and often arduous journeys by dogteam for the Commission exploring the Yukon and Tanana River basins before there were any roads.[7] In short, the sourdough employees were retiring to be replaced by professional engineers and road builders with University degrees.

Accomplishments

At the end of 1949, the Alaska Road Commission proudly announced that it had accomplished much road work in the Territory which included the hard surfacing of the main highways, major improvements in existing roads, and much new construction. Since 1905, the Commission had built, and now maintained, 2,981 miles of automobile roads. Of this mileage, 934 miles of through roads included the northern end of the Alaska Highway and its main extension to Anchorage, Valdez, and Haines. Connected to this system of through roads were 356 miles of feeder or secondary roads, and 564 miles of local or third class roads for a total of 1,854 miles of automobile highway connected through the Alaska Highway with Canada and the contiguous states. Additional mileage in Canada included 1,221 miles of the Alaska Highway and 108 miles of the Haines Highway which the Canadian Government maintained through the Northwest Highway System and the Canadian Army. Within Alaska, the Commission had built and maintained another 1,000 miles of secondary and third class roads serving isolated communities and mining centers, which were not connected to the main highway system. In 1949, the Commission had paved 149 miles of roads extending

eastward from Anchorage and Fairbanks with a light bituminous surface. It had another 150 miles for paving under contract, slated for completion in 1950. It planned to pave the entire through road system at a cost of approximately $45,000,000.[8]

Surfacing Work

To provide asphalt for the surfacing work, the Commission had installed two large asphalt storage plants at the ports of Valdez and Anchorage, permitting bulk delivery of asphalt in ocean tankers. Kept hot in storage tanks, contractor trucks carried the material to the work sites, often several hundred miles inland. The Commission also completed and reconstructed to all-weather gravel standard the road extending 85 miles northwestward from Fairbanks to Livengood. The Livengood road represented the furthest northward and westward extension of the main highway system, and would be the start of any extension of the road system toward Nome on the Seward Peninsula and the Arctic.[9]

New Projects

Among the new 1949 projects was the 71 miles long Turnagain Road which was to connect Seward and the Kenai Peninsula with Anchorage and the main highway system. The Alaska Road Commission, the Bureau of Public Roads, and the Alaska Railroad had undertaken the project under the terms of a cooperative agreement, with completion scheduled for the summer of 1951. The Commission hoped that after it was finished the road would open the scenic Kenai Peninsula to tourists from the contiguous states, assist in the settlement of good agriculture lands on the western side of the Peninsula, and provide an alternative access to the port of Seward.[10]

The Sterling Highway, stretching 120 miles down the westside of the Kenai Peninsula was already open for traffic and planned for completion by the summer of 1950. Part of the main Kenai Peninsula road system it was to link with Anchorage by the completion of the road along Turnagain Arm. Still another new road branched off northward from the Alaska Highway to

the gold mining district of the Fortymile River. About 70 miles of the road had been completed, almost reaching Jack Wade. There it was to be connected with a road largely in Canada extending to Dawson in the Yukon Territory. The Commission planned to complete this route to the Canadian border by the summer of 1950, and then continue it through Alaska another 40 miles to Eagle on the Yukon River.[11]

The Denali Highway

The Commission intended to begin construction in 1950 of a 150 mile long road from Paxson's Lake to connect with Mt. McKinley National Park. Requiring several years for completion, the road eventually was to connect to Cantwell on the Alaska Railroad as well as 95 miles of existing automobile road at McKinley Park Station. This would enable residents and visitors alike to drive across the National Park to within 30 miles of the famous mountain.[12]

Local Road Development

Already under way was a program of local farm and industrial road construction, which included approximately 30 miles of secondary and third class roads in the Fairbanks, Anchorage, Palmer, and Homer areas. Progressively extended year by year, these roads were to serve settler needs. The Commission stated that the road system radiating out from Nome on the Seward Peninsula and serving that city as well as Solomon, Council, and the Kougarok mining district, about 275 miles long, was the most isolated one. Connected, but not included in the mileage, was the Seward Peninsula Tramroad, some 80 miles of three foot gauge railroad which the Commission maintained as a common highway. Small, gasoline-powered motor vehicles and cars drawn by dogteams used the tramroad. In addition to the Nome system, the Commission had built isolated local roads in years past to serve the mining areas around Ruby, Takotna, Flat, Manley Hot Springs, Eureka, Wiseman, and many other locations.[13]

The 1949 Season

During the 1949 summer the Commission carried out routine maintenance chores which included regrading, gravelling where necessary, the placement of signs and aids to the motorists, and repairs of damage caused by spring breakup. Winter maintenance, however, was a serious problem, and the mountain passes between Valdez and Fairbanks had never been kept open during the winters. For the 1949-1950 winter the Commission had decided to experimentally keep open Thompson Pass through the coastal mountain range, enabling use of the port of Valdez throughout the cold season. The Commission already cleared snow from the Territorial segment of the Alaska Highway, the Glenn Highway, and the Tok Cutoff, connecting both Fairbanks and Anchorage to the Alaska Highway and thence to the contiguous states. The Commission also cleared snow from local roads around major cities, enabling school buses, mail carriers, and private automobiles to operate.[14]

Principal Elements of Six Year Plan

The Alaska Road Commission had included plans for the future improvement and extension of the Territorial road system in the famous six-year plan Congress had approved. Revised annually, it was to keep pace with Alaska's general development as well as local needs. This plan included the following principal elements:

1. Improvement to a hard-surfaced standard of the Through Roads of Alaska, including the Alaska Highway, Richardson Highway, Glenn Highway, Tok Cutoff, Haines Highway, Anchorage-Seward Road, and certain short, heavy traffic roads around Fairbanks and Anchorage.
2. Extension and improvement of Feeder roads to serve all principal inhabited localities in Alaska.
3. Provision of local farm and industrial roads adequate to serve all communities.
4. Completion of a road along Turnagain arm connecting Anchorage with the Kenai Peninsula and Seward.[15]

Oil On The North Slope

Slowly the dreams of the pioneers of the Alaska Road Commission neared realization. There were other dreams. For example, Commission personnel learned in the fall of 1950 that the Navy had discovered oil on Petroleum Reserve No. 4 on Alaska's Arctic Slope. Chief Engineer A. F. Ghiglione discussed the discovery with the Navy officer in charge of the project, and learned that the Navy did not plan highway access but only had considered the construction of a pipeline. The Navy agreed, however, that the route of any pipeline would definitely be made to approximate any highway location into the area. Ghiglione and the Navy officer agreed that the logical route for both a pipeline and highway would be via Anaktuvuk Pass in the Brooks Range, down the John River Valley through Bettles and then to the Yukon River near Stevens Village. This route, Ghiglione observed, would then tie in to the Commission-completed road survey between Livengood and the Yukon River.[16] It was a premature plan, and a haul road to the North slope was not built until the mid-1970s in conjunction with the development of the Prudhoe Bay oilfield.

A Busy Season Accomplishes Much

In the meantime, the Commission started conversion to winter operations in the late fall of 1950, preparing for snow removal and all the other duties cold weather brought. It had been a hectic summer. Congress had appropriated $23,622,376.10 for the work, the Alaska Fund had added another $216,620.09, and some $431,019.44 had come from other sources. The Commission had built 25 miles of new access roads in the Anchorage area which opened considerable acreage for settlement east of the city in the foothills of the Chugach Mountains. The massive paving program of the main arterial system had progressed smoothly, and the Sterling Highway had been completed. An editorial in the Anchorage Daily Times lauded the achievements of the Commission, stating that for employees it may have been just another year in the long history of the agency. It was, however, "a bigger year because of the millions of dollars invested

in roads," and the activities of the agency had been of the same high caliber that had "made the ARC one of the pillars of the Alaska development program". In fact, "through the fine leadership of its executives and the high caliber of its employees out on the job, it has made itself one of the most popular and respected agencies in the territory." Commission employees had often gone beyond the call of duty by towing cars of drivers who ventured where only tractors could move; taken stranded drivers to road camps and offered them food and warmth in emergencies; politely guided and assisted motorists in bad spots; employees at remote camps had been roused at odd hours of the night to assist those in distress, and "instead of dwelling on the foolish line of events that led up to the crisis, the men have consistently concentrated on rendering whatever 'first aid' is needed, even though it is to their own inconvenience." The editor concluded that this was a unique record, extending many years back into Alaska's history. The agency earned its reputation in the early days by making itself an integral part of Territorial life and taking a personal interest in the welfare of travelers. Better yet, even with the great growth the agency experienced during the last few years, it has "perpetuated the customs and traditions that made it great in the eyes of Alaskans".[17]

Bureau of Public Roads Criticized

The praise pleased the administrators and employees of the Alaska Road Commission. Although many of the veterans of the Commission had retired by now, the professional managers were proud of this historical record and continuity of their agency. By 1951, the Commission also had far outdistanced the Bureau of Public Roads which, since 1922, had maintained its own organization in the Territory and performed all road construction in the Tongass and Chugach National Forests. In the summer of 1951, Governor Ernest Gruening told the Secretary of the Interior that the Bureau of Public Roads applied methods and standards of road construction in its area of exclusive jurisdiction which, although long applied and accepted in the contiguous states were wholly inappropriate and

unacceptable in Alaska. The Tongass and Chugach National forest embraced southeastern Alaska and the Kenai Peninsula and in the area surrounding Prince William Sound respectively, regions of relatively dense population and economic importance. They contained the three largest of Alaska's five principal towns, namely Juneau, Ketchikan, and Sitka as well as five of the seven towns next in importance, namely Petersburg, Wrangell, Cordova, Valdez, and Seward. For years new road construction in these areas had been practically negligible, evoking much discontent among residents. From each of thes towns, except Valdez, it was possible to drive only a short distance. Yet usage of the limited road system was heavy. Southeastern Alaska, for example, an area of 34,391 square miles and larger in size than the combined areas of New Hampshire, Vermont, Massachusetts, Connecticut, and Rhode Island, only had 124.8 miles of highway.[18]

Gruening Critical of Bureau

Gruening charged that the Bureau had never shown much energy nor enterprise in securing federal appropriations for road construction in Alaska. In fact, for a decade, and until 1950, it had passively assented to drastic reductions in the appropriations it was entitled to under a formula originally devised by Congress. The Bureau also refused to heed the wishes of the population which wanted the road mileage extended. Instead, it had persisted in using its funds in improving, widening, and straightening the small mileage, "a largely" unnecessary and wasteful performance. Indeed, the common sentiment was that "never have so many dollars built so few miles." Additionally, the Bureau of Public Roads was extravagant in its road building and reconstruction activities. There was no need to eliminate curves on short stretches of scenic roads, yet "they move hillsides and blast vast masses of rock to straighten out a curve which not only needs no straightening out but is actually preferable on a short stretch of road which is obviously not part of a trunk highway.... "Finally, a comparison between Commission and Bureau projects showed that the former built roads at a cost of about

$45,000 per mile, while the Bureau, for merely reconstructing and surfacing 6.9 miles of existing Tongass Highway had budgeted $1,890,000, or some $270,000 per mile. Congress had appropriated $7,000,000 for the Bureau of Public Roads and the Forest Service. Gruening had discovered that half of that sum was to produce only 2.7 miles of new construction. That clearly was intolerable. Gruening therefore requested that Secretary of the Interior Oscar L. Chapman investigate the situation, and follow it by transferring the functions of the Bureau of Public Roads to the Alaska Road Commission. Gruening asserted that there was no valid reason that the Territory should have three road constructing agencies, namely the Alaska Road Commission, the Bureau of Public Roads, and the Alaska Territorial Board of Road Commissioners. The latter contracted with the Alaska Road Commission since it did not have an independent construction division. Some individuals within the Office of Territories had suggested that Alaska should wait until it attained statehood before initiating any changes. Statehood, however, was not likely to come for a number of years.

Gruening urged that "we cannot afford to wait. The need for stopping waste is immediate." He suggested that the transfer be made by executive order.[19] The desired change did not occur, and when the consolidation finally occurred in 1956, the Bureau of Public Roads abosrbed the Alaska Road Commission.

De Armond Defends Bureau

Robert N. De Armond, a conservative columnist, disputed Gruening's criticism of the Bureau of Public Roads. He pointed out that the Commission had received its large appropriations because it was engaged in national defense work, and it had been "much easier for a number of years to secure an appropriation carrying a defense tag than almost any other kind of appropriation". The Bureau of Public Roads had not enjoyed this advantage. In fact, most of its work occurred in southeastern Alaska which was of little military interest. The Bureau, therefore, had to justify its road program for the development of natural resources, particularly

pulp mill sites which were close to town. Road improvements contemplated were between towns and potential pulp mill sites. The Bureau had learned from long experience that rebuilding roads time and again was very expensive. Why not build for the faster and heavier traffic in the first place? In De Armond's opinion, the Bureau seemed to have a well-planned program of road development for southeastern Alaska, and it was "carrying out that program with the funds allotted to it, rather than spreading the funds around by the rule of political expediency".[20] What De Armond had missed entirely was that the Bureau had expended millions of dollars over the years and had built preciously few miles of roads.

Commission Accomplishments

While the struggle over preeminence between the Alaska Road Commission and the Bureau of Public Roads continued, the former accomplished much in the 1951 season. By the late fall of 1951, the Glenn Highway between Anchorage and the Richardson Highway had been completely hard surfaced except for a 16 mile section in the vicinity of Sheep Mountain. The Commission also reconstructed the remaining portion of the Glenn Highway between Big Timber and Tok Junction, formerly known as the Tok Cutoff, and eliminated most of the sharp curves and also subtantially widened the road bed. Included in the work was a relocation of the road around the east side of Mentasta Lake which shortened it by about nine miles. Between Valdez and Big Delta on the Richardson Highway the Commission supervised four contracts for grading. Three of these included hard surfacing. McLaughlin Incorporated did the work between Valdez and mile 36, and about completed the grading between Valdez and Thompson Pass, widened and paved the tunnel in Keystone Canyon, and eliminated many steep grades and sharp curves. C. F. Lytle and Green Construction Company worked between miles 82 and 130. They completed all grading and hard surfaced between miles 82 to 120. The A. J. Hooper Corporation had contracted the section from Big Timber to Paxson for grading only. It completed about 15 miles south of Paxson, and prepared the remainder for rebuilding in 1952.[21]

Contractors

C. F. Lytle and Green Construction Company held the fourth contract between Rapids and Big Delta, which included both grading and paving. The companies constructed a line change between Rapids and Donnelly designed to eliminate flood damage by the Delta River. It hoped to complete all grading and hard surfacing in the 1952 season.[22]

Anchorage-Seward Highway Opened

In an impressive ceremony on October 19, 1951 at Girdwood the Commission formally dedicated and opened the new 128 mile Anchorage-Seward Highway, another link in the main arterial system. Portions of the old Seward-Hope road, between Seward and mile 58, were still under reconstruction preparatory to paving, while the Commission had placed the section from Girdwood to Anchorage under contract for hard surfacing. The Commission intended to award additional paving contracts for the 1952 season for the Anchorage-Seward Highway. These were to be administered by the Bureau of Public Roads under a cooperative agreement with the Alaska Road Commission.[23]

Paving Alaska Highway

Under a similar agreement, the Bureau of Public Roads administered a regrading and paving contract of the Alaska Highway eastward toward Johnson River. The Rogers Construction Company and Babler Brothers were the contractors. They had a line change near Halfway House under construction which, when finished, eliminated much winding road with dangerous blind curves. It was to be finished in the summer of 1952.[24]

The Taylor Highway

The Taylor Highway, named after retired Chief Engineer Ike P. Taylor, extended northward to Eagle for the Alaska Highway, and included a branch

connecting at Boundary with the road to Dawson. The road had almost been completed during the 1951 season. Two more bridges and bridge approaches had to be built. When finished, travel to Eagle would be possible in the summer of 1952. On August 16, 1951, the Commission held a ceremony at the Alaska-Canada boundary which officially opened the branch road to Boundary and Dawson.[25]

Other Commission Projects

The Commission continued work on the Richardson Highway - McKinley Park Road concentrating efforts at the west end. It pushed a pioneer road from Cantwell to McKinley Park Station. Only the construction of bridges across the Nenana River remained before travel between these points was possible. In addition to maintaining almost 3,000 miles of road, the Commission also completed paving of the Alaska portion of the Haines Highway, and widened and improved the Sterling Highway from its junction with the Anchorage-Seward Highway to Homer.[26]

Local Roads

The Commission also extended, as much as funds would permit, the farm and industrial road system, building approximately 20 new miles, and reconstructed and surfaced 30 miles of low standard roads. At the request of various governmental bodies, the Commission built an additional 20 miles of road on the basis of cooperative agreements. In order to handle the enlarged highway program, the Commission also had to erect several new buildings, including a new warehouse at Fairbanks, a warm storage building and a dormitory at Glennallen, and setup twenty 30 foot house trailers at Valdez to provide housing for engineerng personnel employed on the many contracts in that area. And finally, the Commission once again prepared to keep the Richardson Highway over Thompson Pass open during the winter. This would make for year-around maintenance for the third consecutive winter. The Army had made funds available for this undertaking, and as a result Valdez had become a valuable all-season seaport

through which large volumes of military and civilian freight moved to Anchorage and Fairbanks.[27] By the end of 1951, the beneficial effects of the Cold War on Alaska were apparent everywhere, particularly in the paving program which enabled northern residents for the first time to drive long stretches without choking on dust.

Footnotes

1. "Notice of Public Hearing To Be Held At Fairbanks, Alaska on 15 December 1948 To Discuss Winter Maintenance of Highways In Alaska, "R. G. 30, Alaska Road Commission, box 65415, Federal Records Center, Seattle, Washington.

2. Gilson to Noyes, November 27, 1948, Kelsey to Noyes, October 6, 1948, Egan to Noyes, December 8, 1948, R. G. 30, Alaska Road Commission, box 65415, Federal Records Center, Seattle, Washington.

3. Atwood to Noyes, December 13, 1948, Whitehorse Board of Trade to Noyes, December 14, 1948, Port Chilkoot Terminal Company to Noyes, December 1948, Berdahl to Noyes, December 1948, R. G. 30, Alaska Road Commission, box 65415, Federal Records Center, Seattle, Washington.

4. Summary of Public Hearing, Fairbanks, Alaska, December 15, 1948, R. G. 30, Alaska Road Commission, box 65415, Federal Records Center, Seattle, Washington.

5. Alaska Road Commission Press Release, April 3, 1949, R. G. 30, Alaska Road Center, Seattle, Washington.

6. Alaska Road Commission Press Releases, December 11, 28, 1949, R. G. 30, Alaska Road Commission, box 65414, Federal Records Center, Seattle, Washington.

7. Alaska Road Commission Press Release, October 3, 1950, R. G. 30, Alaska Road Commission, box 65414, Federal Records Center, Seattle, Washington.

8. Alaska Road Commission Press Release, December 21, 1949, R. G. 30, Alaska Road Commission, box 65414, Federal Records Center, Seattle Washington.

9. Ibid.

10. Ibid.

11. Ibid.

12. Ibid.

13. Ibid.

14. Ibid.

15. Alaska Road Commission, "Six-Year Plan," January 17, 1950, R. G. 30, Alaska Road Commission, box 65414, Federal Records Center, Seattle, Washington. The following is a list of existing roads as of September 7, 1949:

THROUGH ROADS

	Miles	
Richardson Highway	365	
Glenn Highway	189	
Tok Cut-Off	136	
Alaska Highway	203	
Haines Highway	41	934

FEEDER ROADS
Connected with the Through Road System

Steese Highway	162	
Elliott Highway	71	
Edgerton Cut-Off	39	
Anchorage - Potter	11	
Alaska Highway - Forty Mile - Eagle	57	
Fairbanks - College	5	
Anchorage - Lake Spenard	3	
Circle Hot Springs	8	362

FEEDER ROADS
Not connected with the Through Road System

Ruby - Poorman	56	
Nome - Solomon	33	
Kenai Lake - Homer	81	
Mt. McKinley Park Road	96	266

LOCAL ROADS
Connected with the Through Road System

Nabesna Branch	44	
Branch Roads, Richardson Highway	33	
Branch Roads, Alaska Highway	7	
Branch Roads, Steese Highway	128	
Branch Roads Elliott Highway	16	
Anchorage Local Roads	67	
Fairbanks Local Roads	48	
Palmer Local Roads	197	
Branch Roads, Haines Highway	24	564

LOCAL ROADS
Not connected with the Through Road System

Nome local roads	66
Seward Peninsula Mine Roads	177

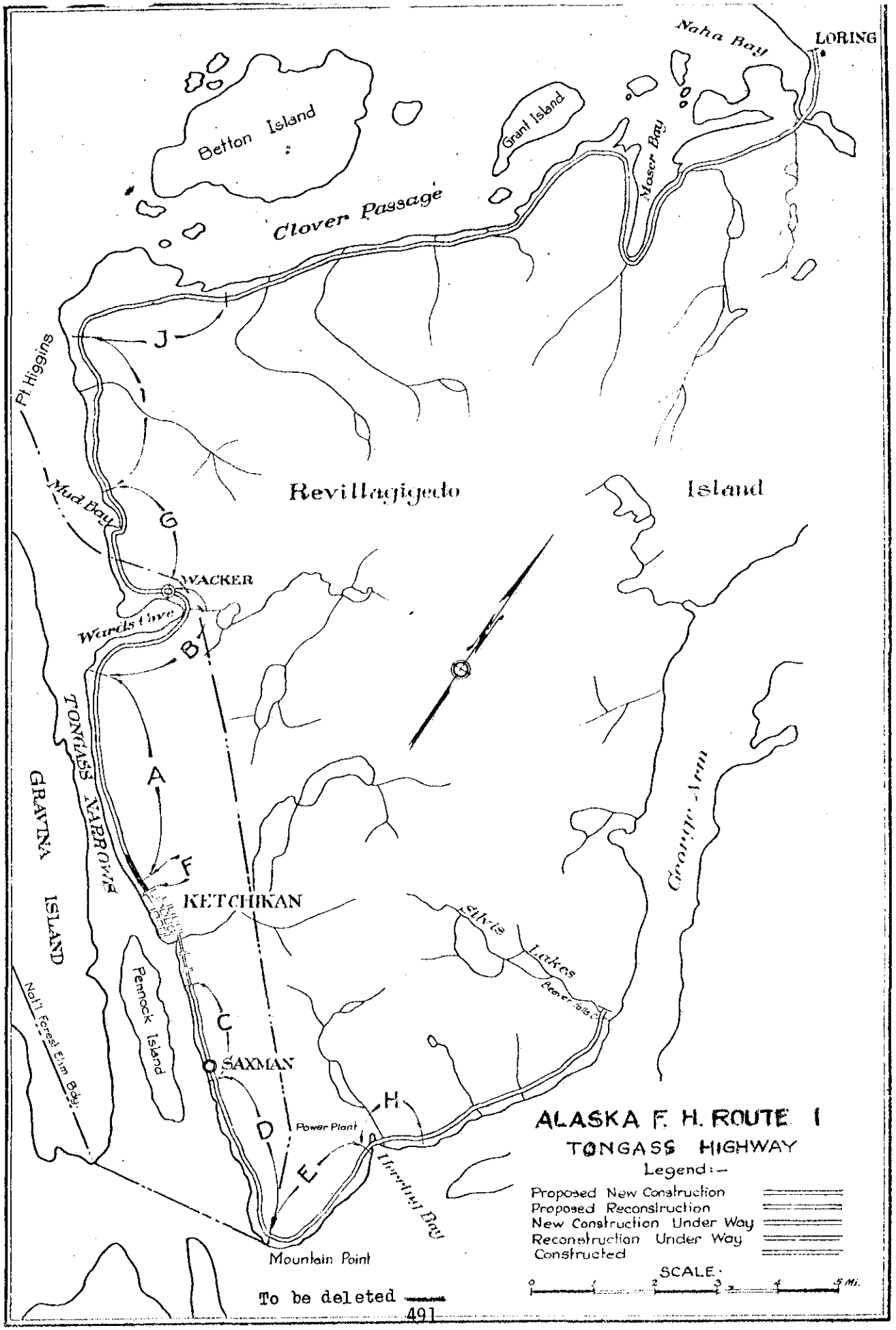
Seward Peninsula Tramroad	80	323
Takotna Roads	71	
Flat Roads	36	
Manley Hot Springs Roads	48	
Branch Roads Ruby-Poorman	10	
Wiseman System	13	
Kenai Peninsula Roads	49	
Roads connecting with the Alaska Railroad	94	
Eagle Roads	32	
Jack Wade - Boundary	18	
McCarthy Roads	31	
Iliamna Roads	28	
Dillingham Road	10	
Annette Island Road	15	
Isolated Roads connecting with River or Ocean transportation	83	861
TOTAL		2,981

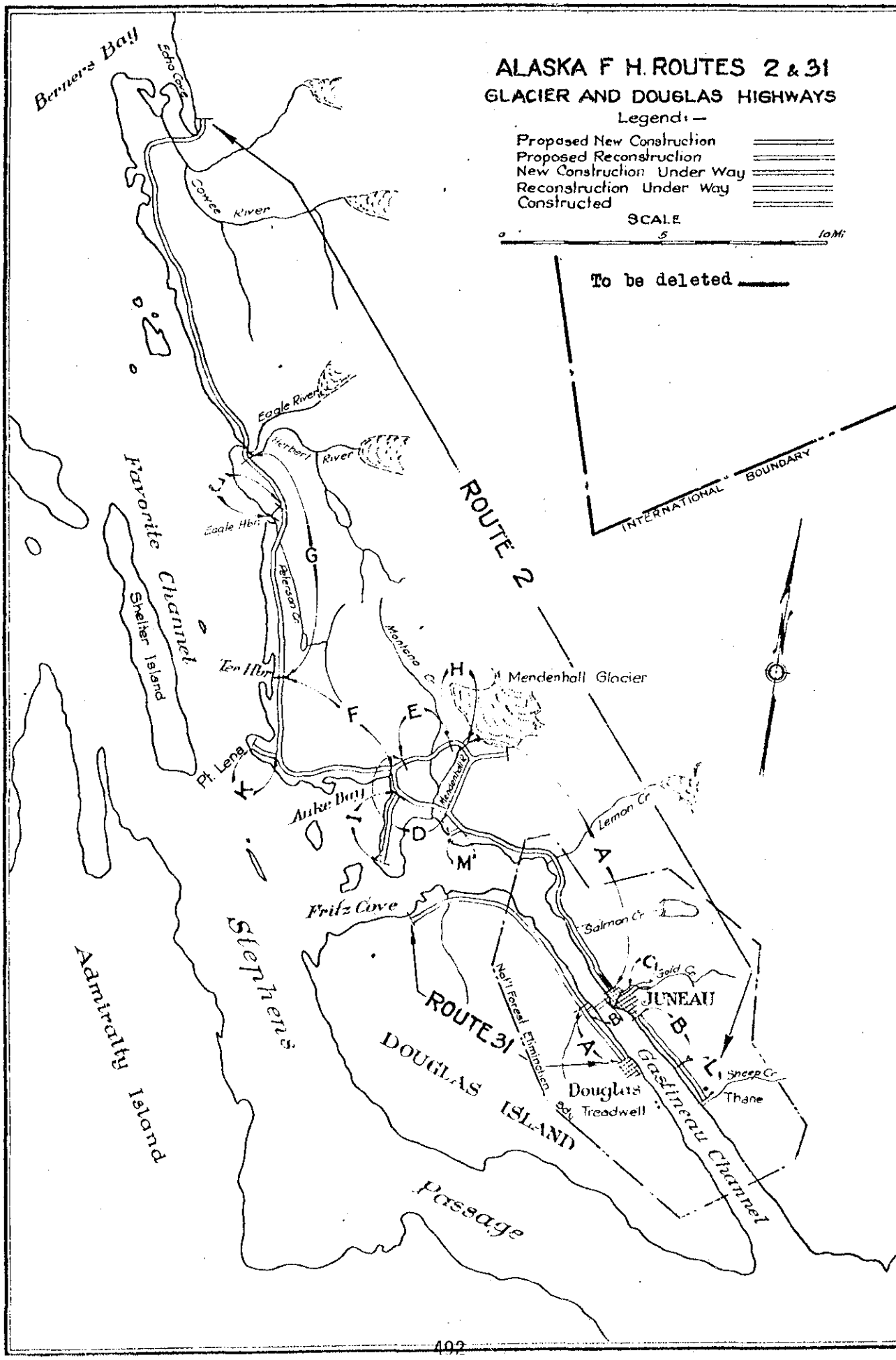
R. G. 126, file 9-1-55, Alaska Road Commission General, part 7, N.A.

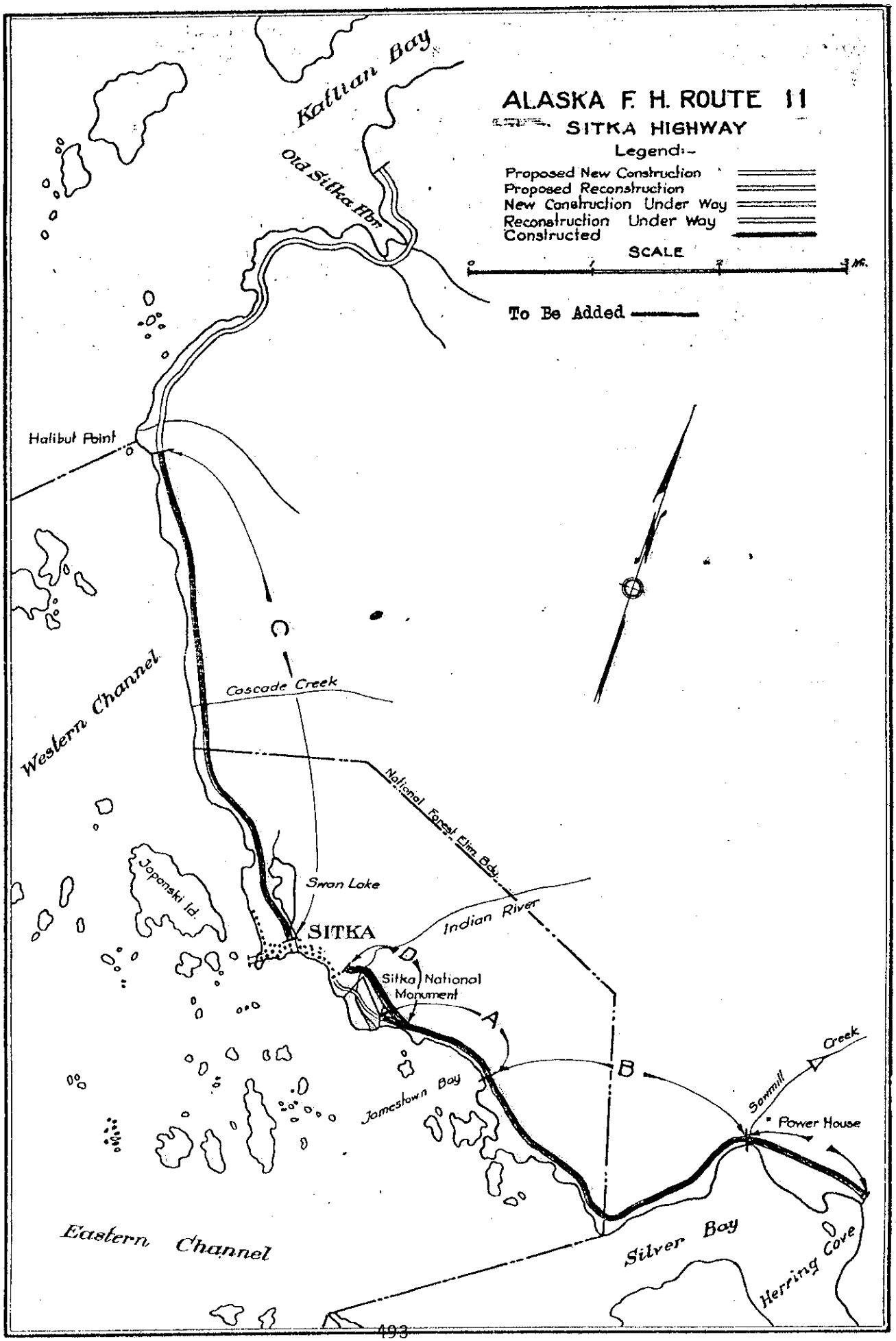
16. Flakne to Noyes, September 27, 1950, Ghiglione to Flakne, October 4, 1950, R. G. 30, Alaska Road Commission, box 65412, Federal Records Center, Seattle, Washington.

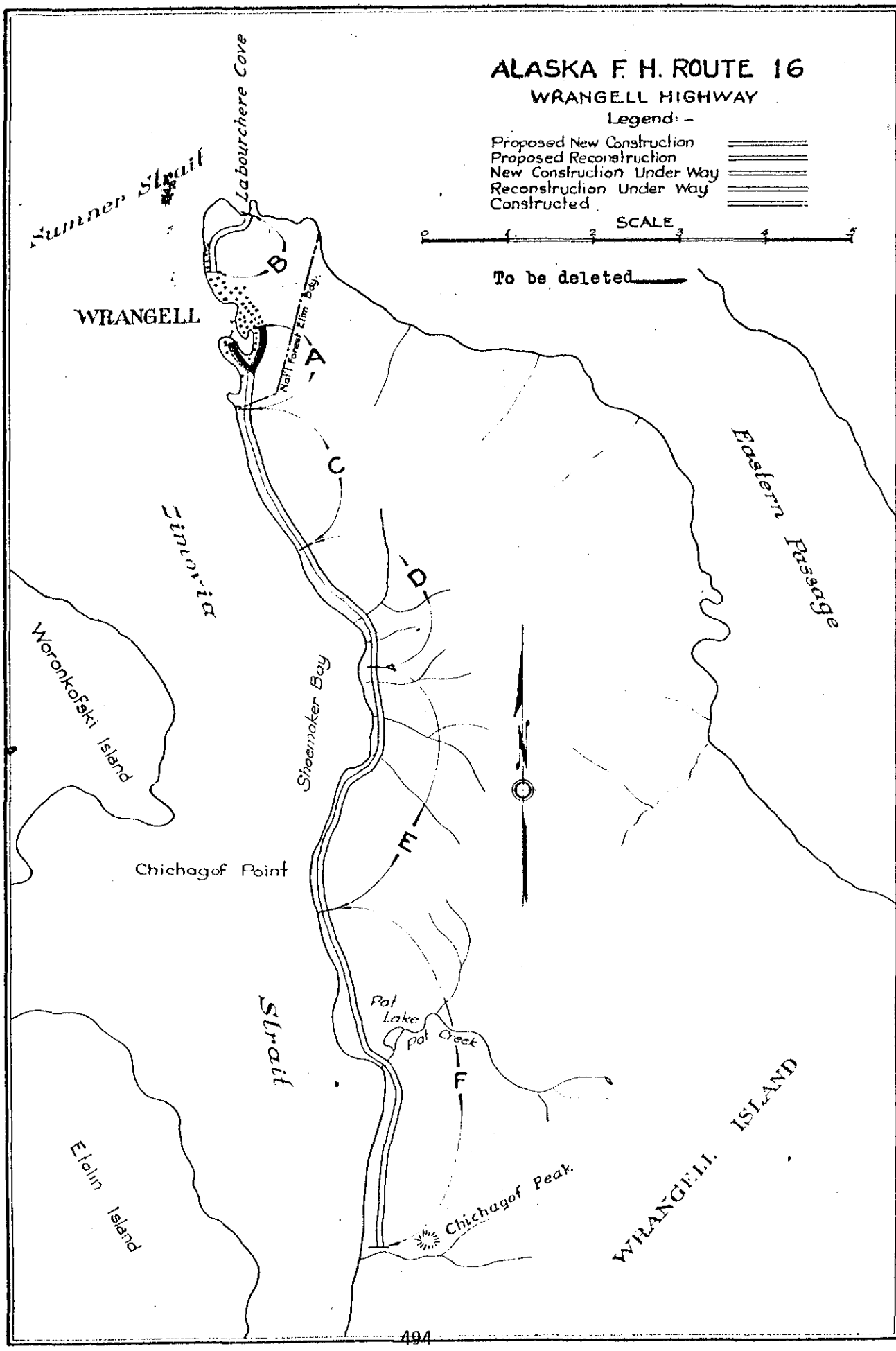
17. Alaska Road Commission, Annual Report, 1955, p. 47; Anchorage Daily Times, November 8, 1950.

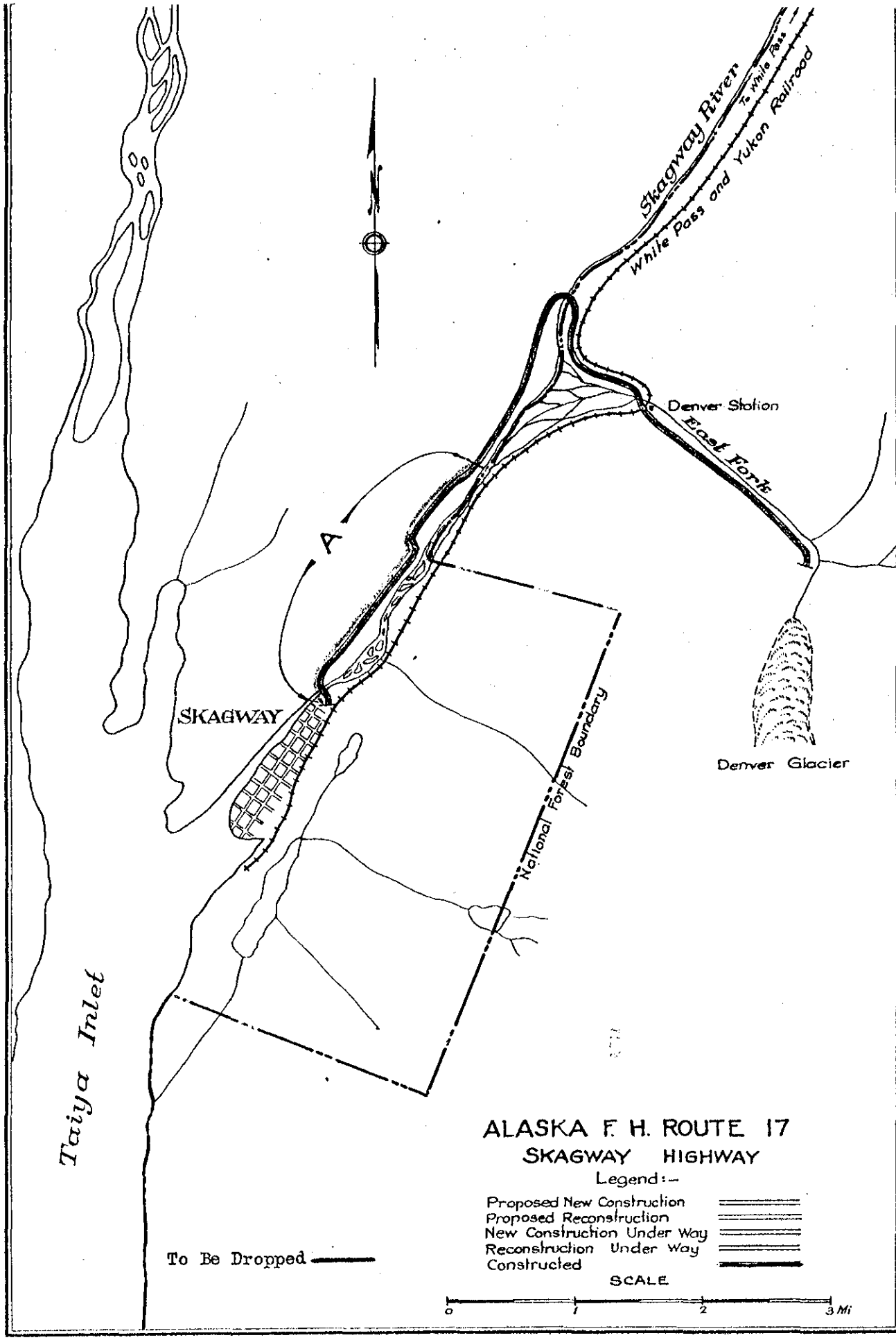
18. Noyes to Davis, April 10, 1951, Gruening to Chapman, June 13, 1951, R. G. 30, Alaska Road Commission, box 65415, Federal Records Center, Seattle, Washington. The enclosed maps show some of the Forest Highways in southeastern Alaska. R. G. 30, Alaska Road Commission, box 65509, Federal Records Center, Seattle, Washington.

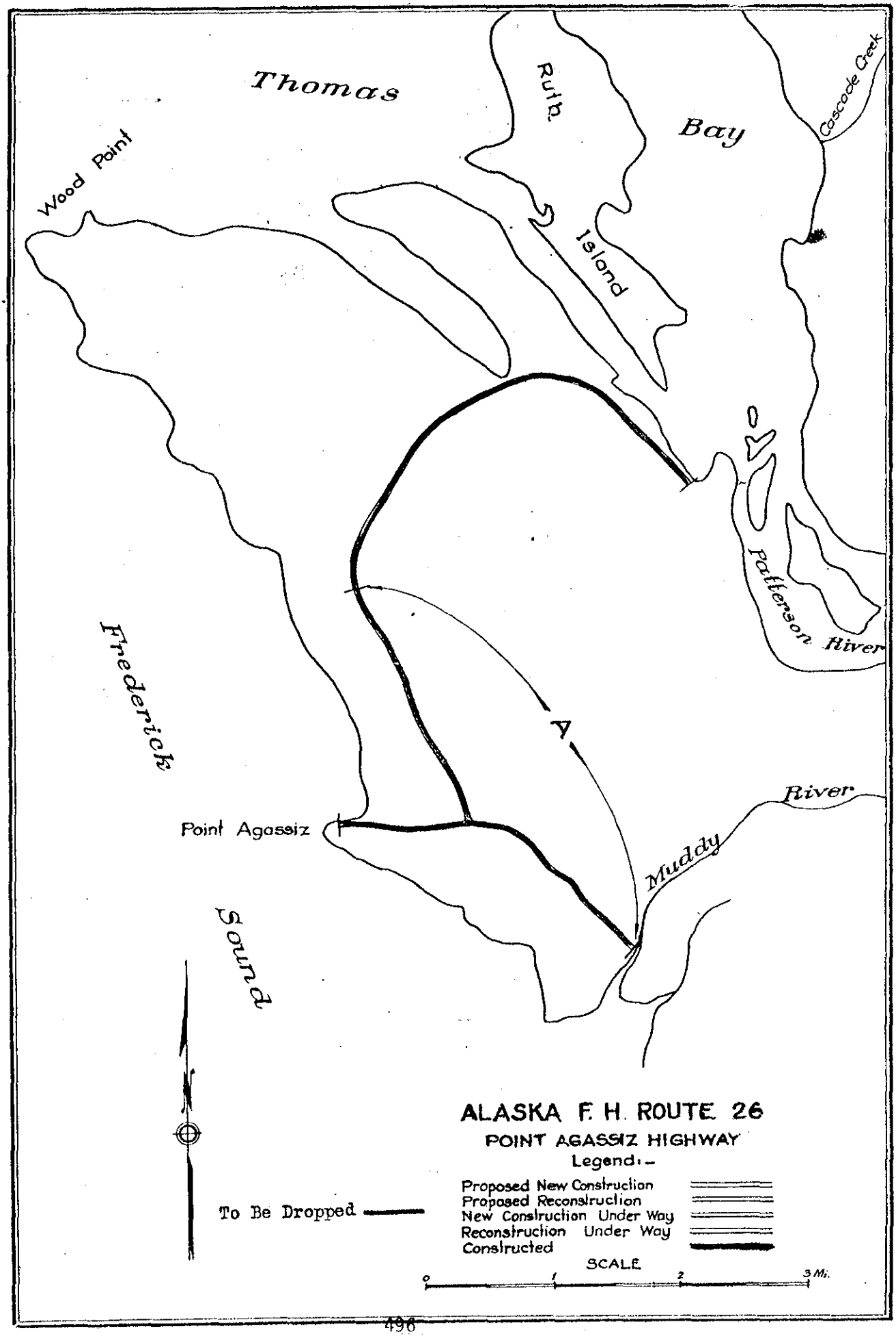

Naha Bay
LORING
Betton Island
Grant Island
Moser Bay
Clover Passage
Pt Higgins
J
I
Mud Bay
G
Revillagigedo
Island
WACKER
Wards Cove
B
TONGASS NARROWS
A
F
GRAVINA ISLAND
KETCHIKAN
George Arm
Silvis
Lakes
Beaver Falls
Pennock Island
C
SAXMAN
Nat'l Forest Elim Bdg.
H
D
Power Plant
E
Thorne Bay
Mountain Point
To be deleted
ALASKA F. H. ROUTE 1
TONGASS HIGHWAY
Legend:—
Proposed New Construction
Proposed Reconstruction
New Construction Under Way
Reconstruction Under Way
Constructed
SCALE:
0 1 2 3 4 5 Mi.


ALASKA F H. ROUTES 2 & 31
GLACIER AND DOUGLAS HIGHWAYS
Legend:—
Proposed New Construction
Proposed Reconstruction
New Construction Under Way
Reconstruction Under Way
Constructed
SCALE
0 5 10 Mi
To be deleted
INTERNATIONAL BOUNDARY
ROUTE 2
ROUTE 31
Berners Bay
Echo Cove
Comee River
Eagle River
Herbert River
Eagle Harbor
Peterson Cr
Favorite Channel
Shelter Island
Montana Cr
Mendenhall Glacier
Mendenhall R
Pt. Lena
Auke Bay
Lemon Cr
Fritz Cove
Salmon Cr
Gold Cr
JUNEAU
Nat'l Forest Eliminated
Douglas
Treadwell
Sheep Cr
Thane
Gastineau Channel
DOUGLAS ISLAND
Stephens
Passage
Admiralty Island
A
B
C
D
E
F
G
H
K
L
M


ALASKA F. H. ROUTE 11
SITKA HIGHWAY
Legend:-
Proposed New Construction
Proposed Reconstruction
New Construction Under Way
Reconstruction Under Way
Constructed
SCALE
To Be Added
Kaltian Bay
Old Sitka Hbr.
Halibut Point
Western Channel
Cascade Creek
National Forest Elm Bdy.
Japonski Id.
Swan Lake
SITKA
Indian River
Sitka National Monument
A
B
C
D
Jamestown Bay
Sawmill Creek
Power House
Eastern Channel
Silver Bay
Herring Cove


ALASKA F. H. ROUTE 16
WRANGELL HIGHWAY
Legend: -
Proposed New Construction
Proposed Reconstruction
New Construction Under Way
Reconstruction Under Way
Constructed
SCALE
0 1 2 3 4 5
To be deleted
Sumner Strait
Labouchere Cove
WRANGELL
Nall Forest Elim Bay
A
B
C
D
E
F
Zimovia
Eastern Passage
Woronkofski Island
Shoemaker Bay
Chichagof Point
Pat Lake
Pat Creek
Strait
Etolin Island
Chichagof Peak
WRANGELL ISLAND


Skagway River
To White Pass
White Pass and Yukon Railroad
Denver Station
East Fork
A
SKAGWAY
National Forest Boundary
Denver Glacier
Taiya Inlet
ALASKA F. H. ROUTE 17
SKAGWAY HIGHWAY
Legend:-
Proposed New Construction
Proposed Reconstruction
New Construction Under Way
Reconstruction Under Way
Constructed
To Be Dropped
SCALE
0
1
2
3 Mi


Thomas
Ruth
Bay
Cascade Creek
Wood Point
Island
Patterson River
Frederick
Point Agassiz
Muddy River
Sound
ALASKA F. H. ROUTE 26
POINT AGASSIZ HIGHWAY
Legend:-
Proposed New Construction
Proposed Reconstruction
New Construction Under Way
Reconstruction Under Way
Constructed
To Be Dropped
SCALE
0
1
2
3 Mi.

19. Ibid.

20. Fairbanks Daily News-Miner, September 22, 1951.

21. Alaska Road Commission, Press Release, December 19, 1951, R. G. 30, Alaska Road Commission, box 65414, Federal Records Center, Seattle, Washington.

22. Ibid.

23. Ibid.

24. Ibid.

25. Ibid.

CHAPTER TWENTY

THE LAST YEARS OF THE ALASKA ROAD COMMISSION

As the foregoing chapters illustrated, the Departments of the Interior and Commerce conducted a complicated bureaucratic power struggle to determine which agency, the Alaska Road Commission or the Bureau of Public Roads, would assume total responsibility of road construction and maintenance in the Territory.

Bureaucratic Deadlock

Early in 1953 the Director of the Bureau of the Budget reported to President Truman on the bureaucratic deadlock. Since neither Interior nor Commerce had compromised, he recommended that both agencies in Alaska be continued. Should Alaska be admitted to statehood, the Director stated that "it would be desirable to have the Alaska Road Commission available for use by the new State as a highway department, and it would also be essential to have Bureau of Public Roads' assistance in Alaska...." Therefore, it would be unwise to "liquidate the Alaska Road Commission or to displace the Bureau of Public Roads for Alaska", although it was somewhat wasteful to have two federal agencies performing work which could well be accomplished by one. The president heeded the Budget Bureau's advice and informed the Secretaries of the Interior and Commerce that no major organizational changes were to be made. Truman hoped, however, that the two agencies, together with Territorial officials, prepare a program for future road construction in Alaska. Such a program Truman emphasized, should meet both civilian and military needs for the next five years.[1]

Territorial Contributions Found Wanting

Unquestionably, the two agencies were to work out their jurisdictional problems. Perhaps of greater concern was the Territorial contri-

bution to the road construction and maintenance program. A. F. Ghiglione, the Commissioner of Roads for Alaska, perhaps best summarized the concerns of the Commission. He stated that the Alaska Road Commission had successfully coped with the Territory's rugged terrain and difficult climate since 1905. It had achieved much, but even more remained to be done. Southeastern Alaska needed a comprehensive ferry system, and although the Territory operated one leg in the summer months between Juneau, Haines, and Skagway, it needed to be extended. The Territory had to assume responsibilities for the construction of suburban and subdivision roads. Communities did not build beyond their corporate limits, therefore the commission had recognized the need for such roads and used farm road development funds to open areas around the cities. Further use of federal funds for such purposes was no longer possible, and the Territory had to assume responsibility for this vital link in the highway system.[2]

Territorial Legislature Should Impose Taxes

Ghiglione observed that large expenditures were required to assure Alaska's continued development. First of all, however, Territorial citizens and lawmakers had to recognize that they actively must participate in this process. This they did not do. In fact, Territorial citizens payed less than one-third the taxes for highway development purposes that every other American highway user paid. The average fuel tax in all the forty-eight states came to 5 cents per gallon. Alaskans continued to pay 2 cents per gallon. Additionally, the average vehicle registration fee for trucks and trailers in the contiguous states was twenty times higher than that charged in Alaska. Congressional appropriations committees recognized that Alaskans failed to carry their fair share of highway expenses, and Congress cut recent Alaska Road Commission budgets because of this factor. For example, the 1952 federal appropriation of $18,149,624.11 had been drastically cut from a 1951 appropriation of $29,389,476.14. In fact, members of the Congressional appropriation committee had threatened that unless Alaskans corrected this situation, future federal funding would be cut seriously. Ghiglione continued that

Alaska was far more dependent upon federal monies for highway development than any of the contiguous states. Many Alaskans had clamored for years to be included in the Federal-Aid Highway Act believing that this would bring more road construction funds. What most did not understand, he contended, was that such inclusion required substantial Territorial matching funds. Even if Alaska's highway user tax structure were revised to equal the average within the states, the total Federal-Aid Highway Act funds available on a matching basis would still be considerably less than what Congress annually appropriated to the Alaska Road Commission. Still, it was mandatory that the Territorial legislature make every effort to substantially raise Alaska's monetary contributions to highway construction and maintenance, Ghiglione concluded.[3]

Territorial Officials Recognize Problems

Territorial officials recognized the problem. Frank A. Metcalf, the Territorial Highway Engineer, echoed Ghiglione's concerns in his 1949-1950 and 1951-1952 biennial reports. In the former he pointed out that Alaskans paid less gas tax than any of the states except Missouri. An increase was urgently needed to help pay for the rapidly increasing demand for more roads and harbor facilities. In the latter report, he pointed out that between 1920 to 1940, the Territory contributed 11.7 percent of the total funds the Alaska Road Commission expended for road work. Between 1950 and 1952, the Territory's contribution of $816,000 amounted to only 1.2 percent of the total. This limited Territorial contribution, he pointed out, made justifying federal expenditures for roads in Alaska very difficult. Echoing Ghiglione, Metcalf stated that in "recent years Congressional Committees have assumed the attitude that unless the Territory participates in its road program to an extent more comparable to that of the various states, further Federal appropriations will be greatly curtailed".[4]

Gradual Reforms

In his biennial report for 1953-1954, Irving Mck. Reed, the Territorial Highway Engineer and Superintendent of Public Works, also dealt with the problem of Territorial contributions. He stated that the legislature had gradually reorganized his office in intent, purpose, and composition in preparation for a more active participation through the construction and maintenance of roads, as well as water and harbor facilites. Mck. Reed noted that federal appropriations to the Alaska Road Commission exceeded by twenty times the Territory's expenditures for roads. He disagreed with Ghiglione in interpreting the Congressional mood. Mck. Reed argued that Congress rally did not complain of the proportion of Federal-Territorial road funds, but rather criticized Alaskans for "not protecting the roads which the Government is building." He therefore proposed that the Territory discourage the transportation of overloads on Alaskan highways, operate truck weighing stations, increase the motor fuel tax, and add the receipts from the sale of license plates to the road fund.[5]

Alaska's Possible Inclusion In Federal-Aid Highway Act

Reed also dealt with Alaska's possible inclusion in the Federal-Aid Highway Act which provided for a long-range program of highway development with a very favorable ratio of federal-territorial matching funds. The apportionment formula was a complicated one, based on population, star route or rural mail delivery mileage, and the area of the territory included in the public domain. In 1953, federal officials told Reed that if Alaska was included in the program, the matching ratio would be about 86 percent federal and 14 percent Territorial monies. This arrangement looked tremendously advantageous for Alaska, because besides the large amount of federal funds coming to Alaska, the Territory could choose its road system and type of roads to be built, and the speed of completion and continuation of its road program would not be as dependent upon Congressional whims. There were disadvantages, however, and one of the

most important was that the Federal-Aid Highway Act required each state or territory to maintain, at its own expense, a highway department having adequate powers and being suitably equipped and organized to handle its responsibilities. The federal government did not pay for the cost of maintaining the central office nor the engineering organization of such a highway department, and no federal funds could be used for the maintenance of projects constructed under the provisions of the act. If Alaska, therefore, was to come under the provisions of the Federal-Aid Highway Act, Congress would probably abolish the Alaska Road Commission which handled all construction and maintenance of roads and highways with mostly federal monies. Under the Federal-Aid Highway Act, road construction was done only in cooperation with the Bureau of Public Roads. Furthermore, Congress undoubtedly would transfer all roads and highways built by the Commission and the Bureau to Alaska. In 1953, the cost of maintaining the Territorial road system cost about $4,150,000 annually and Alaska only paid a minute proportion of that cost. These expenses were bound to increase with the expansion of the highway system. In case of a transfer, Alaska not only would have to assume total maintenance costs, but also face a tremendous initial investment in road equipment and machinery. Therefore, in case Alaska was included in the act, it would need to come up with about $5,000,000 a year for supporting a highway department, equipment, and road maintenance. Only then could the Territory set aside funds to match federal monies. Reed concluded that "the Territory is unable to take advantage of the Federal-Aid Act."

Maintain Status Quo

Obviously, Territorial officials were as interested in maintaining the status quo as had been representatives of the Alaska Road Commission and the Bureau of Public Roads, if for different reasons. Although Territorial financial resources were slim, the Alaska legislature had always been reluctant to raise taxes for even the most basic governmental functions. In a fashion, the federal government had supported this reluctance to tax because it provided for most of the Territory's basic

governmental functions, which, besides highways and roads, a judicial system, and the management of fish and wildlife resources, to mention a few.[6]

Alaska Road Commission Becomes More Complex

In the meantime, the bureaucratic organization of the Alaska Road Commission continued to increase in complexity. By 1953, the Commission held an annual conference of district engineers, designed to discuss district as well as agency problems. In 1953, the Commission included assistant district engineers in view of the heavy workload in all districts, a result of the extensive improvement and paving program as well as considerable pioneer construction. The 1953 agenda included subjects such as the organization of the Commission, public relations, general topics, and the 1953 construction and maintenance program.[7]

Annual Meetings

As the first item of business, headquarters representatives handed district personnel the latest revised organizational chart, and explained that Commission charts were not fixed and were revised about every six months to meet changing situations and adjust to Congressional appropriations. The two major changes in 1953 involved the establishment of the Internal Audit Branch directly under the Commissioner of Roads in response to a 1952 General Accounting Office critical review. The other was the creation of an independent Safety Branch reporting directly to the Chief Engineer. There also was some discussion about staff relationships and communication between headquarters and district offices, with an emphasis on the necessity of coordinating efforts Territory-wide.[8]

Topics Discussed

Most conferees felt that the Commission did not need to "sell" itself. The best way to obtain public goodwill was to provide the best possible

highway with the available fund, and "to exercise courtesy of the road to the traveling public at all times." The headquarters staff also discussed the functioning of the new Internal Audit and Safety Branches at some length. Conferees also considered engineering problems, such as design, materials testing, and permafrost problems, personnel matters, supply and property, contracts, and operations. The two day conference ended on a mutual note of satisfaction that the conference had brought about a closer and more understanding approach to mutual problems.[9]

Summary of Accomplishments

In the summer of 1953, the Fairbanks Daily-News Miner requested program information from the Alaska Road Commission for inclusion in the paper's annual progress edition. Commissioner Ghiglione answered personally. He proudly reported that as of June 30, 1953, the end of the fiscal year, the Commission maintained a total of 3,422 miles of road. During the year, it had built 91 miles of new roads, improved 284 miles of primary highways to through road standards, and paved 137 miles. Of the total of 3,422 miles, 577 were paved, and the Commission maintained 1,711 miles to year-round traffic. During the 1953 fiscal year, the Commission had started work on the 170 mile long Copper River Highway, which, when completed, would provide interior Alaska with its fourth route to an ice-free, all winter port. Work continued on the 160 mile long Denali Highway which was to connect the second largest American National Park with the through highway network. The 160 mile long Taylor Highway was open to Eagle on the Yukon River, and a branch connected with the Canadian road to Dawson, Yukon Territory.[10]

Farm and Rural Roads

The farm and industrial road program had made some gains with 47 miles of new roads extending into the most promising farm, industrial, and mining lands in the Anchorage, Palmer, Kenai, Homer, and Fairbanks areas. The Commission maintained a traffic census which showed a substantial

increase over the entire interconnected highway system. Under construction were a new bridge across the Chena Slough at Fairbanks and an eight mile by-pass around the Military Reservation at Anchorage, both designed to relieve traffic congestion. The Commission had also maintained a vigorous traffic safety program during the year which included improved highway signs, centerline striping, safety patrols during extreme subzero temperatures, erection of guard rails, and strict limitation of highway loads.[11]

Six-Year Plan

Ghiglione was happy to report that the six year accelerated highway program authorized in 1948 and started in 1949 would continue into 1954, although on a reduced scale. To date, more than $100,000,000 had been expended on the programs since its start. He expected that Congress would appropriate approximately $14,000,000, the lowest amount in recent years. Ghiglione observed that Congress had made good its threat to cut back on appropriations because the Territorial legislature had failed to pass the required highway revenue bills.[12]

Commission Plans

The Commission intended to complete the paving of the Richardson, Alaska, and Glenn Highways by 1955; complete the Taylor, Denali, and Copper River Highways by 1956; add another 40 miles of farm and industrial roads annually through 1960, and continue pioneer surveys for possible new routes, including the Livengood-Rampart and Skagway-Carcross projects. It might even be possible to build parts of these routes in the latter part of the six-year program. Ghiglione also had a wishlist - projects he wanted to see started. These included the start of new construction in 1954 on the Kasilof-Kenai-Sterling Highway; in 1955, the Fairbanks-Nenana, Livengood-Rampart, and Haines-Lutak Inlet; in 1956, the paving of the Sterling and Denali Highways and construction of the Pittman-Willow project; in 1957, paving of the Copper River, Nenana-Healy-McKinley

Park, Chitina-McCarthy roads Skagway-Alaska Highway, and the Copper River Highway-Bering River, and Georgetown Flat; in 1958, the Chilkat River bridge and road; in 1959, Seldovia-Yakalof Bay and Flax-McKinley paving; and finally in 1960 the improvement and paving of the Skagway-Dyea route.[13]

General Accounting Office Critical

While Ghiglione projected the future plans of the Commission, the General Accounting Office concluded its audit report of the agency and submitted it to Congress. Once again, the GAO recommended that the relationship between Federal and Territorial participation in highway construction, operation, and maintenance be reviewed and that the Alaska legislature should be prodded to contribute more funds toward these activities. Congress, for example, might consider limiting appropriations to a ratio based on cooperative Territorial funds. Under the exising apportionment formula used by the Bureau of Public Roads and applicable to the contiguous states, the share of federal aid for primary and secondary construction on a projection Alaska would be about 87 percent, while states usually paid all maintenance costs. The Alaska legislature also had so far failed to raise taxes and license fees for motor carriers to appropriate levels, and whatever little revenue the Territory derived from this source at present was partly diverted to other uses. Under those circumstances, Territorial contributions in recent years to the total amounts available to the Commission for construction and maintenance of roads had been about 1 percent in the last four years compared to approximately 12 percent from 1920 to 1940.[14]

Territorial Contributions Vague

Legislation covering Territorial contributions did not specify the amount of monies to be contributed by nor the nature of the cooperative programs with the Territory. Each year the head of the Commission and Territorial officials negotiated a basic cooperative program, which had primarily been confined to contributions for the maintenance of local and

feeder roads. For the last five years, the cooperative programs provided for the expenditure of the Commission's appropriated funds and Territorial contributions as follows:

Construction Year	ARC	Territory	Total
1949	$371,000	$215,000	$586,000
1950	$520,000	$222,000	$742,000
1951	$589,000	$250,000	$839,500
1952	$810,000	$250,000	$1,060,350
1953	$902,000	$250,000	$1,152,700

In 1949, the Territory's share amounted to about 37 percent, and in 1953 it had declined to approximately 22 percent.[15]

Differences Between ARC and BPR

The General Accounting Office once again commented upon the differing construction standards of the Commission and the Bureau. The former's policy was to serve as great an area as possible in building pioneer roads to minimum standards and improve upon them when traffic warranted it. The latter built on the final location of the road in contrast to the Commission's initial construction of bulldozer trails which had little value when further improvements became necessary. The GAO once again recommended that Congress should review the necessity of maintaining the two separate federal road building and maintaining agencies in Alaska.[16]

ARC Business Losses

Other criticisms included losses incurred on mess operations, failure to recover full costs for work performed for other government agencies, the need to improve budgetary practices, accounting deficiencies, and employee housing. On the latter point, the GAO recommended that the Commission leave the responsibility for housing its employees to the Alaska Housing Commission. The GAO urged the commission to obtain specif-

ic authority to furnish supplies and services to Territorial agencies, such as the Alaska Departments of Education, Health, and Public Welfare, because these activities did not fall within the duties imposed by law upon the Commission. It also recommended that the Commission discontinue the practice of paying per diem allowances to temporary classified employees, because they did not incur the additional costs intended to be covered by these payments, and also strengthen its internal audit activities, accounting and fiscal procedures.[17]

Winter Maintenance Expensive

The GAO additionally reported that winter maintenance of Thompson Pass was very expensive. The cost for the 1952-1953 season amounted to $201,661, or about 27 percent of the total cost of all winter maintenance. The average cost of keeping this 47 mile section of road open came to $4,291 per mile. In 1953, the Commission had informed appropriate City and Territorial officials that it divested itself of maintenance activities with the corporate limits of the larger settlements. For example, the Commission notified the City of Fairbanks that it must assume full jurisdiction over the Cushman Street bridge, and that the Territory had to assume the full management of that portion of the Seward Peninsula Railroad tram lying within Nome's corporate limits. As of June 30, 1953 the Commission was responsible for 315 miles of local, isolated roads. Maintenance of these roads cost about $117,000 in 1953. Although maintenance in these remote areas most of the time was not expensive, equipment had to be placed there. It remained there for years although little use was made of it, and in some instances pieces of equipment had been idle for years. Because of isolation, administrative control was difficult. Private citizens had often complained about Commission activities in these areas, relating to poorly maintained roads, construction and maintenance of roads for the benefit of one or a few individuals, and the improper use of Commission equipment and supplies for private purposes. The GAO reviewed one such example. Wiseman, a small settlement about 70 miles north of the Arctic Circle and about 200 miles northwest

of Fairbanks, had a population of about 300 individuals before World War II. With the decline of mining during and after the war, the population had dwindled to about 21 year-round and 6 summer residents. For several years the Commission maintained about 13 miles of road, and built another 4.5 miles. During 1953, the Commission spent about $7,000 in maintenance. One air shipment of caterpillar parts and petroleum products weighing 26,930 pounds cost $1,346. For all this expenditure, only two private vehicles used the road. Clearly, the amount of money expended was not commensurate with the number of people served.[18]

Continuing GAO Demands

After this report, representatives of the General Accounting Office kept up a steady stream of correspondence with the Commission, scrutinizing the smallest details. For example in November 1953, GAO noted that the Commission performed work on private property for private individuals, usually in exchange for materials utilized in road construction or improved rights of way. GAO wanted the Commission to furnish a reference to the authority relied on to 1) perform work on private property; and 2) exchange service for materials or rights of way without transfer of funds. Ghiglione replied that

> The Act of June 39, 1921, 42 Stat. 90, as amended by the Act of June 30, 1932, 47 Stat. 446 provided that the "Secretary of the Interior [The Alaska Road Commission] authorized to receive from the Territory of Alaska, or other source, such funds as may be contributed by them to be expended in connection of construction, repair, and maintenance of roads, bridges, ferries, 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 (48USC 327).

Ghiglione Explains ARC Operations

Ghiglione explained that the Commission performed work for individuals under this authority. Frequently, however, it was advantageous to do this work on a barter basis because the individual in question might be able to trade necessary materials for such services but was unable to pay cash. Furthermore, at times it was possible to obtain rights-of-way advantageous to the government. The Commission maintained that it did not evade or circumvent the law but rather acted in a fashion profitable to the government. The GAO kept picking away however, and no sooner had Ghiglione answered an inquiry when another came. Again he had to consult the statutes. It took much time. Finally, he contacted F. M. Edwards, Jr., the Chief counsel of the Office of Territories and urged him to draft remedial legislation for the Commission designed to ward off the constant General Accounting Office inquiries. Ghiglione complained that it was "unfortunate that representatives of the General Accounting Office, in conducting site audits, must adhere completely to the letter of the law." As a result the Commission time and again had to try and explain "the authority by which we perform certain operations." In fact, "it begins to seem a bit ridiculous that the usual and ready explanation for operations, which, in the strictest sense, may be contrary to law, is that such operations are really in the best interests of the Government." The Commissioner of roads then enumerated the problem areas, such as contributions, barter for services, agreements with Territorial agencies, and the operation of messes. These practices had developed over many years, Ghiglione explained. Alaska's vast expanse, arctic and subarctic climate, and its economic structure required the greatest degree of cooperation between the Commission and the Territory in order to accomplish set goals.[19]

ARC and Its Accounting and Fiscal Procedures

Before the Office of Territories could act, the General Accounting Office released yet another report, this one dealing with the Commission's

accounting and fiscal procedures. Again, there was much criticism of Commission procedures.[20] What the General Accounting Office did not understand was that the Alaska Road Commission had developed procedures over many years which best suited Alaskan circumstances. As long as Congressional appropriations had been so miserly, nobody had bothered to scrutinize the Commission. As soon as Congress appropriated large amounts of money in 1949, the Commission had come under close observation. At that point, it was expected that the Alaska Road Commission, still operating in a raw frontier area, conform to federal standards applicable to the contiguous agricultural, urban, and industrial states.

Legalize ARC Procedures

In the spring of 1954, the Office of Territories had drafted a measure designed to put long established Commission practices on a legal footing. When Ghiglione received the draft bill, he told the Office of Territories that it had undergone so many drastic revisions that it was of little value to the Alaska Road Commission. Two years later, in January 1956, Ghiglione submitted a draft of a measure worked out within the Commission. Short and to the point, it authorized the Commission to accept funds and materials from the Territory and other sources for use, together and with federal monies, for the construction, repair, and maintenance of roads and bridges; to make agreements with Territorial agencies for the transfer of materials, supplies, equipment, and services; and furnishing food and lodging to employees of the Commission and credit payments received to the appropriations from which expenditures had been made. The Office of Territories redrafted the measure various times, but it already was too late for within a few months the Alaska Road Commission was to be absorbed by the Bureau of Public Roads.[21]

Territorial Legislature Revamps Highway Revenue System

In the meantime, the Territorial legislature revamped the highway revenue system in 1955. It raised the motor fuel tax on vehicles from

two to five cents a gallon, divided the revenues from the motor fuel tax into a highway and a water and harbor facilities fund and also changed the Territorial fiscal year from January to December 31 to July 1 to June 30 to conform with the federal fiscal year. After the legislature had raised the motor fuel tax, the Department of the Interior announced in June 1955 that it no longer would request the usual $400,000 in its program for the construction of farm and access roads. It turned the program over to the Territory -- which had no choice but to accept it because these access roads were very important. The Alaska Road Commission, however, assured the Territorial Highway Engineer that it would continue in its maintenance all roads built by the Commission with Territorial funds.[22]

ARC To Be Transferred to BPR

On August 17, 1956 the Departments of Interior and Commerce jointly announced that the Alaska Road Commission would be transferred, effective September 16, to the Bureau of Public Roads. This action became necessary when Congress placed Alaska under a modified section of the Federal-Aid Highway Act, to become effective on July 1, 1956.[23]

Ghiglione Submits Last Annual Report

On August 31 of that year, Ghiglione submitted the last annual report of the Alaska Road Commission to the Office of Territories. He summarized the Commission's history of fifty-one years of service to Alaska. Until the start of the six-year program in 1949, the Commission had been a small, efficient organization handling a modest program of comparatively low standard road construction. The massive road construction program made it necessary to form around this small group of experienced Alaska road builders a modern highway organization. Despite the increase in specialized personnel, the Commission found it necessary to utilize the Bureau of Public Roads Alaska organization to meet survey, design, and contract administration deadlines. The staffing, climate, terrain, and

construction problems were formidable, but did not delay the start of the accelerated program. In fact, contractor's work forces often followed the Commission's engineering crews by only a few hundred feet. In 1956, eight years and $170,000,000 later the program neared completion. The 1956 highway system consisted of 1,000 mile network of all-weather paved routes, connecting the ice-free ports of Valdez, Seward, and Haines with Alaska's principal cities and military installations, and with the contiguous States via the Alaska Highway through Canada. A secondary system connected farming and mining areas to the primary network. In addition, the system included 570 miles of isolated roads connecting inhabited areas with air, rail, or water transportation facilities.[24]

Conclusion

Before the start of the new program in 1949, the Commission, in an effort to provide minimum transportation facilities for everyone, had built pioneer roads into every region of Alaska, constructed small airfields, a seaplane canal, operated ferries, and built and maintained portages and narrow gauge tramways. The labors of the Alaska Road Commission had contributed much to the development of the Territory. With Alaska's inclusion of the Federal-Aid Highway Act, a new era of road building began for Alaska.

Footnotes

1. Lawton to Truman, January 9, 1953, Truman to Secretaries of the Interior and Commerce, January 17, 1953, Truman papers, OF-65, OFG-BB Alaska Road Commission, Harry S. Truman Library, Independence, Missouri.

2. Ghiglione, "Highway Development For Alaska," January 7, 1953, R.G. 30, Alaska Road Commission, box 65638, Federal Records Center, Seattle, Washington.

3. Ibid., Alaska Road Commission, Annual Report, 1955, p. 47.

4. Biennial Report of the Alaska Territorial Highway Engineer and Superintendent of Public Works, 1949-1950 (Juneau, Alaska, 1951), pp. 8-9; Biennial Report of the Alaska Territorial Highway Engineer and Superintendent of Public Works, 1951-1952, (Juneau, Alaska, 1953), pp.5-6.

5. Biennial Report of the Alaska Territorial Highway Engineer and Superintendent of Public Works, 1953-1954 (Juneau, Alaska, 1955), pp.8-34.

6. Ibid., pp. 10-11.

7. Alaska Road Commission, "Summary and Digest of the Annual Conference of District Engineers, 1953," R.G. 30, Alaska Road Commission, box 65638, Federal Records Center, Seattle, Washington.

8. Ibid.

9. Ibid.

10. Ghiglione to Kennedy, July 15, 1953, R.G. 30, Alaska Road Commission, box 65415, Federal Records Center, Seattle, Washington.

11. Ibid.

12. Ibid.

13. Ibid.

14. The Comptroller General of the United States, Audit Report to the Congress of the United States, Alaska Road Commission, Department of the Interior for the Fiscal Year Ended June 30, 1953 (General Accounting Office, Washington, D.C.: August, 1953), pp. 6-7.

15. Ibid., p. 7.

16. Ibid., pp. 8-9.

17. Ibid., pp. 10-17.

18. Ibid., pp. 37-38.

19. Hirschhorn to Ghiglione, November 16, 1953, Ghiglione to Edwards, December 29, 1953, R.G. 30, Alaska Road Commission, box 65403, Federal Records Center, Seattle, Washington.

20. United States General Accounting Office, Division of Audits, Report on Review of Accounting and Fiscal Procedures of the Alaska Road Commission, Department of the Interior, for the Fiscal Year Ended June 30, 1953 (Washington, D.C., 1953).

21. Beasley to Lausi, May 20, 1954, Lausi to Ghiglione, June 21, 1954, Ghiglione to Lausi, July 1, 1954, Ghiglione to Lausi, January 4, 1956, Van Cleve to Office of Territories, February 3, 1956, R.G. 30, Alaska Road Commission, box 65403, Federal Records Center, Seattle, Washington.

22. Biennial Report for 1955 - 1956 of the Alaska Territorial Highway Engineer and Superintendent of Public Works to the Twenty-Third Territorial Legislature and Estimates of Recipts and Expenditures for the Period Jnauary 1, 1957 to June 30, 1959 (Juneau, Alaska. 1957), p. 2.

23. Joint Press Release, Departments of Interior and Commerce, Augsut 17, 1956, R.G. 30, Alaska Road Commission, box 65403, Federal Records Center, Seattle, Washington.

24. Alaska Road Commission, Annual Report, 1956, p. 3. Following is a list of the various highways, roads, and trails as of June 30, 1956. Source, ARC, AR, 1956, pp. 26-28.

During the fiscal year the highway system was increased by 50.9 miles; 16.1 miles of Feeder roads and 34.8 miles of local roads; 26.2 miles of principal Feeder roads were improved to Through road standards and reclassified.

Following is a tabulation of the road system as of 1954, 1955, and 1956:

	1954	1955	1956
Through Roads	989.1	972.3	998.5
Feeder Roads	1,213.9	1,244.7	1,234.6
Local Roads:			
From Main Feeders	709.4	939.7	761.3
From Isolated Feeders	237.1	237.2	246.6
Isolated Feeders	332.9	349.6	353.4
Total Local Roads	1,279.4	1,326.5	1,361.3
Total - All Roads	3,482.4	3,543.5	3,594.4
Trails	248.0	248.0	445.0
Total Roads & Trails	3,730.4	3,791.5	4,039.4

Following is a current tabulation of highway system:

THROUGH ROADS

Route No.	Name	Length	Winter Maintenance
120	Richardson Highway (Valdez District)	227.3	227.3
130	Richardson Highway (Fairbanks District)	134.9	134.9
132	Fairbanks-International Airport	1.0	1.0
230	Alaska Highway	200.6	200.6
310	Glenn Highway (Anchorage District)	114.7	114.7
310A	Glenn Highway Alternate	7.5	7.5
311	Anchorage 4th Avenue Post Road	1.0	1.0
320	Glenn Highway (Valdez District)	162.2	162.2
330	Glenn Highway (Fairbanks District)	33.4	33.4
410	Seward-Anchorage Highway	36.9	36.9
411	Anchorage-Spenard	3.5	3.5
412	Anchorage-International Airport	3.0	3.0
510	Sterling Highway	10.9	10.9
514	Kenai Spur	14.3	14.3
630	Steese Highway (Fairbanks-Farmers Loop)	2.8	2.8
632	Steese Highway-University	3.8	3.8
950	Haines-Boundary and Spur to Haines	40.7	40.7

FEEDER ROADS

Route No.	Name	Length	Winter Maintenance
121	Edgerton Cutoff, Willow-Chitina	39.0	39.0
122	Copper River Highway	-	-
231	Northway Junction - Airfield	6.8	6.8
232	Gerstle River Test Site Road (Army)	3.6	3.6
312	Palmer-Matanuska-Wasilla	13.9	13.9
313	Palmer-Wasilla-Willow	30.7	30.7
314	Glenn-Fishhook-Knik	33.6	33.6
321	Slana-Nabesna	45.6	-
331	Taylor Highway	161.0	-
511	Sterling Highway	108.4	108.4
513	North Kenai Roads	16.3	16.3
631	Steese Highway-Farmers Loop-Circle	161.0	30.0
633	University-Ester	6.7	6.7
634	Central-Circle Hot Springs	8.3	-
731	Elliott Highway-Fox to Livengood	68.4	9.0
732	Manley Hot Springs Landing-Eureka	25.7	-
811	Denali Highway (Anchorage District)	82.0	-
812	McKinley Park Primary Roads	93.6	-
813	North Park Boundary-Kantishna	4.5	-
821	Denali Highway (Valdez District)	41.9	-
011	Sterling Landing-Ophir	47.0	-
012	Iditarod-Flat	8.7	-
013	Dillingham-Wood River-Kanakanak	14.7	14.7
014	Abbert Road	0.8	0.8
031	Ruby-Long-Poorman	56.5	-
041	Nome-Council	77.1	-
042	Nome-Kougarok	20.8	5.2
043	Seward Peninsula R.R.	58.0	-
044	Nome-Teller	-	-

Local Road Systems

	Total Miles	Winter Maintenance
Anchorage Locals	62.8	62.8
Glenn Highway Locals	91.7	60.7
Matanuska Valley Locals	139.1	80.3
Kenai Peninsula Locals	115.2	101.3
Kuskokwim Locals	68.2	3.0
Kodiak Locals	59.5	59.5
Alaska Railroad Feeder	94.2	19.0
Bristol Bay Locals	25.3	16.5
Iliamna Locals	28.5	---
McCarthy Locals	30.5	---
Richardson Highway Feeder System	84.8	62.9
Fairbanks Locals	37.5	35.5
Steese Highway Feeder System	136.4	35.6
Taylor Highway Feeder System	19.1	1.9
Elliott Highway Feeder System	9.5	---

	Total Miles	Winter Maintenance
Manley Hot Springs System	18.0	---
Yukon River Isolated System	31.7	---
Nome System	211.5	9.5
Haines & Skagway Locals	61.8	37.4
Southeast Alaska Roads	36.0	36.0
Totals	1,361.3	621.9

TRAILS

Route No.		Name	Length	Winter Maintenance
010.9	1	Goodnews Bay-Togiak	53.0	53.0
	2	Goodnews Bay-Platinum	9.5	9.5
	3	Takotna-Flat	18.5	18.5
030.7		Wiseman-Porcupine	18.0	-
040.5	1	Kotzebue-Shesholik	9.0	9.0
	2	Kotzebue-Noatak	60.0	13.0
	3	Kotzebue-Noorvik-Selawik	95.0	12.0
	4	Golovin-White Mountain	12.0	12.0
	5	Golovin-Moses Point	45.0	6.0
	6	Deering-Candle-Kiwalik	25.0	12.0
	7	St. Michael	5.0	5.0
	8	Teller-Cape Douglas	21.0	12.0
	9	Teller-Igloo Creek	22.0	6.0
	10	Teller-Mission	6.0	6.0
	11	Teller-Lagoon Channel	3.0	3.0
	12	Teller-Mary's Igloo	43.0	43.0

Traffic Statistics

Traffic density studies play an important part in the Commission's planning and programming. Data obtained at 47 permanent traffic count stations for identical periods each year are particularly useful in allocating maintenance funds, and for detecting changes in traffic patterns and characteristics.

Source, ARC, AR, 1956, pp. 26-28.

Appendix A

Members of the Board of Road Commissioners
for Alaska, 1905 to 1932

Presidents

Wilds Preston Richardson, Major, Colonel, and eventually Brigadier General in the National Army, June 16, 1905 to December 29, 1917.

William H. Waugh, Major, December 30, 1917 to April 14, 1920.

John C. Gotwals, Lieutenant-Colonel, April 15, 1920 to July 6, 1920.

James G. Steese, Major, later Colonel, July 7, 1920 to October 15, 1927.

Douglas H. Gillette, Major, October 16, 1927 to November 8, 1927.

Malcolm Elliott, Major, November 9, 1927 to July 20, 1932.

Presidents and Engineer Officers

William H. Waugh, December 30, 1917 to April 14, 1920.

James G. Steese, Colonel, March 27, 1924 to August 4, 1924.

By Departmental Order No. 585, date July 1, 1932, the Secretary of the Interior designated the ex officio commissioner for Alaska (the governor) to administer the duties relating to the road functions transferred to the Department under the act of June 30, 1932. On December 3, 1932, Departmental Order No. 605 amended the above order and provided that the activity carried on in the name of the board of Road Commissioners for Alaska be designated as the Alaska Road Commission. This made official a term which had come into use in the 1920s. The Commission form of organization ceased to exist and primary responsibiltiy for its function was placed with one individual.

The Chief Engineer became the Chief Operative offical of the Commission until July 31, 1948. In that year Congress approved a substantial road building program in Alaska for defense and economic development purposes. To carry out this expanded program the Acting Secretary of the Interior issued Departmental Order No. 2448 dated July 19, 1948, establishing a Commissioner of Roads for Alaska.

Chief Engineer

Ike P. Taylor, July 20, 1932 to July 31, 1948.

Commissioner of Roads for Alaska

John R. Noyes, Colonel, August 1, 1948 to June 30, 1951.

Angelo F. Ghiglione, July 1, 1951 to September 16, 1956.

Assistant Engineer

John Zug, Captain, December 30, 1917 to April 14, 1920.

Engineer Officers

George B. Pillsburg, Captain, May 15, 1905 to 1908.

F. A. Pope, Captain, 1908 to 1911.

Glen E. Edgerton, Captain, January 1911 to September 11, 1915.

Joseph C. Mahaffey, Mayor, July 1, 1917 to October 3, 1917.

William H. Waugh, Captain, October 4, 1917 to December 30, 1917, and April 15, 1920 to July 6, 1920.

John C. Gotwals, Lieutenant Colonel, July 6, 1920 to March 26, 1924.

Lunsford E. Oliver, Major, May 21, 1924 to June 19, 1927.

James G. Steese, Major, June 20, 1927 to July 11, 1927.

Douglas H. Gillette, Major, July 12, 1927 to February 15, 1930.

Malcolm Elliott, February 16, 1930 to June 24, 1930.

Layson E. Atkins, Major, June 25, 1930 to July 20, 1932.

Secretaries and Disbursing Officers

Samuel C. Orchard, Lieutenant, March 1905 to 1911

Robert L. Weeks, Lieutenant, 1911 to August 26, 1913.

L. A. Kunzig, Lieutenant, August 26, 1913 to December 31, 1915.

Peter W. Davison, Lieutenant Colonel, July 1, 1917 to August 31, 1917.

Joseph C. Mehaffey, Major, September 1, 1917 to October 17, 1917.

John Zug, Captain, October 19, 1917 to January 18, 1918.

Sidney L. Carter, First Lieutenant, January 19, 1918 to June 30, 1921.

C. S. Ward, Captain, July 1, 1921 to May 2,1922.

Aubrey H. Bond, Captain, May 3, 1922 to November 25, 1922.

Pierre A. Agnew, March 1, 1923 to January 31, 1925.

Harry E. Fisher, First Lieutenant, February 1, 1925 to 1926.

Frank A. Pettit, Second Lieutenant, 1926 to December 31, 1927.

Arleigh T. Bell, Second Lieutenant, January 1, 1927 to 1927

John R. Noyes, First Lieutenant, 1927 to March 31, 1928.

Emerson L. Cummings, Second Lieutenant, April 1, 1928 to November 30, 1928.

Emerson C. Itschner, First Lieutenant, December 1, 1928 to July 31, 1929.

Philip R. Garges, First Lieutenant, August 1, 1929 to January 31, 1930.

James G. Christiansen, First Lieutenant, February 1, 1930 to July 31, 1930.

Raymond B. Oxrieder, First Lieutenant, August 1, 1930 to January 31, 1931.

Leland B. Kuhre, First Lieutenant, February 1, 1931 to September 28, 1931.

Walter W. Hodge, First Lieutenant, September 29, 1931 to July 20, 1932.

Special Disbursing Agent

James G. Steese, Colonel, September 23, 1922 to February 28, 1923.

Military Assistants

C. W. Ward, Captain, May 3, 1922 to November 14, 1922.

Pierre A. Agnew, First Lieutenant, December 18, 1922 to February 28, 1923.

John C. Gotwals, Lieutenant Colonel, March 27, 1924 to April 26, 1924.

Lunsford E. Oliver, Major, May 2, 1924 to August 4, 1924.

Harry E. Fisher, Second Lieutenant, October 2, 1924 to November 1926.

Arleigh T. Bell, Second Lieutenant, September 28, 1925 to September 28, 1927.

Frank A. Pettit, Second Lieutenant, Septebmer 28, 1925 to March 27, 1928.

John R. Noyes, Second & First Lieutenant, November 9, 1926 to December 5, 1928.

Lunsford E. Oliver, Major, June 20 to June 21, 1927

Emerson C. Itschner, Second & First Lieutenant, August 22, 1927 to August 22, 1929.

Emerson L. Cummings, Second Lieutenant, August 22, 1927 to March 31, 1928.

Philip R. Garges, Second & First Lieutenant, April 4, 1928 to April 4, 1930.

Emerson L. Cummings, Second Lieutenant, December 1, 1928 to August 29, 1929.

James G. Christiansen, First Lieutenant, November 7, 1928 to July 31, 1930.

Leland B. Kuhre, Second & First Lieutenant, August 14, 1929 to January 31, 1931.

Raymond B. Oxrieder, Second & First Lieutenant, Augsut 19, 1929 to January 1, 1931.

Emerson L. Cummings, First Lieutenant, December 1, 1928 to July 20, 1932.

Albert H. Burton, First Lieutenant, July 20, 1930 to July 20, 1932.

Walter W. Hodge, First Lieutenant, November 5, 1930 to 1931.

APPENDIX B

LAWS RELATING TO THE CONSTRUCTION OF ROADS IN ALASKA

May 26, 1900. An Act making appropriation for the support of the Regular and Volunteer Army for the fiscal year ending June thirtieth, nineteen hundred and one. (31 Stats., 214).

* * * * * * * * * *

Transportation of the Army and its supplies; . . . . . thirty million dollars; Provided, that one hundred thousand dollars of this sum may be used in Alaska, and shall be immediately available, for the construction of military roads and bridges in Alaska.

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June 30, 1902. An Act making appropriation for the support of the Army for the fiscal year ending June thirtieth, nineteen hundred and three. (32 Stats., 507).

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Transportation of the Army and its supplies; . . . . . twenty-five million dollars; provided, that the balance of the appropriation of one hundred thousand dollars made by the Act of May twenty-sixth, nineteen hundred, for construction of military roads and bridges in Alaska remaining unexpended on June thirtieth, nineteen hundred and one, is hereby reappropriated, and made available for such construction; Provided further, That the number of draft animals purchased from this appropriation, added to those now on hand, shall be limited to such numbers as are actually required for the service.

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April 23, 1904. An Act making appropriation for the support of the Army for the fiscal year ending June 30, 1905, and for other purposes. (33 Stats, at Large, 271).

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For survey and estimate of cost of a wagon road from Valdez to Port (sic) Egbert on the Yukon River, to be made under the direction of the Secretary of War, twenty-five thousand dollars ($25,000.00) to be immediately available; said survey and estimate, herein provided, shall be submitted to Congress at the earliest practicable day.

For surveying and locating a military trail, under the direction of the Secretary of War, by the shortest and most practicable route, between the Yukon River and Coldfoot, on the Koyukuk River, twenty-five hundred

dollars ($2,500.00) to be immediately available, and a report and estimate upon said trail to be submitted to Congress at the earliest practicable day.

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April 27, 1904. An Act to authorize the appointment of road overseers and to create road districts in the District of Alaska and for other purposes. (33 Stats., 391).

* * * * * * * * * *

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled. That it shall be the duty of the commissioner in each precinct in the District of Alaska, on the first Monday in the month of April in each year, to appoint a road overseer for the precinct in which he resides, and create a road district in the inhabited part of said precinct, which said district shall not include incorporated cities and towns.

To fill all vacancies in the office of road overseer in his precinct.

To cause a record to be made defining the boundaries of said road district.

Term of Office and Qualifications of Road Overseers

All road overseers shall hold office for one year and until their successors are appointed and qualified.

Every person appointed to the office of road overseer of any road district shall reside in the road district to which he has been appointed, and shall, within thirty days after he shall have been notified of his appointment, take and subscribe to an oath of office obligating himself to the faithful performance of the duties of his office, and shall forthwith cause such oath to be filed in the office of the commissioner of his precinct, and in case any such road overseer shall become non-resident of his road district, his office shall at once become vacant.

Each road overseer shall, before entering upon the duties of his office, execute a bond to the United States in a sum not less than double the amount of money which will probably come into his hands at any time during this term of office, with two or more sureties, the amount and sufficiency of the bond to be approved by the commissioner of the precinct, conditioned for the faithful discharge of the duties of his office, which bond shall be by him forthwith filed in the office of the commissioner and ex-officio recorder. The approval of such bond shall be indorsed thereon by the commissioner.

Duties of Road Overseer

The duties of road overseer shall be such as may be prescribed by law.

Each road overseer shall keep an accurate account of all money received by virtue of his office and the manner in which the same has been disbursed, and to whom, and shall, on the last Saturday of March in each year, exhibit such account, together with his vouchers, to the commissioner for adjustment and settlement. Such account shall be in writing, verified by affidavit of the overseer that the same is in all respects a full and true account of all money received by him during the full term for which he should make settlement and the amounts expended and the manner in which they were expended.

If any person appointed to the office of road overseer, unless unable from disease or other infirmity to discharge the duties of such office, shall refuse or neglect to serve therein, he shall be liable to a fine of twenty-five dollars; but no person so appointed who shall have served for a term next preceding such appointment shall be liable to such fine for refusing to serve if he shall have given notice in writing of refusal to the commissioner within twenty days after having been notified of his appointment.

Every road overseer who shall, after the expiration of his term of office, neglect or refuse to deliver on demand to his successor in office, after such successor shall have been duly qualified according to law, all moneys, records, books, papers, or other property appertaining to such office shall be liable to a fine of not less than fifty nor more than five hundred dollars.

Road overseers of the different precincts are authorized, and it is made their duty, to warn out all male persons between eighteen and fifty years of age who have resided thirty days in the District of Alaska, who are capable for performing labor onroads or trails, and who are not a precinct charge, to perform two days's work of eight hours each in locating, constructing, or repairing public roads or trails, under the direction of the road overseer within whose precinct they may respectively reside, or furnish a substitute to do the same, or pay the sum of four dollars per day for two days' labor, and said road overseer shall receipt for the same and shall expend it in location, construction, or repairs on the public roads and trails within his precinct; and any moneys so received and not expended shall be paid over to his successor in office, who shall expend the same as above provided.

The overseer of roads and trails in each precinct shall give notice to persons residing in his precinct liable to or charged with a road or trail tax of the time and place and the kind of work expected to be performed on the road or trail, and may direct what implement such persons shall bring with which to perform such work.

Whenever it shall happen, in consequence of sickness of absence from home, or any other cause, that the two days' work aforesaid shall not be performed within the time specified in this Act, the overseer shall be authorized to require the performance of such work at any time prior to the first day of October then next ensuing; and in case any person shall neglect or refuse to do the two days' work, or furnish a substitute, or pay in money the price of two day's labor, as provided in this Act, he shall be deemed guilty of a misdemeanor and shall be fined in the sum of ten dollars for each day refusing so to work upon conviction before any justice of the peace of the precinct.

If any person shall appear at the proper time and place as directed by the overseer and neglect or refuse to do a reasonable day's work according to his ability, he shall be liable the same as if he had neglected or refused to appear, or furnish a substitute, or pay the sum of money as provided herein.

Under the direction of the overseer, and at his discretion, the above road tax may be performed by one day's work, together with an able-bodied man, a two-horse team with wagon, or a dog team consisting of not less than five dogs and a sleigh, or a reindeer team of not less than two reindeer and sleigh or cart.

It shall be the duty of each road overseer to receipt to each person who performs labor on the public roads and trails of his precinct under the provision of this Act for the amount of labor so performed, and no person shall be compelled to pay road tax except in one precinct in the District to Alaska during one calendar year.

Each road overseer shall, on or before the first day of April in each year, report to the commissioner of the precinct the names of all persons subject to the two days' road tax for the preceding year, the names of those who have worked out said tax, the names of those have paid the said tax money, and the names of those delinquent, and also all moneys received by him from all sources, and how expended, and the report shall be approved by said commissioner before any final settlement shall be made with such road overseer.

Each and every road overseer who shall neglect or refuse to perform the several duties enjoined upon him by this Act, or who shall, under any pretense whatsoever, give or sign a receipt or certificate for labor performed or money paid, unless the labor shall have been performed or money paid prior to the signing or giving of such receipts of certificates, shall forfeit for every such offense not less than five nor more than fifty dollars, to be recovered by an action before any justice of the peace within the precinct where such overseer may reside, and it is hereby made the duty of every United States attorney or assistant to prosecute all offenses against the provision of this Act not otherwise provided for.

Per Diem

Road overseers shall be allowed four dollars per day for all services required by this Act and actually performed in their respective precincts, to be retained out of money paid said road overseers from persons paying money or fines in lieu of two days' labor, upon the certified statement of the overseers, approved by the commissioner of the precinct; Provided, That no overseer shall receive pay for more than ten days in any one year, and not until he has made the return as provided in the preceding section, in duplicate, one copy to be retained by the commissioner and one copy filed with the clerk of the district court in the division in which the said precinct is situated.

Any oath required to be taken by said overseer, acknowledgement of bond, or the filing or recording of any paper or plat authorized by this Act shall be free of cost to said overseer.

Upon application of road overseers, it shall be the duty of the clerk of the district court to furnish copies of this Act and blank forms of notices warning persons to perform road work, receipts for road work, bond, and oath, and for overseer's report to commissioner, the expense of which shall be paid out of the fund for paying the incidental expenses of the court.

The Attorney General of the United States is hereby directed to furnish clerks of the district courts in the different judicial division of Alaska a sufficient number of copies of this Act and other road and trail laws that may now be upon the statutes relating to roads and trails in the District of Alaska for use of road overseers in each judicial division.

Repealed by Act December 16, 1930

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January 27, 1905. An Act to provide for the construction and maintenance of roads, the establishment and maintenance of schools, and the care and support of insane persons in the district of Alaska, and for other purposes. (33 Stats., 616).

* * * * * * * * * * *

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled. That all moneys derived from and collected for liquor licenses, occupation, or trade licenses outside of the incorporated towns in the district of Alaska shall be deposited in the Treasury Department of the United States, there to remain as a separate and distinct fund, to be known as the "Alaska fund" and to be wholly devoted to the purposes hereinafter stated in the District of Alaska. One-fourth of said fund, or so much thereof as may be necessary,

shall be devoted to the establishment and maintenance of public schools in said district; five per centum of said fund shall be devoted to the care and maintenance of insane persons in said district, or so much of said five per centum as may be needed; and all the residue of said fund shall be devoted to the construction and maintenance of wagon roads, bridges, and trails in said district.

SEC. 2. 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 of 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 judgement 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, or camp, or settlement which is wholly transitory or of no substantial value or importance for mining, trade, agricultural, or manufacturing purposes. The said Board shall prepare maps, plans, and specifications of every road or trail they may locate and lay out, and whenever more than five thousand dollars in the aggregate shall have to be expended on the construction of any road or trail, contract for the work shall be let by them to the lowest responsible bidder upon sealed bid, after due notice, under rules and regulations to be prescribed by the Secretary of War. The Board may reject any bid if they deem the same unreasonably high or if they find that there is a combination among bidders. In case no responsible and reasonable bid can be secured, then the work may be carried on with materials and men procured and hired by the Board. The engineer officer of the Board shall in all cases supervise the work of construction and see that the same is properly performed. As soon as any road or trail laid out by the Board has been constructed and completed they shall examine the same and make a full and detailed report of the work done on the same to the Secretary of War, and in such report they shall state whether the road or trail has been completely conformable to the maps, plans, and specifications for the same. 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 cost and expenses of laying out, constructing, and repairing such roads and trails shall be paid by the Secretary of the Treasury out of the road and trail portion of said "Alaska fund" upon vouchers approved and certified by said Board. The Secretary of the Treasury shall, at the end of each month, send by mail to each of the members of said Board a statement of the amount available of said "Alaska fund" for the construction and repair of roads and trails, and no greater liability for the construction or repair shall at any time be incurred by said Board than the money

available therefore at that time in said fund. The members of said Board shall, in addition to their salaries, be entitled to receive their actual traveling expenses paid or incurred by them in the performance of their duties as members of the Board.

SEC. 3. That the governor of the District of Alaska shall be ex officio superintendent of public instruction in said district, and as such shall prescribe rules and regulations for the examination and qualification of teachers, and shall make an annual report of the condition of the schools in the district to the Secretary of the Interior.

SEC. 4. That the common council of the incorporated towns in said district shall have the power, and it shall be their duty, in their respective towns to establish school districts, to provide the same with suitable schoolhouses, and to maintain public schools therein and to provide the necessary funds for the schools; but such schools when established shall be under the supervision and control of a school board of three members, consisting of a director, a treasurer, and a clerk, to be elected annually by the vote of all adults who are citizens of the United States or who have declared their intention to become such and who are residents of the school district. The members of said Board first elected shall hold their offices for the term of two, and three years, respectively, and until their successors are elected and qualified, and one member of such Board shall be elected each year thereafter and shall hold his office for a period of three year until his successor is elected and qualified; and they shall each, before entering upon the duties of their office, take an oath in writing to honestly and faithfully discharge the duties of their trust. In case a vacancy in the membership of said board occurs from death, resignation, removal, or other cause, such vacancy may be filled by a special election, upon ten days' notice, called by the remaining members of the board upon the petition of five qualified voters. All money available for school purposes, except for the construction and equipment of schoolhouses and acquistion of sites for the same, shall be expended under the direction of said Board, and the treasurer of said Board shall be the custodian of said money, and he shall, before entering upon the duties of his office, give his bond, with sufficient sureties, to the school district, in such sum as the common council may direct, and subject to its approval, but not less than twice the amount that may come into his hands as treasurer, conditioned that he will honestly and faithfully disburse and account for all money that may come into his hands as such treasurer. The said Board shall have the power to hire and employ the necessary teachers, to provide for heating and lighting the schoolhouse, and in general to do and perform everything necessary for the due maintenance of a proper school.

SEC. 5. That the clerk of the district court shall have the power, and it shall be his duty, in the division to which he is appointed, and establish by order in writing a school district at any camp, village, or settlement outside of the limits of any incorporated town, but such school district shall not embrace more than forty square miles of territory nor contain less than twenty resident white children between the ages of six and twenty years. The said petition shall specify as near as may be the location and boundary of the proposed school district, the number of people, the number of families, and the number of children between the ages

of six and twenty years, resident therein, and such other material facts as tend to show the necessity for the establishment of the school district. Said petition shall be signed by not less than twelve persons of adult age who are citizens of the United States or have declared their intention to become such and who reside within the boundaries of the proposed school district. If the clerk of the court is satisfied that it is necessary and proper to grant such petitions, he shall make an order in writing establishing the school district, describing the same and defining its boundaries, and he shall also in said order appoint three of the petitioners to supervise and give notice of the first election, and shall specify the time and place of the same. The original order shall remain on file in the records of the court, and a copy of the same shall be posted at three public places in the school district at least ten days before the election, and such posting shall be deemed a sufficient notice of such election. All persons qualified to sign said petition shall be qualified to vote at said election. The qualified voters of said school district shall at said election choose by plurality vote a school board of three members, consisting of a clerk, a treasurer, and a director, who shall, before entering upon the duties of their trust, each take an oath in writing to honorably and faithfully discharge the duties of their office. In case a vacancy in the membership of said Board occurs from death, resignation, removal, or other cause, such vacancy may be filled by a special election, upon ten days' notice called by the remaining members of the board upon the petition of five qualified voters. The treasurer shall be the custodian of the monies of the school district, and he shall, before entering upon the duties of his office, have given his bond to the school district with sufficient sureties, to be approved by the clerk of the court, and in such sum as he may direct, but not less than twice the amount of money that may come into his hands as treasurer, conditioned that he, the treasurer, will honestly and faithfully disburse and account for all the money that may come into his hands by virtue of his office. Said Board shall have the power to build or rent the necessary schoolhouse or schoolroom, to equip the same with the necessary furniture and fixtures, to provide fuel and light, to hire and employ teachers, and in general to do and perform everything that may be necessary for the maintenance of a public school. The members of said Board shall hold office for the term of one year and until their successors are elected and qualified. An annual election shall be held each year, after the first election, for the election of members of said Board. As soon as the members of said School Board have been elected and qualified, they shall send to the clerk of the court and file in his office a certificate of their election under the hand and seal of the judges or supervisors of the election, their oaths of office, and the bond of the treasurer, and the clerk of the court shall file said papers and carefully keep them as part of the files and records of his office, and he shall at once send to the governor of the District of Alaska a certified copy of said papers, together with a certified copy of the order establishing the school district, and the governor shall duly file and preserve the same. The said Board, as soon as they have complied with the requirements aforesaid, shall immediately report in writing to the governor the number of children in their school district between the

ages of six and twenty years that intend to attend a public school, and the wages per month for which a teacher can be obtained; and after a school has been opened and maintained they shall, at the end of each school term report to the governor in writing the length of the term, the wages paid the teacher, the total number of pupils in attendance, and the daily average of such attendance at such term. The governor shall assign and set apart to each school district established and organized under the provisions of this section assume, not less than three hundred dollars nor more than one thousand dollars, in proportion to the number of pupils in the district, for the construction and equipment of a schoolhouse, which sum shall be paid by the Secretary of the Treasury to the treasurer of the school district upon the order and voucher of the governor out of that portion of the said Alaska fund set apart for the establishment and maintenance of public schools. The residue of said portion of said fund, or so much thereof as may be necessary, shall by the governor be apportioned among the several school districts established under the provisions of this section in amount sufficient for each district to pay the wages of a teacher, together with the expense of fuel and light, for five months' school in each year. And the amounts so apportioned to each school district shall be paid to the treasurer for the district by the Secretary of the Treasury upon the order and voucher of the governor out of the said portion of said fund.

SEC.6. That the clerks of school districts in the incorporated towns shall, at the end of each school term, report to the governor in writing the length of the term, the wages paid the teacher, the number of pupils in attendance, and the average daily attendance during the term.

Sec. 7. That the school specified and provided for in this Act shall be devoted to the education of white children and children of mixed blood who lead a civilized life. The education of the Eskimos and Indians in the District of Alaska shall remain under the direction and control of the Secretary of the Interior, and schools for and among the Eskimos and Indians of Alaska shall be provided for by an annual appropriation, and the Eskimo and Indian children of Alaska shall have the same right to be admitted to any Indian boarding school as the Indian children in the States or Territories of the United States.

SEC. 8. That commissioners appointed by the judges of the district court in the District of Alaska, pursuant to existing laws, shall, as ex officio probate judges and in the exercise of their probate jurisdiction, have the power, and it shall be their duty, in their respective districts, to commit, by warrant under their hands and seals, all persons adjudged insane in their districts to the asylum or sanitarium provided for the care and keeping of the insane in their District of Alaska. No person shall be adjudged insane or commited as such, except upon and pursuant to the following proceedings, to wit: Whenever a complaint in writing is made by an adult person to a commissioner that there is an insane person at large in the commissioner's district, the commissioner shall at once cause such insane person to be taken into custody and to be brought before him, and he shall then immediately summon and impanel a jury of six male adults, residents of the district, to inquire, try, and determine whether the person so complained of is really insane. The members of said jury shall, before entering upon the discharge of their

duty, each take an oath to diligently inquire, justly try, and a true verdict render, touching the mental condition of the person charged with being insane. Before entering upon such trial the commissioner shall appoint some suitable person to appear for and represent in the proceeding the person complained of as insane, and in case there is a physician or surgeon in the vicinity who can be procured, the commissioner shall cause such surgeon or physician to examine the person alleged to be insane, and after such examination to testify under oath before the jury in respect to the mental condition of said person. The commissioner shall preside at said hearing and trial. All witnesses that may be offered shall be heard and shall be permitted to testify under oath in said matter, and after having heard all the evidence the said jury shall retire to agree upon a verdict, and if the jury unanimously, by their verdict in writing, find that the said person so charged with being insane as aforesaid is really and truly insane and that he ought to be committed to the asylum or sanitarium aforesaid, and the commissioner approved such finding, he shall enter a judgment adjudging the said person to be insane and adjudging that he be at once conveyed to and thereafter properly and safely kept in the said asylum or sanitarium until duly discharged therefrom by law. The commissioner shall thereupon, under his hand and seal, issue his warrant, with a copy of said judgment attached, for the commitment of said insane person to the asylum or sanitarium aforesaid, which warrant shall be delivered to the marshal of the division in which said proceedings are had, and shall direct said marshal to safely keep and deliver said insane person to said asylum or sanitarium, and the said marshal; for the service of process in connection with and the guarding and transportation of the insane, shall be compensated from the same source and in the same manner as in the case of prisoners convicted of crime. The commissioner, the jurymen, and the witnesses in said proceeding shall be entitled to the same compensation and mileage as in civil actions. And all the compensation, mileage, fees, and all other expenses and outlays incident to said proceedings shall be audited and allowed by the district judge of the division in which said proceedings are pending and had, and when so audited and allowed shall be paid by the clerk of the court in such division as the incidental expenses of the court are by him paid and from the same fund.

SEC. 9. That all Acts and parts of Acts inconsistent with this Act are, to the extent of such inconsistency, hereby repealed.

Approved, January 27, 1905.

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March 3, 1905. An Act making appropriations to supply deficiencies in the appropriations for the fiscal year ending June 30, 1905 (sic), and for prior years, and for other purposes. (33 Stats. at large, 1225).

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Engineer Department

Survey of wagon road from Valdez to Fort Egbert, Alaska: For a survey and estimate of cost of a wagon road from Valdez to Fort Egbert, on the Yukon River, to be made under the direction of the Secretary of War, five thousand seven hundred dollars and sixty three cents. ($5,700.63).

Survey of military trail between Yukon River and Coldfoot, Alaska: For surveying and locating a military trail under the direction of the Secretary of War, by the shortest and most practicable route, between the Yukon River and Coldfoot, on the Koyukuk River, to be immediately available one thousand four hundred and thirty one dollars and fifteen cents. ($1,431. 15).

May 14, 1906. Amendment to Act approved January 27, 1905. (34 Stats., 192).

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Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled. That section one of an Act entitled "An Act to provide for the construction and maintenance of roads, the establishment and maintenance of schools, and the care and support of insane persons in the District of Alaska, and for other purposes" approved January twenty-seventh, nineteen hundred and five, be, and the same is hereby, amended so as to read as follows:

> SEC. 1. That all monies derived from and collected for liquor licenses, occupation or trade licenses outside of the incorporated towns in the District of Alaska shall be deposited in the Treasury Department of the United States, there to remain as a separate and distinct fund, to be known as the "Alaska fund" and to be wholly devoted to the purposes hereinafter stated in the District of Alaska. One-fourth of said fund, or so much thereof as may be necessary, shall be devoted to the establishment and maintenance of public schools in said district; five per centum of said fund shall be devoted to the care and maintenance of insane persons in said district, or so much of said five per centum as may be needed; and all the residue of said fund shall be devoted to the construction and maintenance of wagon roads, bridges, and trails in said district; AND PROVIDED FURTHER, That the clerk of the court of each judicial division of said district is authorized, and he is hereby directed, whenever considered necessary, to call upon the United States marshal of said judicial division to aid in the collection of said license monies be designating regular or special deputies of his office to act as temporary license inspectors, and it shall be the duty of said United States marshal to render such aid; and the said regular or special deputies, while actually engaged in the performance of this duty, shall receive the same fees and allowances

and be paid in the same manner as when performing their regular duties.

Sec. 2. That section two of said Act be, and the same is hereby, amended so as to read as follows:

SEC. 2. 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 Secretray 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 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 said Board shall prepare maps, plans, and specifications of every road or trail they may locate and layout, and whenever more than twenty thousand dollars, in the aggregate, shall have to be expended upon the actual construction of any road or section of road designed to be permanent, contract for the work shall be let by them to the lowest responsible bidder, upon sealed bids, after due notice, under rules and regulations to be prescribed by the Secretary of War. The Board may reject any bid if they deem the same unreasonably high or if they find that there is a combination among bidders. In case no responsible and reasonable bid can be secured, then the work may be carried on with material and men procured and hired by the Board. The engineer officer of the Board shall in all cases supervise the work of construction and see that the same is properly performed. As soon as any road or trail laid out by the Board has been constructed and completed they shall examine the same and make a full and detailed report of the work done on the same to the Secretary of War, and in such report they shall state whether the road or trail has been completed conformably to the maps, plans, and specifications of the same. 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 or 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 cost and expenses of laying out, constructing, and repairing such roads and trails shall be paid by the Secretary of the Treasury, through the authorized disbursing officer of the Board designated by the Secretary of War, out of the road and trail portion of said "Alaska fund" upon vouchers approved and

certified by said Board. The Secretary of the Treasury, shall, at the end of each month, send by mail to each of the members of said Board a statement of the amount available of said "Alaska fund" for the construction and repair of roads and trails, and no greater liability for construction or repair shall at any time be incurred by said Board than the money available therefore at the time in said fund. The members of the Board shall, in addition to their salaries, be reimbursed in the sums actually paid or incurred by them in traveling expenses in the performance of their duties, and shall be entitled to receive their actual expenses of living while serving as members of said Board within the limits of the district and not stationed at a military post.

Approved May 14, 1906.

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June 12, 1906. An Act making appropriation for the support of the Army for the fiscal year ending June 30, 1907. (34 Stats. at Large, 254).

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For the construction and maintenance of military and post roads, bridges, and trails in the District of Alaska, to be expended under the direction of the Board of Road Commissioners described in section two of an Act entitled "An Act to provide for the construction and maintenance of roads, the establishment and maintenance of schools, and the care and support of insane persons in the District of Alaska, and for other purposes" approved January 27, 1905, and to be expended conformably to the provision of said Act, one hundred and fifty thousand dollars. ($150,000.00).

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June 20, 1906. (34 Stats., p. 316).

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Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled. That the sum of $35,000 be, and the same is hereby appropriated, out of any money in the Treasury not otherwise appropriated, for a reconnaissance and preliminary survey of a land route from the navigable waters of the Tanana River, at or near Fairbanks, to the vicinity of Council City, in the Seward Peninsula, Alaska, for a mail and pack trail along such route, such sum to be immediately available, and to be expended under the direction of the Secretary of War; report of said survey and reconnaissance to be made to Congress at the earliest practicable day.

Approved June 20, 1906.

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March 2, 1907. (34 Stats. at Large, 1178).

* * * * * * * * * *

For the construction and maintenance of military and post roads, bridges, and trails in the District of Alaska, to be expended under the direction of the Board of Road Commissioners described in section two of an Act entitled "An Act to provide for the construction and maintenance of roads, the establishment and maintenance of schools, and the care and support of insane persons in the District of Alaska, and for other purposes" approved January 27, 1905, and to be expended conformably to the provisions of said Act, two hundred and fity thousand dollars. ($250,000.00).

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May 11, 1908. (11 Stats., 142).

* * * * * * * * * *

For the construction and maintenance of military and post roads, bridges, and trails in the District of Alaska, to be expended under the direction of the Board of Road Commissioners described in section two of an Act entitled "An Act to provide for the construction and maintenance of roads, the establishment and maintenance of schools, and the care and support of insane persons in the District of Alaska, and for other purposes" approved January 27, 1905, and to be expended conformable to the provision of said Act, Two hundred and fifty thousand dollars ($250,000.00) to remain available until the close of fiscal year 1910.

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February 6, 1909. Amendment to Act creating Road Commission. (35 Stats. at Large, 601).

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So much of the Act approved January 27, 1905, entitled "An Act to provide for the construction and maintenance of roads, establishment and maintenance of schools, and care and support of insane persons in the District of Alaska, and for other purposes," as provides that five per centum of the license monies collected outside of incorporated towns in the District of Alaska shall be devoted to the care and maintenance of such in such insane persons is hereby repealed, and such five per centum, or so for the establishment and maintenance of public schools in said district, under the supervision of the governor.

March 3, 1909. (12 Stats., 148).

* * * * * * * * * *

For construction and maintenance of military and post roads, bridges, and trails in the District of Alaska, to be expended under the direction of the Board of Road Commissioners described in section two of an Act entitled "An Act to provide for the construction and maintenance of roads, establishment and maintenance of schools, and care and support of insane persons in the District of Alaska, and for other purposes," approved January 27, 1905, and to be expended conformably to the provisions of said Act, three hundred and fifty thousand dollars ($350,000.00) to remain available until the close of fiscal year 1911.

March 23, 1910. (13 Stats., 302).

* * * * * * * * * *

For the construction and maintenance of military and post roads, bridges, and trails in the District of Alaska, to be expended under the direction of the Board of Road Commissioners described in section two of an Act entitled "An Act to provide for the construction and maintenance of roads, establishment and maintenance of schools, and care and support of insane persons in the District of Alaska, and for other purposes," approved January 27, 1905, to be expended conformably to the provisions of said Act, one hundred thousand dollars ($100,000.00), to remain available until the close of fiscal year ending June thirtieth, nineteen hundred and twelve.

March 3, 1911. (36 Stats., 1052)

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Same wording as act of June 12, 1906 (34 Stats., 254) except beginning with amount appropriated.

. . . one hundred and fifty thousand dollars ($150,000.00) to remain available until the close of the fiscal year ending June thirtieth, nineteen hundred and thirteen (1913; 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, and in the case of any officer so assigned the provisions of so much of the Act of Congress approved April twenty-third, nineteen hundred and four, entitled "An Act making appropriations for the support of the Army for the fiscal year ending June thirtieth, nineteen hundred and five, and for other purposes" as relates to the assignment of retired

officers to active duty shall apply.

The above extended to Alaska an act of April 23, 1904 (33 Stats., 264) which provided that "The Secretary of War may assign retired officers of the Army, with their consent, to active duty . . . and such officers while so assigned, shall receive the full pay and allowances of their respective grades.

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War Department Act approved August 24, 1912.

* * * * * * * * * *

Construction and maintenance of military and post road, bridges, and trails, Alaska: For the construction, repair, and maintenance of military and post roads, bridges, and trails in the District of Alaska, to be expended under the direction of the Board of Road Commissioners described in section two of an Act entitled "An Act to provide for the construction and maintenance of roads, the establishment and maintenance of schools, and the care and support of insane persons in the District of Alaska, and for other purposes" approved January twenty-seventh, nineteen hundred and five, as amended by the Act approved May fourteenth, nineteen hundred and six, and to be expended conformably to the provisions of said Act as amended, one hundred and twenty-five thousand dollars ($125,000.00).

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War Department Act approved March 2, 1913.

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Construction and maintenance of military and post roads, bridges, and trails, Alaska: For the construction, repair, and maintenance of military and post roads, bridges, and trails in the Territory of Alaska, to be expended under the direction of the Board of Road Commissioners described in section two of an Act entitled "An Act to provide for the construction and maintenance of roads, the establishment and maintenance of schools, and the care and support of insane persons in the District of Alaska, and for other purposes," approved January twenty-seventh, nineteen hundred and five, as amended by the Act approved May fourteenth, nineteen hundred and six, and to be expended conformably to the provisions of said Act as amended $155,000; Provided, That not to exceed $55,000 of this amount may be used by the Board of Road Commissioners for Alaska for the protection of the Signal Corps Building and terminal grounds of the Alaska Military Cable and Telegraph System.

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March 3, 1913 (37 Stats., 728). An Act to provide assistance to persons in Alaska who are indigent and incapacitated through nonage, old age, sickness, or accident, and for other purposes.

* * * * * * * * * *

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled. That section one of an Act entitled "An Act to provide for the construction and maintenance of roads, the establishment and maintenance of schools, and the care and support of insane persons in the district of Alaska, and for other purposes," approved January twenty-seventh, nineteen hundred and five as amended by an Act approved May fourteenth, nineteen hundred and six, and as further amended by an Act approved February sixth, nineteen hundred and nine, be, and the same is hereby amended to read as follows:

SEC. 1. That all monies derived from and collected for liquor licenses, occupation or trade licenses, outside of the incorporated towns in the Territory of Alaska, shall be deposited in the Treasury Department of the United States, there to remain as a separate and distinct fund, to be known as the "Alaska fund" and to be wholly devoted to the purposes hereinafter stated in the Territory of Alaska. Twenty-five per centum of said fund, or so much thereof as may be necessary, shall be devoted to the establishment and maintenance of public schools in said Territory; ten per centum of said fund shall be, and is hereby, appropriated and authorized to be expended for the relief of person in Alaska who are indigent and incapacitated through nonage, old age, sickness, or accident, and all the residue of said fund shall be devoted to the construction and maintenance of wagon roads, bridges, and trails in said Territory; Provided, That the clerk of the court of each judicial division of said Territory is authorized, and he is hereby directed, whenever considered necessary, to call upon the United States marshal of said judicial division to aid in the collection of said license monies by designating regular or special deputies of his office to act as temporary license inspectors, and it shall be the duty of said United States marshal to render such aid; and the said regular or special deputies while actually engaged in the performance of this duty shall receive the same fees and allowances and be paid in the same manner as when performing their regular duties.

That at the end of each fiscal quarter the Secretary of the Treasury of the United States shall divide the amount of said ten percentum of said fund so received during the quarter just ended into four equal parts, and transmit to each of the four United States district judges in Alaska one of said equal amounts.

That each of said judges is hereby authorized to expend so much of the money received by him under this Act as may, in his discretion, be required for the relief of those persons in his division who are incapacitated through nonage, old age, sickness or accident, and who are indigent and unable to assist and protect themselves; Provided That each judge shall quarterly submit to the Secretary of the Treasury an itemized statement, with proper vouchers of all expenditures made by him under this Act, and he shall at the time transmit a copy of said statement to the governor of the Territory; Provided further, That any unexpended balance remaining in the hands of any

judge at the end of any quarter shall be returned to the Secretary of the Treasury of the United States, and by him deposited in the said 'Alaska fund' and the said sum shall be subsequently devoted first, to meeting any actual requirements for the care and relief of such a person as are provided for in this Act in any other division in said Territory wherein the amount allotted for that purpose has proved insufficient; and, second, if there shall be any remainder thereof, said remainder shall be devoted to the construction and maintenance of wagon roads, bridges and trails in said Territory.

Approved March 3, 1913.

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April 27, 1914. (36 Stats., 366). An Act making appropriations for the support of the Army for the fiscal year ending June thirtieth, nineteen hundred and fifteen.

* * * * * * * * * * *

Construction, repair, and maintenance of military and post roads, bridges and trails, Alaska: For the construction, repair, and maintenance of military and post roads, bridges, and trails, Territory of Alaska, $125,000: Provided, That the accounting officers of the Treasury are authorized and directed to allow and credit in the accounts of First Lieutenant Robert L. Weeks, United States Army, the sum of $1,340, disallowed against him on the books of the Treasury in accordance with a ruling of the Comptroller of the Treasury, dated March fourteenth, nineteen hundred and thirteen; and that hereafter any officer of the Army and member of said Board of Road Commissioners who is living with his family while serving as a member of said Board within the limits of the Territory of Alaska, and not stationed at a military post, shall be entitled to receive a per diem commutation fixed by the Board in lieu of "actual living expenses" as now provided by law; and this provision shall embrace the time during which any member of said Board shall have failed in the post to receive any allowance for expense of living by reason of the decision of the Comptroller of the Treasury above referred to, to the effect that said allowance could not be made to an officer living with his family.

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W. D. Act approved March 4, 1915.

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Construction, repair, and maintenance, military and post roads, bridges, and trails, Alaska: For the construction, repair, and maintenance of military and post roads, bridges, and trails, Territory of Alaska, $165,000.

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W. D. Act approved March 29, 1916.

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Construction, repair and maintenance, military and post roads, bridges, and trails, Alaska: Construction, repair and maintenance of military and post roads, bridges, and trails, Territory of Alaska, $500,000.

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W. D. Act approved May 12, 1917.

* * * * * * * * * *

For construction, repair, and maintenance, military and post roads, bridges, and trails, Alaska: Construction, repair and maintenance of military and post roads, bridges, and trails, Territory of Alaska, $500,000, to remain available until June thirtieth, nineteen hundred and nineteen (1919).

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Retired Officer on Active Duty. (40 Stats., 231).

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That when Retired Officer of the Army, any portion of whose active servies was in the Corps of Engineers, are called back into active service they shall be eligible to fill any position required by law to be filled by an officer of the Corps of Engineers.

Approved June 15, 1917.

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Appendix C

WORK PERFORMED DURING THE 1917 CONSTRUCTION SEASON

Southeastern District

Route 1 -- Prince of Wales Island Road (4.1 mile road. 6.8 miles trail).

The work of the year was confined to the wagon-road section, the greater part of which is planked. Worn planks were replaced and the remainder leveled where necessary. An extension of 200 feet at the western end of the road was constructed at a cost of $2 per linear foot. The total expenditure was $676.09.

Route 2 -- Juneau-Eagle River road (16 miles road, 14 miles trail).

A branch road 3,600 feet in length was constructed during the year, connecting the main road with the bridge previously built over Mendenhall River. The new road was graveled throughout its entire length at a cost of 15 cents per linear foot, and a 200-foot framed trestle crossing a tidal slough was constructed at a cost of $3 per foot. The work of continuing this branch to Auke Lake is now in progress.

General maintenance on the main wagon road included increasing the depth of surfacing to enable it to withstand the heavy automobile traffic, clearing ditches, and replanking about 600 linear feet of bridges and culverts at a cost of $1.50 per foot. A new bridge, consisting of one 50-foot pony-truss span and 50 feet of approaches, was built over Lemon Creek at a cost of $650.

Route 3 -- Haines-Pleasant Camp Road (47.5

The year's work on this route was entirely maintenance and embraced resurfacing weak sections with gravel and repairing bridges and culverts. Gravel in place cost approximately 75 centers per cubic yard, the average haul being less than 3,000 feet. The total cost of all work averaged $70 per mile.

Route 14 -- Sitka-Indian River Road (3.4 miles).

Approximately 3,000 feet of new road was constructed at a cost of $1,300 in extending this route toward Sawmill Bay, and a small amount of work was done in protecting the piers of the Indian River bridge during high water.

Route 39 -- Juneau-Sheep Creek Road (3 miles).

The work of the year on this route consisted chiefly of widening the narrowest parts of the road and resurfacing it throughout the greater part of its length. Gravel in place cost $1 per cubic yard, the average haul being about 1 mile. A 60-foot trestle bridge, destroyed by a snowslide during the winter, was replaced at a cost of $600. The average cost of all work was $1,864.80 per mile, the high cost being due to unfavorable weather conditions and the very heavy automobile travel over the road.

Route 40 -- Douglas-Gastineau Channel Road (2 miles).

A total of $414.10 was expended for minor repairs to this road during the year.

Route 43 -- Petersburg-Scow Bay Road (.5 mile road, 1 mile planked trail).

Twenty-eight hundred feet of this road was graded during the year at a cost of $2,285.70. The unusually high cost was due largely to the nature of the soil encountered, which was a blue glacial clay.

The completion of this road will be undertaken next year by the Forestry Service.

Route 44 -- Skagway Valley Road (2.5 miles).

The work of the year on this route was devoted chiefly to the construction of 2.5 miles of road extending north from the bridge previously built over the Skagway River. The new road is surfaced where gravel was available in the ditches. Some additional work was required during the year in protecting the bridge from damage by high water.

Route 45 -- Silver Bow Basin Road (4 miles).

This road extends from Juneau through the Silver Bow Basin to the Perseverance mine. It was constructed by the mining company, but was taken over by the Board in 1915. The work of the past year consisted of surfacing with gravel the softest parts of the road, cleaning ditches, and reconstructing 600 feet of planked roadway at a cost of $1 per linear foot. The cost of gravel averaged $1.25 per cubic yard.

The average cost of all work was $571.42 per mile.

VALDEZ DISTRICT

(Mr. J. H. Ingram, Superintendent)

Route 4A -- Donnelly-Washburn Sled Road (55 miles).

The construction of temporary winter bridges on the Big Delta and Little Delta Rivers and a small amount of grading on approaches to streams not bridged comprised the year's work on this route. The bridges were constructed by contract, those over the Big Delta costing $2 per linear foot, and that over the little Delta $2.50 per linear foot.

Route 4B -- Valdez-Ernestine Road (63 miles).

Throughout a great part of its length this route is subject to attack by glacial streams, and its construction and maintenance have been difficult and expensive. The work of the past year has embraced the repair of damage caused by these streams, general maintenance, and improvements of substantial and expensive character.

The 3-mile section crossing the glacial moraine adjacent to Valdez has been built up to a grade above the highest stage of water, and the embankment protected by brush and rock revetment. Two men were kept on this section during the entire working season, and all threatened portions were strengthened before any serious damage could result.

Extremely high water in Lowe River during the late summer washed out short sections of the road at the head of Keystone Canyon and at the 5-mile post. The repair of these sections necessitated a considerable amount of rock work.

The bursting of glacial reservoirs at the source of a small stream near the head of Keystone Canyon twice destroyed a short section of the road and changed the channel of the stream, requiring the reconstruction of the section and the removal of the bridge to the new channel.

The usual maintenance work comprised the removal of slides and snow, cleaning ditches, repairing culverts and bridges, etc. In addition, about 3 miles of road was graded, and a total of 10,000 cubic yards of gravel surfacing placed. The cost of the gravel depended largely upon the length of haul but averaged approximately $1 per cubic yard.

The average cost of all work on this route was $688.34 per mile.

Route 4C -- Ernestine-Willow Creek Road (29.3 miles).

The work of maintenance and improvement was carried on over the entire route during the year and embraced cleaning ditches and removing slides and windfalls, repairing bridges and culverts, grading approximately 2 miles of road, and placing 1,300 cubic yards of gravel surfacing. The average cost of the work was $383.22 per mile.

Route 4D -- Willow Creek-Gulkana Road (36 miles).

Work on this route during the year included grading about 2.5 miles of road, laying 1,100 linear feet of corduroy, cleaning ditches, and general repairs to the road and bridges. A maintenance crew of two men was employed on this route for the last six weeks of the year dragging the road and repairing culverts. The average cost of all work during the year was $487 per mile, but the cost of maintenance should be materially less in the future, as the entire route is now in good condition.

Tazlina Bridge -- The Tazlina River bridge was in part reconstructed during the spring of 1917. As originally built, together with additions made necessary by changes in the main channel, this bridge, exclusive of approaches, consisted of three 75-foot spans, two 108-foot spans, and one 50-foot span. The 108-foot spans were constructed in 1906, and it was thought advisable to replace them and to repair the entire bridge. The work done was as follows: the two south 75-foot spans were raised 2 feet to conform to the elevation of the new part of the bridge. The 108-foot spans and the 50-foot span were demolished and the north 75-foot span was taken down and replaced by two 100-foot spans of the new standard type (Pratt combination trusses). The 75-foot span was reerected north of the 100-foot spans and the bridge continued northward to the bank by a 60-foot pony-truss combination span and 170 feet of pile trestle. The truss timbers and stringers of the new spans are Douglas fir; the remainder of the timber used in the bridge is Alaska spruce cut in the vicinity of the bridge site. Below is an itemized statement of the field cost of the bridge:

Material (steel, lumber, pile shoes, etc.)	$5,870.57
Equipment	751.05
Freight	1,566.11
Subsistence	1,484.96
Forage and care of animals	560.15
Labor	8,214.63
Miscellaneous	51.64
Total	$18,499.11

Route 4E -- Gulkana-Sourdough Road (21.5 miles).

This is a difficult section to maintain, as the soil is largely clay and mud, and there is but little gravel available within a reasonable distance. The work of the year was devoted to widening the clearing, where necessary, to allow the sun to reach the road, grading with a road grader about 3.5 miles previously ditched by hand, and general repairs. Further grading on this route is being carried on this season. Because of the soil conditions the road is given a higher crown than is usual, and it is thought that after completion of the grading it can be kept in fair condition by a small maintenance crew. The cost of the work done during the year averaged $692.65 per mile.

Route 4F -- Sourdough-168 Milepost Road (18.2 miles).

In addition to ordinary maintenance, approximately 9 miles of road was graded with a road machine to a width of 24 feet. The clearing was widened to 60 feet along the greater part of this 9 miles, to allow the sun to reach the road. A small amount of gravel surfacing was laid at a cost of approximately $2.25 per cubic yard, the high cost being due to the scarcity of gravel and the long hauls necessary.

Route 4G -- 168 Milepost-Delta River Road (38.8 miles)

The work of the year on this route consisted chiefly of ordinary maintenance, embracing the removal of slides, cleaning ditches, and repairing culverts. Approximately 2 miles of road was graded and 9,200 feet surfaced with gravel. A short pile bridge was built over the glacial stream near mile 202, and a dike 700 feet in length was constructed for the purpose of confining the stream to its present channel. The average cost of all work was $306.72 per mile.

Route 4H -- Delta River-McCarty Road (73.4 miles).

The work performed on this route during the year embraced the removal of slides, repairing bridges damaged by high water, grading 2 miles with a grader, and surfacing 1 mile with gravel.

The bridge over the glacier stream near Miller's was lengthened by the construction of two 60-foot spans and 66 feet of approach. The added spans are of the new pony truss type, with steel lower chords and native timber compression members. The cost of this work, exclusive of freight, was as follows:

Material	$1,714.10
Labor:	
Cutting and getting out timber	831.29
Whipsaw timber	416.10

Construction piers	506.30
Framing trusses	143.29
Erecting trusses	107.43
Placing floor system	206.15
Total	3,924.66

To confine this stream to its present channel, a dike 585 feet long and 5 feet high was constructed, with its upstream slope protected by a heavy layer of brush secured at the top to the dike and weighted with rock held in place by wire netting. The total cost of the dike was $588.73.

Route 4I -- McCarty-Richardson Road (20.6 miles).

In addition to general repairs to the road between McCarty and Shaw Creek, the work of the year was confined chiefly to the ferry and bridges in the vicinity of McCarty.

A new ferry scow, 16 by 35 by 3 feet, was constructed of native whipsawed lumber, at a cost of $778.95.

Improvements to the bridge over the north slough near McCarty included replacing the existing 30-foot span by a standard 60-foot pony truss span, reerecting the 30-foot span north of the new 60-foot span, and constructing 56 feet of pile trestle approach. The total cost of this work was $1,027.97, exclusive of freight from Seattle.

A pile bridge, 204 feet in length, constructed over the middle of McCarty Slough, cost $828.37.

Route 6A -- Willow Creek-Tonsina Road (24 miles).

The greater part of this route was graded with a road grader during the year. Culverts were repaired and new ones built where necessary; ditches were cleaned out and a small amount of gravel surfacing placed. During May and June of this year two maintenance men, with a dam, were employed in dragging the road, repairing culverts, etc. The cost of the year's work averaged $328.27 per mile.

This route, which traverses naturally good soil, is now in good condition and should require little work in the near future outside of that performed by a small maintenance crew.

Route 6B -- Tonsina-Chitina Road (15 miles).

Ordinary maintenance work was done on this route, but the chief expenditure was devoted to improvement, which is expensive, because of the rugged and difficult country through which the road runs. The long grade leading to the Tonsina River Valley was widened and surfaced, involving the construction of 1,760 linear feet of cordu-

roy, costing 78 cents per foot, and the removal of 1,400 cubic years of solid rock which was made use of in surfacing 5,570 linear feet of the road. Approximately 3,500 cubic yards of gravel surfacing was placed at an average cost of $1.10 per cubic yard. In addition, ditches were cleaned, slides removed, culverts repaired, driftwood removed from the Tonsina River Bridge, and 1 1/2 miles of road graded.

The dike constructed last year above the Tonsina Bridge (see annual report for 1916, p. 11) was partly destroyed by high water during the summer of 1916. It was rebuilt and strengthened this spring, and has successfully withstood the high water and accomplished its purpose.

Chisana Trail -- this is the winter trail from McCarty, on the Copper River and Northwestern Railroad, to the Chisana mining district. The best route for travel varies from year to year, and the trail is marked each winter with temporary stakes. The staking last fall was done under the supervision of local parties, $500 being expended by the Board and $500 contributed by interested persons in the vicinity.

SOUTHWESTERN DISTRICT

(Mr. Anton Eide, Superintendent)

Route 10 -- Seward-Kenai Lake Road (14 miles).

The work of improvement on this route began in 1915 by the Territorial road commissioner was continued by the board during the past year. The first 3 miles were improved, and extensive new construction was undertaken between mileposts 3 and 7. A total of 4.4 miles were graded with the road grader, 0.8 mile graveled, 520 feet of bridges redecked, and 7 new culverts constructed. The work was greatly hampered by very heavy rains and high water. Unit costs of various classes of work were:

Clearing and grubbing (heavy), per acre	$230.00
Grading, per linear foot	.12
Redecking bridges, per linear foot	2.50
Graveling, per linear foot	.10

Maintenance work during the spring, embracing the repair of washouts, surfacing soft spots, and dragging, cost $1,339.60.

The reconstruction of the bridge over Resurrection River (annual report, 1916, p. 11) was completed during July. The three 75-foot

spans are of Douglas fir and the remainder of the bridge of native spruce timber. An itemized statement of the field cost is given below; freight on material obtained in Seattle is not included.

Material		
Piling		$237.60
Fir lumber		693.40
Native lumber		659.40
Rods, bolts, etc.		600.00
Drifts bolts and spikes		105.50
Dynamite, fuse, and caps		33.00
Tools		10.00
Total		$2,338.90
Driving piles:		
Rent of driver with fuel and oil	$160.00	
Labor	753.67	913.67
Planking and capping piers and lower approaches		330.00
Getting out stringers and caps for approaches		317.00
Framing and raising trusses		340.00
Placing stringer and decking		325.20
Placing hand and guard rails		107.40
Cutting and blasting out old trestle		50.00
Total		$4,722.18

A 72-foot Howe truss span of native spruce was constructed over a stream near the Ole Martin ranch. The detailed cost was:

Getting out timber for crib abutments and lower chord	$ 52.50
Constructing abutments	23.00
9,500 feet b.m. native lumber, at $22 per M	209.00
Rods, bolts, and spikes	47.83
Framing and raising trusses	55.00
Placing decking and handrails	30.00
Total	$417.33

Route 12 -- Mile 34 A.N.R.R.-Hope Road (31 miles road, 9 miles sled road).

The usual maintenance work on the wagon-road section included the widening of the road, cleaning ditches, redecking 420 linear feet of bridges at a cost of $2.75 per foot, and general repairs. On the sled-road section a small amount of work was done, principally in removing windfalls. The total cost was $4,526.35, of which $524 was expended in repairing and protecting the road during the spring.

Route 19 -- Kern Creek-Knik Trail (86 miles).

During the summer of 1916, forest fires and landslides caused by excessive rains destroyed a large part of this trail along Turnagain Arm. The work of repairing this damage covered about 20 miles, and included removing slides, replacing and repairing bridges and culverts, clearing windfalls, and rebuilding cribbing. During the winter two men were employed on the Turnagain Arm section of the trail, repairing it, and keeping it clear of slides and dangerous accumulations of ice.

Upon completion of the new Government railroad from Seward to Matanuska the larger part of this route can be abandoned, but until the gap between Kern Creek and Anchorage is closed winter traffic over it will be very heavy.

Route 20A -- Knik-Susitna Trail (30 miles).

Route 20B -- Susitna-Rainy Pass Trail (127 miles)

Two hundred and fifty dollars was expended on route 20A during the year, chiefly in clearing windfalls and bridging small steams which are difficult to cross during the spring and fall.

Route 20C -- Rainy Pass-Tacotna Trail (130 miles).

Route 20D -- Tacotna-Kaltag Trail (145 miels).

No work done on these routes during the year.

Route 24 -- Miles 29 A.N.R.R.-Moose Pass road (29.5 miles).

The improvement of 14.5 miles of sled road to wagon road standards constituted the work of the year on this route. Grades were cut down, the road bed was widened and drained, culverts were constructed, and corduroy laid where necessary. The average cost of the work was $592.64 per mile. The average unit costs were:

Clearing and grubbing, per acre	$120.00
Ditching and grading, per linear foot	.07
Corduroy, per linear foot	.60

Route 32A -- Tacotna-Flat Creek Trail (87 miles).

No work was done on this route during the year.

Route 35 -- Knik-Willow Creek Road (34 miles).

General repairs were made to the entire route during the year.

A small amount of corduroy was laid, and a quantity of culvert timber was cut and hauled for future use on the section above timber line. One mile of new road was constructed to reduce a steep grade at mile 33.

A standard 60-foot pony truss bridge of native spruce was constructed over the Little Susitna River, replacing an old stringer bridge. The cost was as follows:

Material (steel and hardware, Seattle)	$408.00
Cutting and hewing timber	478.80
Hauling steel, etc., to bridge site	70.00
Constructing and filling timber abutments	75.00
Framing and raising trusses and placing decking	280.00
Total	$1,312.13

The freight on steel and hardware from Seattle is not included in the above total.

Extensive improvement work on this road is now in progress from Wasilla, where it crosses the new Government railraod, in order that it may better serve the growing needs of the Willow Creek mining district.

Route 35A -- Archangel extension (2 miles).

This route will connect mile 32 on the Knik-Willow Creek Road with the Archangel Creek Valley, where a number of lode mines are developing. The entire road will be above timber line, necessitating the transportation of all culvert material and wood for fuel from considerable distances, and thus increasing the cost. Total of $1,003.50 was expended during the past year, and the work of completing the road is now in progress.

McDougall-Cache Creek Trail -- This trail leads from McDougall, on the Yentna River, to the Cache Creek placer mining district, a distance of approximately 30 miles, and was constructed by operators in the district. During September and October, 1916, a location for a wagon road following the same general route was made and a bridge 120 feet long was constructed over Cache Creek, at a total cost of $1,329.15.

Travel to and from this district is dependent upon uncertain and slow, small boat service from Anchorage up the Susitna and Yentna Rivers. Upon the completion of the Government railroad a more suitable route will lead from some point on the railroad near Talkeetna overland to Cache Creek. A reconnaissance of this route is now being made, with a veiw to the probable construction of a sled road if a suitable location is found.

Palmer-Mile 26 survey -- During the late fall of 1916 a location survey was made for a road 8 miles in length from Palmer, on the Government railroad, to mile 26 on the Knik-Willow Creek Road, to serve a considerable number of farmers who have taken up homesteads along the proposed route. The cost of the survey was $96.20. Construction of the road is now under way.

YUKON DISTRICT

(Mr. R. J. Sommers, Superintendent)

Route 4J -- Richardson Salchaket Road (30 miles).

Extensive improvement of that portion of the road between mileposts 312 and 330, except 1 mile, constituted the work of the year on this route. The road was straightened, widened to 30 feet, and graded with a road grader. A change in the location was made between mileposts 318 and 319, involving the construction of approximately a quarter of a mile of new road around a steep bluff. The old road at this point was located on the flat along the Tanana River, where it was subject to overflow during high water. Two other short relocations were also made, the road in each case being shifted from the flat to the hillside, where better soil and drainage could be obtained. Sixty-eight culverts were constructed at an average cost of $20 each, and 560 linear feet of corduroy was laid at a cost of $60 per foot. The average cost of all the work was $1,955.95 per mile for the 17 miles improved.

Route 4K -- Salchaket-Fairbanks Road (40 miels).

Eighteen and a half miles of this road, from mile 352 to mile 370, were reconstructed during the year. The road was widened, straightened, and graded with a road grader; fills were made across small swales, and 8,470 linear feet of drainage ditch constructed. Sixty-one culverts, two 36-foot pony truss bridges, and seven 16-foot stringer bridges were built, and 4,050 linear feet of corduroy laid.

Owing to the continuous cutting away from the road near mile 357, a relocation was made between mileposts 353 and 360. The new location is 09.5 mile longer than the old road but it is on higher ground, with better soil conditions, and is well back from the river. This relocation also eliminated about 3 miles of narrow corduroy which is subject to overflow by the Tanana river during high water, and which could not be satisfactorily repaired except at great expense.

Average unit costs of the work were:

Clearing and grubbing to 30-foot width, per mile	$ 289.20

Grading, including small frills, per mile	1,289.36
Drainage ditches, per foot	.15
Corduroy, per foot	.60
Culverts, each	20.00
Bridges, 16-foot each	40.00
Bridges, 36-foot each	200.00

Route 5 -- Ester-Fort Gibbon Sled Road (148 miles)

The year's work on this route consisted of general repairs and maintenance. Slides, windfalls, and stumps were removed between the 12 and 49 mileposts and 4 bridges, ranging in length from 19 to 31 feet, were constructed, at an average cost of $5 per foot, the high cost being due to the scarcity of suitable timber. Repairs to bridges near Hot Springs cost $157. Seven bridges near Tanana, varying from 18 to 36 feet in length, were reconstructed with sawed lumber at a cost of $858.78.

Route 7A -- Summit-Cleary Road (11 miles).

Route 7B -- Fox-Olnes Raod (13 miles).

Route 7C -- Summit-Fairbanks Creek Road (11 miles).

Route 7E -- Vault Creek Road (2 miles).

Route 7F -- Vault Creek-Treasure Creek Road (1.5 miles).

Route 7H -- Little Eldorado Creek Road (1.5 miles).

Route 7I -- Gilmore-Summit Road (6 miles).

These routes were maintained by the Territorial road commissioner for the fourth judicial division, and no work was done on them by the Board.

Route 7D -- Ester Creek Road (13 miles).

The work of the year on this route consisted of the improvement of 2,000 feet of the road on mile 3, where it traverses a mattress of decayed vegetable matter, or peat, several feet deep, for a distance of over 0.5 mile. Two thousand feet of corduroy was laid and covered, at a cost of 85 cents per foot. Four bridges, with an aggregate length of 89 feet, were built, at a cost of $239.

During the present year the improvement of the road is being continued as far as the Government experimental farm.

Route 7G -- Fairbanks-Gilmore Road (13 miles).

The work done by the Board on this route was confined to the construction of a pile bridge over Noyes Slough to replace 70-foot Howe truss span, which collapsed. A part of the material from the old bridge was used in the new construction, and other material was furnished by the Territorial road commissioner, who also performed general maintenance work on the road.

Route 7J -- Fairbanks-Chena Hot Springs Trail (64 miles).

Route 7K -- Olnes-Livengood sled road (54 miles).

No work was done on these routes during the year.

Route 9 -- Rampart-Eureka Road (6.5 miles road, 21.5 miles sled road).

General maintenance work on this route was carried on during July and August, and included redecking 19 culverts and 3 bridges, the reconstruction of 2 bridges, aggregating 54 feet in length, and widening and repairing the road between the 6 and 10 mileposts.

Route 11A -- Eagle-O'Brien Creek Road (17 miles).

Route 11B -- O'Brien Creek-Fortymile Sled Road (30 miles).

Work on these routes during the year consisted of general repairs and maintenance. On the wagon-road section, culverts were rebuilt, bridges repaired, and one new bridge constructed, ditches cleaned and extended, and a small amount of gravel surfacing placed. Maintenance work on the sled-road section included the removal of rock slides, widending the road, and ditching some sections.

Route 11C -- Steel Creek-Jack Wade Road (2.5 miles).

Route 11D -- Canyon Creek-Walkers Ford Sled Road (10 miles).

No work done on these routes during the year.

Route 11E -- Eagle-Seventy Mile Sled road (20 miles).

A total of $502 was expended on this route, chiefly in constructing three bridges, repair culverts and bridges, and ditching.

Route 15 -- Circle-Miller House Road (49 miles).

Annual maintenance work on 34 miles of this route was performed during the summer and included cleaning and constructing ditches, laying 1 mile of light corduroy, repairing damage caused by washouts, and redecking and repairing culverts and bridges. The average cost of the work was $137 per mile for the 34 miles on which work was done.

Route 16 -- Chatanika-Miller House Sled Road (81 miles).

The year's work on this route consisted chiefly in repairng bridges and removing slides. Six bridges were repaired, and one new bridge 24 feet long was constructed. The total cost of the work was $500.

Route 17 -- Fort Gibbon-Kaltag Trail (257 miles).

The temporary staking of this trail for the guidance of winter travel was done by contract, at a cost of $300.

Route 17A -- Lewis Landing-Dishkaket Trail (108 miles).

Route 17B -- Nulator Dishkaket Trail (90 miles).

No work done on these routes during the year.

Route 22 -- Hot Springs-Sullivan Creek Road (9 miles wagon road, 6 miles trail).

The work of the year on this route was confined to the wagon-road section. Bridges, culverts, and corduroy were repaired, ditches were cleaned, and a small amount of new ditching was done. Grading was done on sections between Kemperville and Sullivan Creek where the road had settled and a grader could be used to advantage. The average cost of the work was $127 per mile.

Route 23A -- Chatanika-Beaver Trail (120 miles).

Route 23B -- Beaver-Chandlar Sled Road (25 miles).

Route 29 -- Fort Gibbon-Koyukuk Trail (100 miles).

No work was undertaken on these routes during the year.

Route 30 -- Hot Springs Land-Eureka Creek Road (32 miles).

The year's work on this route was confined to the section between the Landing and Hot Springs, and comprised laying 180 feet of corduroy, cleaning ditches, filling ruts, and repairing several small bridges and culverts.

Route 31 -- Salchaket-Caribou Creek Sled Road (46 miles).

No work was done on this route during the year.

Route 32B -- Iditarod-Flat Creek Road (8 miles).

Route 33A -- Otter Creek Towpath (22 miles).

Route 33B -- Summit-Otter Creek Road (6 miles).

The work of the year on these routes was devoted to maintenance on the main Iditarod-Flat Creek Road, with some improvements on the first 6 miles of that road. Bridges and culverts were repaired, 4,010 linear feet of corduroy laid, and 9,481 feet of road graveled. The total expenditure was $4,500

Route 38 -- Ruby-Long Creek Road (19.5 miles road, 10.5 miles sled road).

The year's work on this route embraced repairs to the main street of Ruby, the maintenance and improvement of the 6 miles of wagon road previously constructed, and the improvement to wagon road standards of approximately 13.5 miles of sled road.

The extension of the road which forms the main street of Ruby (not an incorporated town) was reconstructed for a distance of 1,300 feet, or practically its entire length. The steep approaches at either end of the street were graded down and ditched and the entire street was surfaced with rock. Six culverts were constructed, the material for five of which was furnished by adjacent property owners. The total cost of this work was $1,501.09.

From Ruby to milepost 6 extensive maintenance and improvement work was done. Sidehill cuts were widened, holes filled, corduroy repaired and renewed, and 240 linear feet of road surfaced with rock. The average cost of the work was $466.84 per mile.

From the 6 milepost to a point 0.5 mile beyond the 19 milepost, a wagon road was completed, largely following the old sled road. The work was accomplished under very trying weather conditions, the rainfall throughout the summer being without precedent in the history of Ruby. This heavy rainfall greatly increased the difficulty of overcoming the miles of glacial muck formation traversed, and was chiefly responsible for the unusually high cost of the work.

In construction of the new road 183 culverts were constructed, 24,506 linear feet of corduroy laid, 46,603 liner feet of road graded and ditched, and two bridges having a total length of 298 feet built. The road varies in width from 16 to 30 feet, according to the formation of the ground. All of the culverts, with the exception of 12, were constructed of poles secured on the ground. Pole or brush corduroy was used, depending upon the timber available where required.

Average costs of the work were:

Clearing, grubbing, and grading, per linear foot	$ 0.78
Corduroy, per linear foot	.90
Culverts, each	27.88
Bridges, per linear foot	1.81

A permanent cache or warehouse 16 by 48 by 10 feet, with a corrugated iron gable roof, was constructed near the 19 mile post for the storage of supplies, equipment, and forage, no building being available for the purpose along the entire length of the road. The cost was $484.61.

Maintenance work during the past spring on the entire 19.5 miles of wagon road comprised thawing ice out of culverts, opening channels under bridges, and repairing damage done to the new road during the break-up. The soil in this region cuts very rapidly when the moss is removed, and it is subjected to the action of running water, and a large part of the corduroy was seriously threatened by cutting ditches. Where this was found to be the case, the inner sides of the ditches were thoroughly revetted with moss and so covered with earth. It is thought that in the future any damage from this source can be largely eliminated by leaving a wider berm -- at least 5 feet -- between the ends of the corduroy and the inner edges of the ditches, and this will be done. The cost of this spring work can not be given, as part of the expenditures had not been reported at the close of the period of this report.

Prior to last year the prevailing summer freight rate from Ruby to Long Creek was 7 cents a pound, the freight being hauled over ridges which in wet weather became almost impassable, horses often sinking to their bellies in the mud. At the present time light motor trucks are delivering freight in ton lots at the 20 milepost under favorable weather conditions, for 1 1/4 to 1 1/2 cents a pound and the rate to Long City when the road is complete will probably not exceed 2 to 2 1/2 cents per pound, the saving resulting directly from the road thus amounting to at least $70 per ton.

The work of completing the road to Long Creek is now in progress. A further extension from Long Creek to Poorman, a distance of approximately 24 miles, is urgently needed, but its construction will be expensive and can not be undertaken by the Board with the funds now available or in prospect.

Route 32B -- Long Creek-Cripple Trail (60 miles).

The work of the year on this route embraced the construction of a 25-foot bridge over Ophir Creek, repairing the bridge over Monument Creek, and filling in washouts between the Solatna River and Poorman. The total cost was $196.

Route 46 -- Kantishna Trail (75.75 miles).

This is a trail constructed during the past winter from the Thirty-mile Roadhouse, 26 miles from Nenana on the proposed route of the new Government railraod, to the Kantishna mining district. Form the initial point to the Toklat River, 26 miles, an old Indian or prospectors' trail was followed. This trail was widened where

necessary, and tripods were placed at intervals of 200 feet in open country for the guidance of travel.

From the Toklat River to Diamond City, 37.75 miles, the work was entirely new construction. The trail was cleared for a width of 8 feet through all timbered sections, trees being cut close to the ground as the depth of snow permitted, and other obstacles to traffic removed. All open country was staked with tripods, and 10 permanent bridges, aggregating 315 feet in length, were constructed.

Between Diamond City and Glacier, the terminus of the route (12 miles), the location follows an old trail, which was widened and straightened where most necessary.

The work done during February and March of this year under the efficient supervision of Mr. Thomas Lloyd. The total cost was $4,571.63.

Route 47 -- Coldfoot-Wiseman Sled road (11.25 miles).

This is a winter sled road from Coldfoot, the ordinary head of navigation on the Koyukuk River for light-draft boats, to Wiseman, which is the supply point for the Koyukuk mining district. Freight is landed at Coldfoot during the summer and a small amount is transported to Wiseman on small gasoline or poling boats or on horse scows. The greater part of the freight, however, is sorted at Coldfoot and hauled to Wiseman and the adjacent producing creeks during the winter.

Construction work was carried on during September and comprised clearing and grubbing over the entire distance, and the construction of 3 foot bridges, with a total length of 445 feet, and 18 wagon bridges, aggregating 384 feet in length.

The total cost of the work was $5,000, or $444.44 per mile.

Eagle-Circle Mail Trail -- A total of $206 was expended on this trail during the year. The work consisted of grading approaches to streams and widening and clearing the trail between mileposts 6 and 10 and between mileposts 15 and 22 north of Eagle.

Bridge over Chena slough, Fairbanks -- The project for this bridge was described in the annual report for 1916 (p. 15). The superstructure is a 300-foot steel span, with Petit trusses, designed for a uniform live load of 50 pounds per square foot or for the two 8-ton motor trucks passing. The abutments are of concrete, each consisting of two columns with stepped reinforced footings, supported on piles. The columns are connected at the top by a reinforced concrete curtain wall. The north approach is a framed trestle 180 feet in length; the south approach constructed by the city of Fairbanks, is combined of earth fill and trestle.

Excavation for the abutments was commenced August 9, 1916, begin delayed until the date by the difficulty of securing proper lumber for the cofferdams, which were constructed at Wakefield sheet piling. Work on the south abutment, which was constructed first, was greatly hampered by a mass of brush and refuse extending to a depth of 15 feet below mean water level, through which the cofferdam and excavation had to be carried. As a consequence of the delays, cold weather set in before the north abutment could be completed, making it necessary to heat the concrete materials and to keep the abutment covered and heated until the concrete had thoroughly set.

The structural steel for the bridge reached Fairbanks on the last boat to arrive there during the open season of 1916, but seven eyebars were found to have been so badly damaged as to make their use inadvisable. Duplicate bars were ordered immediately, shipped by express to Seattle and thence by freight to Chitina, from which place they were hauled on sleds to Fairbanks, arriving only two days before they were needed in the erection.

Pile falsework was driven, braced, and capped before the freeze up. The usual falsework employed in the interior of Alaska is merely a trestle supported on the ice, but in this case the weight of the bridge and the fact that several sewers discharging hot water have their outlets near the bridge site made the use of piles advisable.

A wooden gantry traveler for erecting the trusses was framed and erected during the latter part of the February of this year. The cost of the traveler was considerably increased by the inability of local lumber dealers to furnish timbers of requisite size, which necessitated the use of many built-up members.

The erection of the trusses, starting at the north end was begun March 1. No unusual difficulties were experienced, although the greater part of the crew had had no previous experience in such work. The bridge was swung March 22 and opened to vehicular traffic on April 19.

The total net cost of the bridge was $51,489.19. This was much greater than the first estimate, the increase being due to various causes, some of which, such as the necessity for replacing damaged I bars, the difficulty of excavating for the south abutment, etc., have been mentioned above. It was originally intended to construct the bridge during the winter of 1915-16, but the destruction by fire of the almost completed plans in July, 1915, caused the postponement of the project for a year, during which time prices underwent a considerable advance, making the cost of all structural materials greater than had been anticipated.

A detailed report of the cost has not yet been received; the general distribution was as follows:

Material	$23,190.14
Freight	7,689.88
Equipment	839.67
Engineering and inspection	2,941.81
Labor	15,395.22
Hire and care of animals	1,250.03
Fuel and power	1,032.31
Miscellaneous	622.21
Total	$53,001.27
Received from sales	1,512.08
Total net cost	$51,489.19

NOME DISTRICT

(Mr. Daniel A. Jones, Superintendent)

Route 8 -- Nome-Council Road (approximately 82 miles; 57 constructed).

Maintenance work on the Nome-Fort Davis section included blasting the ice under bridges in the spring and resurfacing 3,300 feet of road with gravel. The Rocker Creek Bridge was repaired by constructing two new crib supports and replacing old stringers.

No expenditure was made on the Fort Davis-Cape Nome section, which, as noted in previous reports, was very badly damaged by the storm of 1913. The Territorial road commission is now engaged upon the reconstruction of this section.

Work on the Cape Nome section, which was reconstructed in 1915 by the Territorial road commission, consisted of removing slides, cleaning ditches, and constructing 1,575 feet of approaches to the new road at a cost of $2,826.99

General maintenance and the construction of 6,945 feet of gravel-surfaced corduroy constituted the year's work on the Solomon-East Fork section. The total expenditure was $5,041.23.

Maintenance of the Fox River-Council section, which is entirely corduroy, cost $445.10 per mile.

The maintenance and operation of the Safety Ferry cost $885.80, of which $385.80 was expended for new cable and minor repairs to the scow.

The cost of maintaining and operating the Bonanza Ferry was $537.70; of this amount, $162.70 was for new cable and repairs to the ferry scow.

Route 13A -- Nome-Bessie Road (3.3 miles).

General maintenance on this route, including resurfacing 7,335 linear feet with gravel, cleaning ditches, and opening channels through the ice under bridges during the spring, cost $696.97 per mile. In addition, 400 cubic yards of material in the fill over Dry Creek, washed out by high water, was replaced at a cost of 51 cents per cubic yard. The maintenance cost for the year was greater than usual, largely because of the heavy rains during the summer of 1916.

During June of this year 1,200 tons of freight were transported over this road, and the daily average freight movement throughout the year was approximately 30 tons.

Route 13B -- Bessie-Banner road (3.5 miles).

The work of the year on this route was confined to surfacing 2.3 miles with gravel, at a cost of $3,797.07.

Route 13C -- Bessie-Little Creek Road (1.25 miles).

Route 13D -- Bessie-Dry Creek road (1.25 miles).

No work was done on these routes during the year.

Route 13E -- Dry Creek-Newton Road (0.33 miles).

Repairs to culverts on this road cost $27.

Route 13F -- Nome-Osborne Road (4 miles).

General maintenance work on this route cost $45.18 per mile.

Route 13G -- Grass Gulch Road (1.75 miles).

No work was undertaken on this route during the year.

Route 13H -- Center Creek Road (1.37 miles).

The cost of resurfacing 625 feet of this road with gravel was $386.84.

Route 13I -- Nome River Road (5 miles).

The protection of this road during the spring break-up cost $13.05 per mile. No other work was done during the year.

Route 13J -- Wonder-Flat Creek Road (2 miles).

General repairs and maintenance on this route cost $178.05 per mile.

Route 13K -- Bessie-Buster Road (5 miles).

The work of the year on this route consisted of general maintenance and surfacing 1 mile with gravel 12 inches thick, at a cost of $0.36 per foot.

Route 18 -- Kaltag-Solomo Trail (248 miles).

On the Topkok-Unalaklik section of this trail 2,818 permanent stakes, each 3 inches in diameter at the butt and 9 feet long, were cut and set. In addition the permanent stakes on 79 miles were repaired and reset where necessary and 4 1/2 miles of new trail cleared through timber. The total cost was $961.85.

Route 21 -- Unalaklik-St. Michael Trail (approximately 65 miles).

The temporary staking of 18 miles on the ice between St. Michael and Klikitarick cost $16. The remainder of the work embraced restaking 27 miles with permanent stakes and the construction of a light tram over the Golsovia River, at a total cost of $381.40.

Route 25A -- Cripple River Road (13.5 miles, total A and B).

Route 25B -- Penny River Road.

Route 25C -- Nome-Wireless Road (0.25 mile).

No work was done on these routes during the year.

Route 25D -- Mouth of Center Creek Road (2 miles).

General maintenance and repairs on this road cost $87.66 per mile.

Route 25E -- Submarine Paystreak Road (2.5 miles).

As originally built this road extended from near the mouth of Snake River for a distance of approximately 1 mile along the submarine paystreak. A total of only $620.84 has been expended on it since its location, is being constructed from Snake River bridge to the submarine paystreak. This road will be designated by the same name and route number as the old road, which has been abandoned.

The work of the year consisted chiefly in the construction of fills leading to the Snake River bridge approaches, containing 1,460 cubic yard of material. A branch road 1,200 feet in length was also constructed from the west approach to a point near the mouth of Snake River. The total cost of all work was $1,765.07.

Route 25F -- Anvil-Glacier Road (3 miles).

General repairs to this route included cleaning ditches and hauling 480 cubic yards of gravel surfacing. The average cost was $395.85 per mile.

Route 25G -- Snake River Extension Road (3 miles).

The work of the year on this route embraced general repairs and the surfacing of 2,380 linear feet of road with gravel. A suspension foot bridge over Snake River at the mouth of Boulder Creek, having a span of 130 feet, and two 18-foot bridges over Sledge Creek were constructed at a cost of $294.73. The material used was largely obtained from the old Snake River bridge.

Route 25H -- Otter Creek Road (1.25 miles).

No work was done on this route during the year.

Route 25 -- Sinrock Ferry.

The total cost of maintaining and operating this ferry was $321.90, of which $71.90 was expended for minor repairs to the scow.

Route 26 -- Candle-Candle Creek Road (5 miles).

The year's work on this route consisted of cutting and tying 3,382 fifty-pound bundles of willows, which were hauled and distributed along the road during the winter for use in constructing corduroy this year.

Route 27 -- Deering-Inmachuck Road (25 miles).

General maintenance covering the whole route, together with some new construction on the left bank of the Inmachuck River, eliminating seven crossings of the river, constituted the work of the past year. The center pier of the bridge over the lagoon near Deering had been undermined and was removed and replaced by piles. Eight new culverts were constructed, 0.5 mile of road graded and ditched, and 2,700 feet of corduroy laid and graveled.

Route 28 -- Dahl Creek-Candle Trail (140 miles).

The repair and replacement, where necessary, of permanent stakes throughout the entire length of the route cost $1 per mile.

Route 37 --Topkok-Candle Trail (141 miles).

Twenty-six miles of this route were restaked with permanent stakes and 3 miles cleared through timber, at a total cost of $460.

Route 42 -- St. Michael-Kotlik Trail (approximately 70 miles).

Those portions of this route not on the ice were marked with permanent stakes, 40 to the mile. The work was done by contract and cost $350.

Route 49 -- Davidsons Landing-Taylor Creek Road (40 miles; 24 constructed).

This road extends from the head of navigation on Marys River to Taylor Creek, in the Kougarok mining district. Only light construction work was undertaken, covering the first 24 miles of the route, and consisting of clearing out the road, eliminating creek crossings by grading, and laying gravel-surfaced willow corduroy over soft spots. Since the work was done teams have been able to haul loose loads 1,500 pounds greater than the average before the improvement was made.

Marshall Road -- This road when completed will extend from a tributary slough of the Yukon to the placer mines of the Marshall district and will be about 3 miles in length. The work done during the past year consisted of cutting and hauling poles for approximately 2 miles of corduroy. Only a part of the accounts covering this work have been received, and the total cost can not be reported.

This project has been taken over and will be completed this year by the Territorial road commission.

Flagging trails -- Approximately 550 miles of trails, in addition to those permanently marked, were temporarily staked or flagged for the guidance and safety of winter travel. The total cost, including cost of inspection trips by the superintendent of the district, was $4,225.30.

Snake River Bridge -- The construction of this bridge (see annual report 1916, p. 18) was begun June 17 and completed August 19, 1916. Nearly all of the material used including piles, lumber, and steel, had to be obtained and shipped from Seattle, largely increasing the cost. The two 100-foot spans are of the combination Pratt truss type. All truss timers, stringers, and planks are Douglas fir.

The total cost including the expenditure reported last year, was $16,949.93, distributed as follows:

Material	$5,646.72
Equipment	400.21
Freight on material and equipment	3,441.65
Engineering	600.00
Labor	6,188.39

Hire of animals	453.31
Miscellaneous (fuel, telegraph, etc.)	220.25
Total	$16,949.93

Of the above amount $526.50 was expended during the winter in protecting the piers by cutting away the ice and placing riprap around them.

SOURCE: War Department. 1917. Annual Report of the Board of Road Commissioners for Alaska, 1917. pp. 17-34.

Appendix D

RECONNAISSANCE SURVEY - FORT GIBBON (TANANA) TO KOYUKUK AND KOBUK RIVERS TO KOTZEBUE, 1923-1924

The purpose of this survey report in the winter of 1923-24 was to obtain information on the route for possible improvements of the trail and erection of shelter cabins. It was an old established trail, and of great use in access to the upper Koyukuk and Kotzebue area on the coast.

The trail extended north to Allakaket, Bettles, Coldfoot, and Wiseman, a distance of 180 miles. From Allakaket it branched off westward to Kotzebue, via the Alatna and Kobuk Rivers to Shungnak, Kiana, and Kotzebue, 280 miles.

The snowfall in the vicinity of Alatna was very light at the time of arrival at that place. The Christmas holidays brought the natives to the Mission of St. John in the wilderness at Allakaket on the Koyukuk, near the mouth of the Alatna River. This gave me an opportunity to select a suitable guide from among the Kobuk natives. After having all the arrangements made for the trip, taking ten days supplies and dog food, I proceeded with Napoleon, the Kobuk guide, January 7th along the Alatna River, taking advantage of the portages, to Blackjack, a Kobuk village, where we stayed at Chief Nulyook's place for the night. From Blackjack the river was used, making short cuts across the portages of the many bends in the river. A 7 x 7 tent was used for camping out as there are no cabins along this route of travel. We had already resorted to the use of snow shoes to break trail for the dog team, the snow being heavier towards the Endicott Range. A blizzard from the northeast compelled us to seek shelter in a spruce grove, where we pitched camp for the night. It snowed during the night and the wind was getting stronger. Nothing was visible for more than a half a mile, but having worked out a compass course, Napoleon and I started to break trail and mark the same to the Hogotza, locally called the Hog River. For the next two days we were breaking trail and found faint traces of old blazes but the snow had driven so hard that the bark of the trees was covered with snow. The line of blazed trees corresponded to the compass course and the same was followed for three hours, returning to camp at dusk. Only two days dog food was on hand and our food supply was getting low; I decided to return to Marsan to replenish our supplies. On the return trip we met a Fur warden from Nome with three dog teams and two natives as guides and trail breakers. Later in the day we met a Kobuk trapper and we camped at this tent for the night. Leaving the tent next morning, we traveled the Alatna River. The cold was severe, the nostrils and mouths of the dogs were getting iced. We made Pooto Hope's cabin, stopped for the day (63 degrees below zero). The next day we returned to Marsan and after replenishing our supplies, engaged Nictune, native, to return with us to haul dog food. Leaving Marsan on the 28th of January, the Kobuk was reached on February 1st, made camp about two miles above Reed River (temperature 52 degrees below

zero). Next day passed Reed River and Beaver Creek, at the mouth of Reed River overflow was concealed beneath the snow, got feet wet and sled runners iced. The faces of the dogs and the front of our parkas were frozen so made camp at 3 P. M. During the night Napoleon and Nictune had to make a fire in order to keep warm (69 degrees below zero). In the course of next morning's travel, both natives had their cheeks and chins frost bitten. We pulled in at a white trapper's cabin, below Selby Creek, where we had lunch. Here we learned that distemper was raging among the dogs along the Kobuk River and that many had died of the disease. Stayed overnight at Pah River, where three Kobuk igloos are located. Proceeded next morning on Kobuk River, arriving at Shungnak on February 4th at 5 P.M. We put up at the store which has a sawmill and mining enterprise also. The eight days following, the weather remained 51 to 70 degrees below zero. During this time made a trip to the native village 7-1/2 miles below Shungnak, where the Bureau of Education maintains a school, presided over by two teachers who also look after the reindeer herds in behalf of the Government. Owing to the epidemic of distemper among the dogs, the scarcity of dog food and the extreme cold, I decided not to go on to Kotzebue and went to Noorvik, where I wired Fairbanks to that effect. Left Marsan February 28th over the winter trail for Nolan and arrived at Henshaw Cabin at 5 P.M. The trail was drifted in many places. Proceeded next day to Chinoko Cabin. At this palce I met two Koyukuk natives who were hauling dog food for the Geological Survey. Next day I arrived at Bettles and had a meeting with the miners and residents and talked over trail matters. Proceeded on to Coldfoot and 2-1/2 miles below Coldfoot, where Porcupine Creek flows into the Koyukuk -- a heavy overflow, 18 inches deep, was encountered. Cutting a way around, I arrived at Coldfoot at 1:30 P.M. Had Lunch with Mianano, a Japanese, then proceeded to Wiseman and on to Nolan, it being the center of mining activities in the district, 6 miles from Wiseman. A meeting was held there and also at Wiseman to talk over trail and road matters. There seems to be more prospecting and development on the Upper Koyukuk than there has been for some time past. On Nolan Creek, 16 men in 3 outfits, were taking out winter dumps from shafts, others were working on benches. There was considerable working ground, but the water for sluicing was and had been a drawback. Two men were sinking a shaft on Alte Creek, 2 men and 1 woman on Emma Creek, 2 men on 12 Mile Creek, 5 men and 1 woman on Porcupine Creek, 5 men on Tramway Bar, 2 men on California Creek, 1 on Bettles River, 10 on Hammond Creek and 1 on Union Gulch. Four men were mining on Wild and 3 on John River.

The question of transportation and cost of supplies was foremost. Freight from Nenana to Bettles was $90.00 per ton by boat, owned by the operating stores who handled mostly their own goods.

Leaving Wiseman on March 10th, I arrived at Nenana on March 26th, having covered 1,350 miles, of which 700 miles were traveled on showshoes.

The money spent in former years for the improvement of trails, roads and shelter cabins north of the Yukon has been, in many cases, misapplied

or wasted, either by having incompetent persons directing the work or others who directd the work for selfish purposes.[59]

Source: Valdez Trail Collection, Universityy of Alaska Archives, Fairbanks, Alaska

APPENDIX E

Summary of All Expenditures to June 30, 1933

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

Fiscal year	Congressional appropriations	Alaska fund	Other funds	Total
1905.....	$----------	$28,000.00	$----------	$28,000.00(1)
1906.....	118,172.09	57,420.77	----------	175,592.86(1)
1907.....	197,930.91	148,814.79	----------	346,745.70(2)
1908.....	244,857.18	120,772.72	----------	365,629.90(2)
1909.....	236,674.97	146,971.92	----------	383,646.89(2)
1910.....	237,498.50	102,898.29	----------	340,396.79(2)
1911.....	100,000.00	166,777.95	----------	266,777.95
1912.....	150,103.58	167,302.49	----------	317,406.07
1912.....	----------	17,052.23(3)	----------	17,052.23
1913.....	125,010.91	228,117.56	----------	353,128.47
1914.....	153,174.43	170,638.37	----------	323,862.80
1915.....	126,852.28	157,915.84	----------	284,768.12
1916.....	165,011.73	135,708.89	----------	300,720.62
1917.....	500,031.75	76,716.15	----------	576,747.90
1918.....	325,000.00	272,020.18	145.20	597,165.38
1919.....	246,651.95	52,372.31	----------	299,024.26
1920.....	132,426.73	124,992.96	101,184.56	358,604.25
1921.....	350,000.00	218,247.21	98,551.98	666,799.19
1922.....	426,807.34	173,029.19	83,411.15	683,247.68
1923.....	555,613.67	34,398.23	150,070.59	740,082.49
1924.....	730,423.17	67,683.67	138,000.81	936,107.65
1925.....	775,665.02	168,518.01	194,164.61	1,138,347.64
1926.....	1,013,577.53	115,035.11	182,705.05	1,311,317.69
1927.....	889,443.65	207,909.20	119,814.04	1,217,166.89
1928.....	860,192.90	134,593.11	258,882.17	1,253,668.18
1929.....	997,297.64	134,371.66	315,494.61	1,447,163.91
1930.....	775,406.36	138,542.03	342,401.26	1,256,349.65
1931.....	751,366.08	202,547.78	334,359.60	1,288,273.46
1932.....	710,738.05	68,270.32	260,022.41	1,039,030.78
1933.....	448,777.90	162,310.04	83,948.22	695,036.16
Total	12,344,706.32	3,999,998.98	2,663,156.26	19,007,861.56

(1) to Oct. 31.
(2) to Sept. 30
(3) U. S. Treasury adjustment.

"Other funds" in the foregoing table include the following expenditures from other appropriations:

Fiscal year	Increase of Compensation Acts	Quartermaster General	Funds Contributed	National Park Service
1918.....	$145.20	----------	----------	----------
1920.....	---------	----------	$101,184.56	----------
1921.....	940.00	----------	97,611.98	----------
1922.....	4,322.09	----------	79,089.06	----------
1923.....	28,857.73	----------	121,212.87	----------
1924.....	45,675.36	----------	92,325.45	----------
1925.....	15,136.08	$300.00	98,708.53	$80,020.00
1926.....	---------	290.17	132,414.88	50,000.00
1927.....	---------	812.00	103,001.10	16,000.94
1928.....	---------	792.83	198,089.34	60,000.00
1929.....	---------	1,000.00	249,494.61	65,000.00
1930.....	---------	1,499.80	180,080.15	160,821.31
1931.....	---------	937.47	165,604.86	167,817.27
1932.....	---------	2,324.83	161,459.79	96,237.79
1933.....	---------	----------	6,698.71	77,249.51
Total.....	95,076.45(1)	7,957.10	1,786,975.89(2)	773,146.82(3)

(1) Includes refunds of $16.95
(2) Includes refunds of $10,571.43 but is exclusive of reversions to Treasury (Economy Legislation) of $302.39.
(3) Includes refunds of $20.94 but is exclusive of reversions to Treasury (Economy Legislation) of $3,209.09.

Total Congressional appropriations.....		$12,836,710.00
Less - Reversions to Treasury (Economy Legislations).....	$25,116.70	
Transfer to U. S. Engineer Department (Lowell Creek flood control).....	417.21	
Balance unexpended.....	489,715.40	515,249.31
Amount expended.....		12,321,460.69
Add Navy Department reimbursement.....	3,976.19	
Add repayments and voucher correctoins, 1920-1929.....	19,269.44	23,245.63
Total expenditures.....		12,344,706.32
Total Alaska fund.....	3,917,167.45	
Add sales, refunds, etc., 1905-1929.....	130,182.29	4,047,349.74
Less balance unexpended July 1, 1933.....		47,350.76
Total expenditures.....		3,999,998.98

These expenditures are summarized as follows:

Federal Appropriations

Congressional appropriations	$12,344,706.32
Alaska fund, 1905-1933	3,982,946.75
U. S. Treasury adjustment, 1921	17,052.23
Increase compensation acts, 1918-1925	95,076.45
Quartermaster General, 1925-1932	7,957.10
National Park Service, 1925-1933	773,146.82
Total	17,220,885.67

Contributed Funds

Territory of Alaska, 1920-1933	1,634,467.07
Miscellaneous	152,508.82
Total	1,786,975.89
Grand total	19,007,861.56

In addition to the above funds, disbursed through the United States Treasury, the Commision has supervised the expenditure of the following funds, disbursed by other agencies, for road and trail development:

Territorial funds and forest revenues prior to 1921	684,239.64
Terirotiral divisional commissioners, 1921-1929	194,939.60
Seward Peninsula tramway, 1923	24,014.00
Tolovana tramway, 1924	6,425.00
Kaltag portage survey, 1925	312.72
Miscellaneous, 1926-1930	22,349.50
Total	932,280.46

Territorial Funds.

The following Territorial funds have been appropriated and expended to March 31, 193:

Forest revenues to June 30, 1932	$337,713.93
Various acts, including May 2, 1929, shelter cabins	120,895.62
" " " " " " roads, bridges trails and ferries	2,295,000.00
Various acts, including May 5, 1921, Nizina River Bridge	50,000.00
" " " Apr. 27, 1931, telephone lines Seward Peninsula	17,999.29
May 5, 1921, Seward Peninsula Railway	24,014.00
May 3, 1923, Tolovana Tramway	6,425.00
May 5, 1923, Kaltag Portage Survey	312.72
Apr. 30, 1925, Pioneer Cemetery Road	3,341.02
Apr. 16, 1929, flood protection, Hyder	7,499.51
May 1, 1929, telephone lines	74.00
May 2, 1929, Yukon-Kuskokwim Portage	7,500.00
Apr. 6, 1931, Vladez Dyke, reconstruction	10,000.00
Apr. 29, 1931, Improvement Fairbanks waterfront	7,500.00
Apr. 30, 1931, radio telephones, Second Division	6,477.34
Apr. 30, 1931, shelter cabins	2,699.88
Apr. 30, 1931, roads, bridges, trails and ferries	109,151.67
Deposits from sales and refunds	428.75
Total appropriated to March 1, 1933	3,007,032.64

Expenditures

Expended by Territory prior to Apr. 1, 1921	684,239.64
" " " Apr. 1, 1921 to Mar. 31, 1933	133,775.40
Supervised by Alaska Road Commission, 1921-1931	226,691.32
Cooperative with Alaska Road Commission, 1920-1933	1,624,310.64
Cooperative with Forest Service, 1920-1933	320,438.12
Total expended to Mar. 31, 1933	2,989,455.12
Balance Apr. 1, 1933, Forest Reserve fund	17,577.52
	3,007,032.64

For the working season of 1933 (fiscal year 1934) the Territorial Board has allotted to the Alaska Road Commission the following amounts:

Cooperative road projects	$26,550.00
Shelter cabins	1,000.00
Aviation fields	2,250.00
Totals	29,800.00

Materials, Supplies and Equipment

Alaska products are preferably used in the work when the price and quality compare favorably with the cost of the same items landed at warehouses in Alaska.

All supplies not procured in Alaska are purchased for the Commission by a governmental purchasing agency in Seattle, acting also for various other bureaus operating the Territory. The cost of this service is shared by thhe individual bureaus on a pro rata basis. The share for the Alaska Road Commission is 4 percent of the invoice price of items thus purchased.

Work is performed by mechanical equipment to every extent deemed advantageous. Small jobs in reomte sections are necessarily done by hand. The Commission is now fully equipped to handle construction and maintenance work within the present limits of appropriations except for replacement of unserviceable or obsolete equipment. During the fiscal year just closed the following pieces of mechanical equipment were purchased:

4 dump truck, 1 1/2 yard
1 tractor, 30 h.p.
3 scrapers, automatic rotary fresno
1 mower
4 graders, power.

Organization

Labor, both common and skilled, is secured entirely from local residents. Due to decreased appropriations and the general business depression the supply of labor has been plentiful the past year. In fact, some of the oldest employees were hired for only short periods and others were entirely without work. It is encouraging to note the exceptional loyalty to the organization which is manifested generally even by the lowest paid laborers. This may be attributed in part to the fact that, though the work is only seasonal, many of these men have worked for the Commission continuously for 5 to 10 seasons and in part to the fact that as a whole Alaska labor is probably superior to that found elsewhere.

The general scheme of operations is practically the same as under the War Department previous to the transfer of the organization to the Department of the Interior on July 1, 1932. There has also, except of course for the military personnel, been little change in the personnel of the organization. At the Juneau headquarters, located in the Federal and Territorial Building, is the general office staff consisting of a chief engineer and an assistant chief engineer with necessary clerical assistants. Disbursing is performed by the disbursing officer for the Department of the Interior at Juneau.

Bridges are built of native or imported timber or steel, depending on their importance. Fir has been found to be the most suitable material for timber bridges but improvements in methods of local timber production now in progress will, if successful, make possible some use of Alaska hemlock for structural purposes. Metal culverts are being introduced to replace the culverts of native timber heretofore used.

Operations during the Fiscal Year

The work in the past fiscal year was confined largely to maintenance and improvement of the chief existing routes.

The Richardson Highway was open from Valdez to Fairbanks from June 17 to October 23 except for a 7-day period in August when cloudbursts and continual rains took out a bridge at Mile 226 and otherwise seriously damaged the road in that vicinity. Similar experiences on the Alaska Railroad closed that route to the Interior during the period August 6th to 20th. Fortunately, the two routes were not closed simultaneously.

The surfacing program for the Steese Highway was continued and at the end of the season only 23.5 miles of the total of 163 miles remained unsurfaced.

An additional 7 miles of the Gulkana-Nabesna road, leading from the Richardson Highway to the Nabesna mining region, were improved to an extent permitting the use of automobile trucks, making a total of 64 miles thus completed and leavving 41.5 miles yet to be completed. This 41.5-mile section has been made suitable for a summer tractor road.

The highway through Mt. McKinley Naitonal Park was opened for an additional distance of 11.75 miles, the constructed portion of the route now totaling 66.25 miles in length and leaving 22 miles to be completed. When completed the route will extend to the north park boundary, only 9 miles from the Kantishna mining district, a district reported to contain quantities of very valuable ores.

Insufficient funds prevented resumption of work on the Olnes-Livengood project. The project was begun in the summer of 1931.

Work accomplished during the fiscal year is summarized as follows:

New construction: 21.5 miles road, 59.5 miles sled road, 340 linear feet of bridges of 60-foot psan or over (renewals) and 1,732 linear feet of trestle span.

Improvement: 30.6 miles road reconstructed, 54.14 miles road surfaced with 72,387 cubic yards gravel, 319 linear feet of retaining walls built and numerous culverst replaced.

Maintenance: 1,552 miles road, 74 miles tramway, 707 miles sled road, 4,687 miles permanent trail and 329 miles of temporary flagged trail were maintained at their usual standard.

The total mileage of all routes, as of June 30, 1933, is as follows:

	Road	Sled Road	Trail	Flagged Trail	Grand Total
June 30, 1932.....(a)	1,701 1/2	1,495 1/2	7,332	712	11,231
Fiscal Year 1933					
New mileage.....	15 1/2	-------	103	----	118 1/2
Reclassified.....	18 3/4	121 1/2	-104 1/4	----	--------
Total.....	1,735 3/4	1,617	7,284 3/4	712	11,349 1/2
No work of either maintenance or improvement during fiscal year 1933.....	107 1/4	910	2,597 3/4	383	3,998

(a) Includes 74 miles tram road.

Proposed Operations

In addition to $469,300 from appropriated funds, it is estimated there will be available from the "Alaska Fund" and Territorial appropriations $210,000, for the fiscal year ending June 30, 1934.

These funds will be required for normal maintenance of the existing system and for a limited improvement of certain sections. Surfacing will be provided where possible with available funds and a limited mileage of tractor road will be improved to an extent permitting the use of truck traffic in dry weather only.

Recommendations.

For the fiscal year ending June 30, 1935 an appropriation of $800,000 is recommended in addition to funds available from other sources. This will provide for necessary maintenance to the existing system and for the continuance of a reasonable program of construction on projects now under way.

The principal projects on which new work would be performed are as follows:

Gulkana-Nabesna. Completion of a truck road to the Nabesna River.

Olnes-Livengood. This project would be placed on a program insuring completion in three years.

Willow Station-Lucky Shot. Continued improvement to provide a truck road.

Iliamna Bay-Iliamna Lake. Completion of road.

Talkeetna-Peters Creek. Completion of tractor road.

In addition to the above listed projects work will be required on a number of small projects to serve developments as they occur.

A well planned program required definite assurance that funds will be provided at a uniform rate. This allows for a deinite plan for procurement and economical use of equipment as well as the building up of a well balanced and competent supervisory force. Such a plan is impossible under wide fluctuation of available funds from year to year.

Twenty Nine Years' Service.

With the period covered by this report the Alaska Road Commission concludes its twenty-ninth year of service. The work accomplished consists of the construction and maintenance of 1,755 3/4 miles of wagon and tram road, most of which is suitable for automobiles, 1,617 miles of winter sled road, 7,284 3/4 miles of trail and 712 miles of flagged trail. The total costs to the end of the fiscal year are $18,708,683.89, of which $9,543,641.05 was for new work and $9,165,042.84 was for maintenance and improvement. The total expenditures to date are $19,007,861.56 of which $13,220,886.69 were derived from Federal appropriation acts. The balance, $5,786,974.87, or over 30 percent of the total expenditures, was obtained from Alaska sources.

The pioneer period of the Alaska Road Commission is largely over. all existing mileage has been opened and improved, so far as funds have permitted. The present system of roads serves as the basis for future development of overland routes throughout the Territory. This development calls only for additional funds for construction.

Costs.

A standard cost system is maintained in all districts, from which, over a period of years, valuable information can be secured in the preparation of estimates. In the use of such data, however, consideration must be given to the large differences in freight rates, labor costs and climatic conditions in the various sections.

In the interior of Alaska the average cost for construction of a mile of gravel-surfaced road capable of continuous traffic in any kind of summer weather, and of such width as to enable cars to pass at any point, is $9,000.

Annual maintenance costs, including minor improvements, are roughly considered as $300 per mile for wagon roads, $25 for sled roads, $10 for trails and $3 for flagged trails. for the working seasons of 1932 bare maintenance, exclusive of necessry improvements, was $137.08 per mile for roads, $8.07 for sled roads and $2.83 for trails. Roads were kept open for traffic, except in unusual circumstances as heretofore noted, but in certain instances maintenance was insufficient due to lack of funds.

Very little engineering is done on roads after the final survey is made. A resident engineering force is never maintainted. To take the place of a permanent engineering force on a new job, foremen of long experience are employed and advised frequently by superintendents who are either engineers or men of wide experience on engineering work of this nature in Alaska.

Dispensing with relatively large engineering forces has reduced costs materially and, due to the low type of construction undertaken, has not adversely affected the work to any extent.

The Richardson Hihgway, which with the Edgerton Cutoff from Chitina totals 410 miless, is now in such condition that a 2-ton truck can ordinarily travel from Valdez to Fairbanks, 3700 miles, in 18 hours. Actually the first automobile went over this route in 1913 but due to lack of funds improvement to a fair standard proceeded slowly. The total average cost per mile to June 30, 1933 for construction and maintenance including all costs for clearing, etc. for the 8-year period previous to 1913 for the 410 miles, is $17,054.62.

The Steese Highway extending from Fairbanks to Circle, a distance of 162 miles, is suitable for traffic not exceeding 2-ton trucks. Including maintenance of completed sections over a period of 15 years, the total cost per mile of this road to June 30, 1933 is $10,701.40.

A consolidated cost statement of all routes follows:

CONSOLIDATED COST SUMMARY

No.	Sub-project Name	Cost 1933	Total Cost to June 30, 1933	Cost Maintenance and Improvement 1933	Total cost Maintenance and Improvement to June 30, 1933	Cost Construction 1933	Total Cost Construction to June 30, 1933
1*	Prince of Wales Island.....	$ ---	$63,850.26	$ ---	$21,038.40	$ ---	$42,811.86
2A*	Auk Bay Extension.....	---	60,404.43	---	12,300.30	---	48,104.13
2B*	Mendenhall Glacier Extension	---	15,150.21	---	7,644.57	---	7,505.64
2C*	Eagle River Extension.....	---	18,362.32	---	3,360.00	---	15,002.32
2D*	Juneau-Duck Creek.....	---	109,658.27	---	31,250.55	---	78,407.72
2E	Gastineau Channel Bar.....	---	30,007.83	---	1,386.00	---	28,621.83
2F	Gold Creek Bridge, Juneau...	---	2,156.75	---	---	---	2,156.75
2G	Alaska Juneau Mine Trail....	---	831.66	---	---	---	831.66
2H	Juneau Wharf.....	2,850.98	33,818.51	2,850.98	3,602.20	---	30,216.31
2J	Juneau Float.....	26.99	5,206.79	26.99	72.37	---	5,134.42
3A	Haines-Wells.....	3,582.56	246,788.90	3,582.56	123,158.91	---	123,629.99
3B	Pleasant Camp Extension.....	2,989.44	173,699.64	2,989.44	31,505.44	---	142,194.20
3C	Porcupine Extension.....	---	47,634.63	---	9,279.73	---	38,354.90
3D	Haines-Mud Bay.....	80.37	32,144.66	80.37	13,337.20	---	18,807.46
3E	Haines-Chilkoot.....	725.28	20,950.14	725.28	2,713.58	---	18,236.56
3F	Haines-Jones Point.....	---	2,353.20	---	799.75	---	1,553.45
3G	Chilkoot Barracks water supply	---	28,344.60	---	---	---	28,344.60
3H	Chilkoot Barracks roads.....	---	1,252.50	---	1,252.52	---	---
4A**	Donnelly-Washburn.....	---	33,460.06	---	14,594.66	---	18,865.40
4AA	Richardson-Democrat Creek...	---	2,320.59	---	---	---	2,320.59
4AB	Donelly Avaition Field.....	---	137.42	---	14.11	---	123.31
4BA	Valdez-Ptarmigan Drop.....	35,858.23	1,103,752.86	35,858.23	633,196.31	---	470,556.55
4BA	Dyke.....	5,311.64	124,412.00	5,311.64	68,346.02	---	56,065.98
4BB	Ptarmigan Drop-Ernestine....	9,463.52	461,026.07	9,463.52	289,798.51	---	171,227.56
4C	Ernestine-Willow Creek.....	5,218.13	368,304.23	5,218.13	190,804.38	---	177,499.85
4D	Willow Creek-Gulkana.....	23,990.47	630,045.48	23,990.47	383,650.90	---	246,394.58
4E	Gulkana-Sourdough.....	1,021.84	385,058.09	1,021.84	240,884.39	---	144,173.70
4F	Sourdough-Mile 168.....	1,126.34	326,008.28	1,126.34	189,749.99	---	136,258.29
4G	Mile 168-Delta River.....	3,708.88	541,733.39	3,708.88	383,117.50	---	158.615.89
4H1	Delta River-Rapids.....	49,420.92	772,648.54	49,420.92	512,682.94	---	259,965.60
4H2	Rapids-Grundler.....	12,590.06	415,776.10	12,590.06	295,389.98	---	120,386.12
4I	Grundler-Richardson.....	2,514.13	348,321.00	2,514.13	227,027.00	---	121,294.00

No.	Sub-project Name	Cost 1933	Total cost to 6-30-33	Cost M & I 1933	Total Cost M & I to 6-30-33	Cost Con. 1933	Total cost Construction to 6-30-33
4J	Richardson-Salchaket.....	$11,136.14	$459,423.10	$11,136.14	$243,905.09	$ ---	$215,518.01
4JA	Lake Harding Road.....	---	5,068.96	---	1,968.21	---	3,100.75
4K	Salchaket-Fairbanks.....	6,538.75	555,320.23	6,538.75	300,357.36	---	254,962.87
4KA	Salcha Bridge.....	12,462.80	93,669.67	12,462.80	43,299.00	---	50,370.67
5**	Ester-Dunbar.....	---	19,405.18	---	6,781.00	---	12,624.18
5A	Dunbar-Tanana.....	2,097.69	91,280.43	2,097.69	41,010.74	---	50,269.69
5B	Nenana-Campbells.....	---	2,025.61	---	106.60	---	1,919.01
5C	Fish Lake-American Creek....	---	7,501.43	---	1,734.90	---	5,766.53
5D	American Creek Aviation Field	---	940.00	---	---	---	940.00
5E	Tanana Aviation Field.....	---	4,274.92	---	374.96	---	3,899.96
5F	Illinois Creek-Moran Creek..	---	1,178.89	---	---	---	1,178.89
6A	Willow Creek-Tonsina.....	1,730.79	231,189.38	1,730.79	121,528.60	---	109,660.78
6B	Tonsina-Chitina.....	7,783.37	361,610.58	7,783.37	216,247.89	---	145,362.69
6D	Chitina Depot.....	---	14,600.78	---	2,662.12	---	11,938.66
6E	Chitina-Native School.....	469.55	1,069.21	469.55	574.15	---	495.06
6F	Lower Tonsina Aviation Field	---	1,587.15	---	---	---	1,587.15
6G	Copper Center Aviation Field	---	276.92	---	76.33	---	200.59
6H	Chitina Aviation Field.....	---	110.85	---	---	---	110.85
7A	Summit-Chatanika.....	4,527.54	85,035.94	4,527.54	44,273.23	---	40,762.71
7AA	Cleary Creek.....	828.51	9,204.07	828.51	4,886.26	---	4,317.81
7B	Fox-Olnes.....	128.32	50,938.23	128.32	22,846.58	---	28,091.65
7BA	Dome-Spaulding Mine.....	30.04	3,250.35	30.04	410.98	---	2,839.37
7BB**	Fox-Steel Creek.....	---	855.75	---	---	---	855.75
7C	Summit-Fairbanks Creek.....	2,098.17	55,353.06	2,098.17	30,450.45	---	24,902.61
7CA	Summit-Fish Creek.....	220.99	16,782.14	220.99	4,001.32	---	12,780.82
7D	Ester Creek.....	3,959.23	88,964.83	3,959.23	50,307.90	---	38,656.93
7DA	College Spur.....	8.63	1,400.15	8.63	870.15	---	530.00
7DB	Ester Dome.....	14.33	4,697.64	14.33	504.91	---	4,192.73
7DC	St. Patricks-Happy.....	58.87	7,175.44	58.87	1,105.97	---	6,069.47
7DD	Ester-Beegler.....	---	1,010.28	---	10.28	---	1,000.00
7DE	Ready Bullion Creek.....	365.30	365.30	---	---	365.30	365.30
7E**	Vault Creek.....	---	4,875.20	---	172.37	---	4,702.83
7F**	Vault Creek-Treasure Creek..	---	1,379.09	---	29.09	---	1,350.00
7G	Fairbanks-Gilmore.....	5,731.54	189,109.46	5,731.54	118,706.71	---	70,402.75
7GA	Lazelle Road.....	---	6,024.96	---	1,911.45	---	4,113.51
7H	Little Eldorado Creek.....	566.49	22,393.38	566.49	13,815.07	---	8,578.31
7I	Gilmore-Summit.....	4,816.54	59,003.77	4,816.54	39,840.45	---	19,163.32

No.	Sub-project Name	Cost 1933	Total Cost to 6-30-33	Cost M & I 1933	Total Cost M & I to 6-30-33	Cost Con. 1933	Total cost Construction to 6-30-33
7IA**	Gilmore Creek.....	$ ---	$1,562.00	$ ---	$ ---	$ ---	$1,562.00
7J	Fairbanks-Chena Hot Springs..	360.38	17,978.95	360.38	9,946.36	---	8,032.59
7JA	Chena River Branc.....	522.99	2,176.36	522.99	1,562.35	---	614.01
7JB	Palmer Creek Aviation.....	---	839.11	---	264.11	---	575.00
7JC	Colorado Creek-South Fork....	---	600.00	---	---	---	600.00
7K	Olnes-Livengood.....	10,430.63	63,348.09	---	2,170.39	10,430.63	61,177.70
7N	Farmers-Birch Hill.....	2,166.87	27,581.23	2,166.87	13,179.26	---	14,401.97
7NA	Isabelle Creek.....	369.39	2,853.77	369.39	1,178.77	---	1,675.00
7NB	Ballaine-Rickert.....	8.92	1,935.68	8.92	135.68	---	1,800.00
7R	Goldstream-O'Connor Creek....	108.92	662.56	108.92	507.92	---	154.64
7S	Graehl Bridges.....	1,730.46	6,625.25	1,730.46	3,574.89	---	3,050.36
7T	Farmers-Chena Slough.....	335.35	17,432.66	335.35	6,233.89	---	11,198.77
7V	Fairbanks-Wireless.....	---	495.46	---	495.46	---	---
7X	Chena Hot Springs Avaition Field	---	1,739.58	---	50.00	---	1,689.58
7Y	Fairbanks Aviation Field.....	---	19,969.33	---	498.11	---	19,471.22
7Z	Fairbanks Aviation Field.....	---	766.66	---	---	---	766.66
8	Nome-Council.....	9,615.65	432,027.25	9,615.65	252,644.29	---	179,382.96
8D	Council-Ophir Creek.....	827.30	8,632.12	827.30	8,632.12	---	---
8H	Case de Paga.....	378.47	32,735.74	378.47	15,296.09	---	17,439.65
8J	Shovel Creek.....	---	66.55	---	8.05	---	58.50
8K	Council Aviation Field.....	---	2,244.27	---	845.03	---	1,399.24
8L	Port Safety Aids.....	---	616.50	---	616.50	---	---
9	Rampart-Eureka.....	1,598.69	53,911.35	1,598.69	24,796.69	---	29,114.36
10*	Seward-Kenai Lake.....	---	80,783.93	---	34,523.10	---	46,260.83
10A*	Seward-Radio.....	---	$6,594.04	---	124.00	---	6,470.00
10B*	Seward-Nash.....	---	21,996.00	---	8,753.70	---	13,242.30
10C*	Lowell Creek Flood Control..	---	124,663.54	---	11,424.92	---	113,238.62
10D	Seward Aviation Field.....	---	10,343.61	---	245.75	---	10,097.86
11A	Eagle-Liberty.....	4,660.17	123,743.63	4,660.17	70,321.08	---	53,422.50
11B	American Summit-Fortymile...	1,419.21	28,364.52	1,419.21	8,113.33	---	20,251.10
11C	Steel Creek-Mouth of Walker's Fork.....	443.18	8,933.24	434.18	4,300.74	---	4,632.50
11D	Steel Creek-Walker's Fork...	---	6,446.20	---	2,336.20	---	4,110.00
11E	Eagle-Seventymile.....	467.36	20,853.25	467.36	15,888.66	---	4,964.59
11F	Liberty-Chicken.....	1,140.14	18,579.88	1,140.14	14,565.61	---	4,014.27
11G	Steel Creek-Canyon Creek....	41.03	955.03	41.03	955.03	---	---

No.	Sub-project Name	Cost 1933	Total Cost to 6-30-33	Cost M & I 1933	Total Cost M & I to 6-30-33	Cost Con. 1933	Total cost Construction to 6-30-33
11J	Fortymile-Chicken.....	31.36	76.11	31.36	76.11	---	---
11K	Fortymile-Steel Creek.....	---	80.00	---	80.00	---	---
11L	Franklin-Chicken.....	264.11	2,107.86	264.11	2,107.86	---	---
11M	Jack Wade-Walker's Fork-Boundary.....	59.60	350.47	59.60	350.47	---	---
11N	Lillywig Creek.....	---	909.50	---	---	---	909.50
11P	Chicken Aviation Field.....	---	2,749.14	---	49.00	---	2,700.14
11O	Eagle Aviation Field.....	---	2,762.98	---	742.23	---	2,020.75
12A**	Mile 34-Lynx Creek.....	---	22,192.66	---	8,239.03	---	13,953.63
13A	Nome-Bessie.....	1,845.22	88,474.31	1,845.22	49,932.36	---	38,541.95
13B	Bessie-Snake River.....	3,703.33	86,178.35	3,703.33	56,645.23	---	29,533.12
13BA	Snake River-Monument Creek..	---	1,788.65	---	371.38	---	1,417.27
13C	Bessie-Sunset Creek.....	15,283.94	51,698.04	2,143.94	17,285.76	13,140.00	34,412.28
13D**	Bessie-Dry Creek.....	---	3,289.20	---	1,706.73	---	1,582.47
13E**	Dry Creek-Newton.....	---	623.74	---	223.86	---	399.88
13F	Nome-Osborne.....	1,026.62	57,854.54	1,026.62	42,460.75	---	15,393.79
13G**	Grass Gulch.....	---	1,125.73	---	338.94	---	786.79
13H**	Center Creek.....	---	1,538.80	---	1,455.15	---	83.65
13J**	Wonder-Flat Creek.....	---	2,803.72	---	2,633.22	---	170.50
13K	Bessie-Buster.....	2,251.23	56,088.04	2,251.23	38,584.06	---	17,503.98
13L	Nome Buoys.....	---	585.00	---	585.00	---	---
13M	Nome Depot.....	---	4,832.42	---	4,832.42	---	---
14*	Sitka-Inian River.....	---	9,610.88	---	3,336.16	---	6,274.72
14	Sitka-Indian River.....	175.97	6,947.73	175.97	3,384.73	---	3,563.00
14A	Sitka National Monument....	741.63	12,937.71	741.63	11,387.71	---	1,550.00
14B	Sitka National Cemetery....	---	9,233.02	---	5,733.02	---	3,500.00
14C	Sitka-Pioneer Cemetery.....	136.57	4,535.73	136.57	1,194.71	---	3,341.02
14D	National Cemetry Road.....	385.05	2,378.35	385.05	1,680.88	---	697.47
15	Circle-Miller House.....	6,083.08	590,064.81	6,083.08	157,376.78	---	432,688.03
15A	Central House-Circle Hot Springs.....	706.03	32,887.57	706.03	10,386.87	---	22,500.70
15B	Central House-Deadwood.....	166.55	12,218.43	166.55	166.55	---	12,051.88
15C	Circle Hot Springs Aviation Field.....	---	1,702.21	---	385.71	---	1,316.50
15D	Leech Cutoff.....	---	224.75	---	---	---	224.75
15E	Miller House Spur.....	64.25	2,270.47	64.25	399.94	---	1,870.53
16	Chatanika-Miller House.....	57,669.51	810,412.89	57,669.51	274,804.38	---	535,608.51

No.	Sub-project Name	Cost 1933	Total Cost to 6-30-33	Cost M & I 1933	Total Cost M & I to 6-30-33	Cost Con. 1933	Total cost Construction to 6-30-33
16C	Chatanika-Miller House (Winter)	$13.65	$23,275.76	$ 13.65	$8,661.02	$ ---	$14,614.74
16D	Sourdough Creek Branch.....	1,012.35	3,982.76	1,012.35	1,218.64	---	2,764.12
17	Tanana-Kaltag.....	178.91	34,414.24	178.91	10,676.44	---	23,737.80
17A**	Lewis Landing-Dishkaket....	---	483.37	---	---	---	483.37
17B**	Nulato-Dishkaket.....	---	735.88	---	250.00	---	485.88
17C	Nulato Aviation Field.....	---	5,026.02	---	14.13	---	5,011.89
17D	Tanana-Kaltag Telephone Line	---	6,683.59	---	6,683.59	---	---
18	Kaltag-Nome.....	1,130.81	71,665.98	1,130.81	43,528.59	---	28,137.39
18A	Bonanza-Kotzebue.....	665.05	10,406.35	665.05	9,176.35	---	1,230.00
18B	Golovin-Council.....	132.50	519.44	132.50	519.44	---	---
18D	Unalakleet Aviation Field..	---	1,641.17	---	199.50	---	1,441.67
18E	Solomon Aviation Field.....	---	719.83	---	624.83	---	95.00
18F	Golovin Aviaion Field.....	---	1,751.97	---	172.90	---	1,579.07
18G	Moses Aviation Field.....	---	254.20	---	29.20	---	225.00
18H	Kaltag-Unalakleet Telephone Line	---	2,454.00	---	2,454.00	---	---
18J	Spruce Creek.....	---	287.50	---	---	---	287.50
19**	Kern Creek-Knik.....	---	13,891.95	---	3,615.73	---	10,276.22
19A**	Kenai Lake-Kern Creek.....	---	6,833.20	---	---	---	6,833.20
19B**	Mile 27-Mile 29, A.N. R.R..	---	741.66	---	---	---	741.66
19C**	Kenai Lake-Mile 27, A.N.R.R.	---	1,595.81	---	---	---	1,595.81
19D**	Kern Creek-Indian Creek....	---	3,758.26	---	---	---	3,758.26
19E*	Girdwood-Crow Creek.....	---	3,434.15	---	2,542.50	---	891.65
20A**	Knik-Susitna.....	---	8,437.44	---	629.59	---	7,807.85
16A	U. S. Creek Branch.....	---	12,362.79	---	1,990.66	---	10,372.13
16B	Eagle Creek Spur.....	---	306.03	---	224.86	---	81.17
20B	Susitna-Rainy Pass.....	---	32,876.98	---	6,598.69	---	26,278.29
20C	Rainy Pass-Big River.....	---	16,436.46	---	1,927.39	---	14,509.07
20D**	Dishakaket-Kaltag.....	---	4,290.00	---	38.60	---	4,251.40
20DA	Takotna-Ophir (Winter)...	---	4,896.47	---	1,096.47	---	3,800.00
20DB	Ophir-Dishkaket.....	---	4,335.00	---	760.00	---	3,575.00
20E**	Susitna-McDougal.....	---	8,640.21	---	---	---	8,640.21
20F**	McDougal-Cache Creek.....	---	7,350.00	---	347.10	---	7,002.90
20G**	Lakeview-McDougal.....	---	3,675.00	---	---	---	3,675.00
20H	Nancy-Susitna.....	---	2,773.36	---	2,773.36	---	---
20J	Susitna-Tyonek.....	---	4,122.45	---	1,478.52	---	2,643.93
20K	Susitna Aviation Field...	---	931.10	---	---	---	931.10
21	Unalakleet-St. Michael...	---	8,896.33	---	6,293.70	---	2,602.63

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21A	St. Michael Aviation Field	$ ---	$ 110.00	$ ---	$ ---	$ ---	$ 110.00
22	Hot Springs-Sullivan Creek	353.58	60,521.95	353.58	32,698.11	---	27,823.84
23A	Snowshoe-Beaver.....	---	14,163.03	---	3,227.58	---	10,935.45
23B	Beaver-Caro.....	1,424.70	66,623.60	1,424.70	36,240.81	---	30,240.81
23C	Big Creek.....	---	9,614.77	---	3,294.77	---	6,320.00
23D	Caro-Flat Creek.....	---	16,517.56	---	12,494.30	---	4,023.26
23E	Caro-Coldfoot.....	---	13,167.46	---	5,607.59	---	7,559.87
23F	Chandalar Aviation Field.	---	8,335.74	---	120.00	---	8,215.74
24*	Mile 29, A.N.R.R.-Sunrise	---	57,850.94	---	27,123.09	---	30,727.85
24A*	Lynx Creek-Six Mile.....	---	10,882.40	---	3,800.00	---	7,082.40
24B*	Sunrise-Hope.....	---	1,085.00	---	200.00	---	885.00
25A*	Cripple River.....	---	8,801.79	---	3,743.82	---	5,057.97
25B**	Penny River.....	---	9,614,77	---	691.05	---	1,276.03
25C	Nome Wireless.....	176.79	3,815.43	176.79	2,050.52	---	1,764.91
25D	Mouth of Center Creek.....	1,227.19	27,456.64	1,227.19	19,955.57	---	7,501.07
25DA	Little Creek Branch.....	328.69	4,406.89	328.69	610.19	---	3,796.70
25E	Submarine Paystreak.....	1,258.03	36,814.36	1,258.03	12,444.03	---	24,370.33
25H**	Otter Creek.....	---	1,802.52	---	652.98	---	1,149.54
25K	Nome City Dock.....	---	2,966.65	---	---	---	2,966.65
25L	Nome Aviation Field.....	---	8,982.43	---	5,459.73	---	3,522.70
25M	Telephone Lines-Seward Peninsula	---	13,149.20	---	11,449.20	---	1,700.00
25N	Nome City Streets.....	---	1,319.57	---	1,319.57	---	---
25P	Nome Harbor Lights.....	---	815.29	---	815.29	---	---
25R	Radio Telephones.....	---	6,477.34	---	---	---	6,477.34
26	Candle-Candle Creek.....	1,838.75	85,319.50	1,838.75	50,325.43	---	34,994.07
26A**	Kugruk River Approach.....	---	438.00	---	488.00	---	---
26B	Bear Creek Trail.....	107.23	720.32	107.23	380.32	---	340.00
26C	Candle-Kiwalik.....	35.50	1,063.41	35.50	35.50	---	1,027.91
26D	Kiwalik Aviation Field....	---	873.50	---	573.50	---	300.00
26E	Candle Aviation Field.....	---	1,355.00	---	---	---	1,355.00
26F	Telephone Line Reconnaissance	---	148.00	---	148.00	---	---
26G	Candle-Radio Road.....	---	575.00	---	---	---	575.00
27	Deering-Inmachuk.....	2,867.95	102,782.23	2,867.95	71,890.33	---	30,891.90
27A	Deering Aviation Field....	---	1,159.65	---	137.65	---	1,022.00
28	Shelton-Candle.....	---	12,368.89	---	4,161.87	---	8,207.02
28A	Nome-Serpentine Hot Springs	1,572.78	17,567.71	1,572.78	12,378.71	---	5,239.00
29	Tanana-Bettles.....	100.00	12,352.29	100.00	5,340.18	---	7,012.11

No.	Sub-project Name	Cost 1933	Total Cost to 6-30-33	Cost M & I 1933	Total Cost M & I 6-30-33	Cost Con. 1933	Total cost Construction to 6-30-33
29A	Bettles-Coldfoot.....	$ 505.13	$19,240.02	$ 505.13	$14,110.02	$ ---	$5,130.00
29C	Mile 70-Hughes.....	---	2,167.02	---	458.45	---	1,708.57
29D	Wild River Trail.....	---	1,425.76	---	1,425.76	---	---
29E	Bettles River Aviation Field	---	500.00	---	---	---	500.00
30	Hot Springs Landing-Eureka..	4,565.14	80,828.30	4,565.14	60,402.49	---	20,425.81
30A	Hot Springs-Tofty.....	---	6,683.47	---	2,374.21	---	4,309.26
30B	Manley Hot Springs Aviation Field	---	1,189.98	---	49.98	---	1,140.00
31	Caribou Creek.....	809.02	14,443.64	809.02	5,862.72	---	8,580.92
32A	Takotna-Flat (Summer).....	---	9,247.94	---	3,810.65	---	5,437.29
32AA	Takotna-Flat (via Moore Creek)	---	123.83	---	123.83	---	---
32AB	Flat-Moore Creek.....	---	15.00	---	15.00	---	---
32AC	Candle Creek-Takotna.....	---	1,216.09	---	1,216.09	---	---
32B	Iditarod-Flat.....	2,419.51	123,009.00	2,419.51	67,122.73	---	55,886.27
32BA	Iditiarod River Improvement.	---	100.00	---	---	---	100.00
32C	Ophir-Iditarod.....	---	7,747.26	---	2,747.26	---	5,000.00
32D	Flat-Crooked Creek.....	382.66	6,315.23	382.66	4,835.23	---	1,480.00
32DD	Flat-Georgetown.....	---	150.00	---	150.00	---	---
32E	Takotna Aviation Field.....	---	3,859.87	---	437.43	---	3,422.44
32F	Takotna-Depot.....	503.01	13,567.13	503.01	5,957.86	---	7,609.27
33A**	Otter Creek Towpath.....	---	448.23	---	---	---	448.23
33B**	Summit-Otter Creek.....	---	5,047.66	---	5,047.66	---	---
33C	Flat City-Flat Creek.....	698.28	5,452.96	698.28	5,452.96	---	---
33D	Head Flat Creek-Willow Creek	366.64	7,608.52	366.64	6,365.52	---	1,243.00
33E	Head Flat Creek-Willow Creek	838.43	9,946.62	838.43	8,446.62	---	1,500.00
33F	Flat City-Otter Discover...	829.29	21,494.58	828.29	9,679.88	---	11,814.70
33G	Candle Landing-Candle Creek	---	6,572.00	---	975.00	---	5,597.00
33H	Flat Aviation Field.....	---	3,123.42	---	223.42	---	2,900.00
34**	Iditarod-Dishaket.....	---	4,830.98	---	100.00	---	4,730.98
34A	Flat-Holy Cross-Anvik.....	168.23	2,088.37	168.23	2,088.37	---	---
34B	Iditarod-Shageluk-Anvik....	161.81	1,285.59	161.81	785.59	---	500.00
35A	Archangel Extension.....	327.95	31,441.23	327.95	14,243.31	---	17,197.92
35AA	Sherry Branck.....	---	1,768.49	---	649.17	---	1,119.32
35AB**	Fairangel Extension.....	---	104.20	---	---	---	104.20
35B	Palmer-Fishhook.....	1,039.71	39,931.99	1,039.71	15,244.07	---	24,687.92
35C	Palmer-Matanuska River.....	166.94	34,869.27	166.94	11,213.11	---	23,656.16
35D	Willow Creek Extension.....	5,922.30	114,790.59	5,922.30	76,656.45	---	38,134.14
35DA	Gold Chord Branch.....	719.52	12,337.01	719.52	1,745.77	---	10,591.24

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35DB	Lucky Shot-St. Peters.....	$17,377.18	$71,718.46	$ 3,077.18	$ 3,077.18	$14,300.00	$68,641.28
35E	Wasilla-Fishhook.....	3,952.04	131,119.28	3,952.04	97,706.65	---	33,412.63
35F	Wasilla-Knik.....	1,408.54	53,755.05	1,408.54	27,319.58	---	26,435.47
35G	Palmer-Spring.....	27.68	3,201.44	27.68	1,628.12	---	1,573.32
35H	Wasilla-Finger Lake-Palmer.	680.87	36,961.25	680.87	17,904.02	---	19,057.23
35I	Moose-Palmer.....	---	2,520.62	---	627.53	---	1,893.09
35J	Wasilla-Matanuska.....	1,457.13	27,840.71	1,457.13	18,564.48	---	9,276.23
35K	Matanuska Trunk Road.....	2,519.45	49,885.83	2,519.45	34,834.37	---	15,051.46
35L	Palmer-Matanuska.....	1,181.17	16,953.11	1,181.17	8,548.41	---	8,404.70
35N	Houston-Willow Creek.....	---	1,212.32	---	272.00	---	940.32
35O	Fishhook-Goldmint.....	726.71	25,708.99	726.71	8,172.16	---	17,536.83
35P**	Moose Creek-Baxter.....	---	2,218.62	---	---	---	2,218.62
35Q	Edlund Road.....	27.00	3,180.02	27.00	628.33	---	2,551.69
35R	Bogard Road.....	334.96	13,849.07	334.96	1,620.49	---	12,228.58
35RA	Engstrom Road.....	---	1,020.00	---	---	---	1,020.00
35S	Moose Creek Trail.....	---	2,118.44	---	77.43	---	2,041.01
35T	Werner Connection.....	16.00	502.94	16.00	16.00	---	486.94
35U	Moose Creek Aviation Field...	---	481.75	---	20.25	---	461.50
35V	Fishhook Aviation Field.....	---	917.49	---	68.75	---	848.74
35W	Wasilla Aviation Field.....	---	459.50	---	---	---	459.50
35X	Wasilla Aviation Field Road..	76.25	1,267.36	76.25	131.42	---	1,135.94
36	Mineral Creek.....	---	60,633.37	---	25,318.36	---	35,315.01
36A	Granby Road.....	---	3,431.35	---	349.44	---	3,081.91
36B	South Second Street, Cordova.	---	3,373.15	---	---	---	3,373.15
36C	Eyak Lake Road.....	---	7,735.85	---	---	---	7,735.85
36CA	Cordova Aviation Field.....	---	941.90	---	15.75	---	926.15
36D**	Valdez-Quartz Creek.....	---	524.75	---	---	---	524.75
36E**	Valdez-Glacier.....	---	616.91	---	---	---	616.91
36F**	Shoups Bay.....	---	3,457.25	---	---	---	3,457.25
37	Topkok-Candle.....	---	1,026.56	---	210.00	---	816.56
37A	Bluff-White Mountain.....	13.70	3,286.93	13.70	13.70	---	3,273.23
37B	Bluff Aviation Field.....	---	80.00	---	---	---	80.00
38A	Ruby-Long.....	8,206.36	246,013.60	8,206.36	113,993.25	---	132,020.35
38B	Poorman-Cripple.....	964.78	4,721.82	964.78	3,218.86	---	1,502.96
38C	Ophir-Cripple.....	367.14	4,368.72	367.14	2,469.72	---	1,899.00
38D	Ophir-Takotna.....	3,501.92	267,648.23	3,501.92	93,140.73	---	174,507.50
38DA	Little Creek Road.....	157.28	13,342.80	157.28	2,694.76	---	10,648.04

No.	Sub-project Name	Cost 1933	Total Cost to 6-30-33	Cost M & I 1933	Total Cost M & I to 6-30-33	Cost Con. 1933	Total cost Construction to 6-30-33
38E	Long-Poorman.....	$4,164.17	$162,309.34	$ 4,164.17	$ 45,116.78	$ ---	117,192.56
38EE	Long-Poorman (Winter).....	177.01	5,555.01	177.01	287.01	---	5,268.00
38EEE	Tamarack-Poorman.....	---	22,322.69	---	---	---	22,322.69
38F	Poorman-Ophir.....	---	3,030.44	---	3,030.44	---	---
38G	Takotna Aviation Field Road.	144.23	9,078.47	144.23	1,144.23	---	7,934.24
38H	Ganes Creek Road.....	177.78	15,108.49	177.78	11,704.64	---	3,403.85
38K	Ruby Aviation Field.....	---	2,098.51	---	898.51	---	1,200.00
38L	Ruby Aviation Field Road....	---	500.00	---	---	---	500.00
38M	Ophir Aviation Field.....	---	1,825.12	---	---	---	1,825.12
39*	Juneau-Sheep Creek.....	---	45,929.40	---	20,539.27	---	25,390.13
40*	Douglas-Castineau Channel...	---	18,616.56	---	6,596.68	---	12,019.88
41	Kiana-Klery Creek.....	9.14	3,915.08	9.14	900.32	---	3,014.76
41A	Kotzebue-Shungnak.....	104.81	4,098.12	104.81	4,098.12	---	---
41AA	Kiana-Selawik-Shungnak.....	750.43	1,541.83	750.43	750.43	---	791.40
41B	Kotzebue-Point Barrow.....	14.20	6,079.79	14.20	1,679.77	---	4,400.02
41C	Kiwalik-Noorvik.....	59.17	513.42	59.17	513.42	---	---
41D	Kotzebue Aviation Field.....	---	1,955.45	---	537.90	---	1,417.55
41E	Kobuk Aviation Field.....	---	2,299.00	---	---	---	2,299.00
41F	Kotzebue-Noatak.....	45.58	45.58	---	---	45.58	45.58
42	St. Michael-Kotlik.....	347.59	2,733.10	347.59	2,733.10	---	---
43*	Petersburg-Scow Bay.....	---	23,466.23	---	9,968.56	---	13,497.67
44*	Skagway Valley.....	---	11,124.83	---	2,320.88	---	8,803.95
44A	Skagway Trails.....	639.05	18,472.46	639.05	7,313.75	---	11,158.71
44B	Skagway Aviation Field.....	---	7,048.87	---	236.34	---	6,785.53
45*	Silver Bow Basin.....	---	23,466.21	---	17,527.59	---	5,938.62
46	Kobi-Eureka.....	---	16,437.54	---	3,865.91	---	12,571.63
46A	Roosevelt-Kantishna.....	---	61,686.53	---	19,723.84	---	41,962.69
46B	Lignite-Kantishna.....	---	13,130.00	---	1,163.09	---	11,966.91
46C	Nenana-Knight's Roadhouse...	199.41	3,850.44	199.41	2,257.86	---	1,592.58
46D	McKinley Park Road.....	76,790.91	798,228.29	12,688.93	100,596.21	64,101.98	697,632.00
46E	Diamond-Telida.....	---	10,276.40	---	3,464.84	---	6,811.56
46F	Nenana Cemetery Road.....	266.76	7,873.27	266.76	4,054.64	---	3,818.63
46G	Kobi-Bonnifield.....	---	5,767.51	---	60.90	---	5,706.61
46H	Lake Minchumina Aviation Field	---	914.11	---	164.11	---	750.00
46J	Kantishna Aviation Field....	---	775.00	---	100.00	---	675.00
46K	Telida Aviation Field.....	---	850.00	---	250.00	---	600.00
46M	Nenana Aviation Field.....	---	1,108.04	---	388.04	---	720.00

No.	Sub-project Name	Cost 1933	Total Cost to 6-30-33	Cost M & I 1933	Total Cost M & I to 6-30-33	Cost Con. 1933	Total cost Construction to 6-30-33
47	Coldfoot-Wiseman.....	$ 7.66	$16,263.00	$ 7.66	$ 7,320.39	$ ---	$ 8,942.61
47A	Wiseman Aviation Field.....	---	5,434.02	---	2,320.77	---	4,113.25
47B	Nolan Branch.....	2,586.73	28,316.56	2,586.73	9,681.82	---	18,634.74
47C	Wiseman-Hammond.....	1,469.23	9,366.93	1,469.23	5,399.86	---	3,967.07
48	Iliamna Bay-Iliamna Lake....	103.31	71,852.68	103.31	7,609.77	---	64,242.91
49	Davidson's Landing-Taylor...	1,838.08	21,768.33	1,838.08	14,055.16	---	7,713.17
50*	Stikine River.....	---	2,256.75	---	---	---	2,256.75
51	Talkeetna-Cache Creek.....	8,872.14	286,015.23	8,872.14	120,675.88	---	165,339.35
51A	Cache Creek Trail.....	---	4,553.11	---	2,283.11	---	2,270.00
51B	Peters Creek Trail.....	3,267.41	17,900.11	3,267.41	5,412.22	---	12,487.89
51C	Yentna-Mills Creek.....	---	5,174.80	---	44.36	---	5,130.44
51E	Mills Creek-Cache Creek....	29.50	2,283.33	29.50	975.88	---	1,307.45
51F	Cache Creek Aviation Field.	---	179.90	---	---	---	179.90
52*	Ketchikan-Ward's Cove.....	---	26,120.42	---	5,000.00	---	21,120.42
52A*	Ketchikan-Charcoal Point...	---	15,500.48	---	3,000.00	---	12,500.48
53	Eagle-Circle.....	---	5,846.59	---	4,161.87	---	1,684.72
53A	Circle-Fort Yukon.....	58.57	7,988.55	58.57	3,821.98	---	4,166.57
53B	Fort Yukon Aviation Field..	---	3,098.00	---	557.11	---	2,540.89
54	Chisana-Nizina.....	---	10,303.37	---	2,976.07	---	7,327.30
54A	Chisana Aviation Field.....	---	1,744.63	---	250.00	---	1,494.63
54B	Nabesna Aviation Field.....	---	2,001.48	---	524.90	---	1,476.58
55	Kenai-Russian River.....	---	14,186.58	---	7,627.32	---	6,559.26
55A	Kenai Aviation Field.....	---	901.51	---	---	---	901.51
56**	Tasnuma.....	---	1,058.14	---	---	---	1,058.14
56B**	Katalla-Chilkat.....	---	7,752.56	---	---	---	7,752.56
57	McCarthy-Dan Creek.....	9,109.90	239,654.22	9,109.90	88,301.99	---	151,352.23
57A	Nizina River Bridge.....	11,067.09	179,816.72	11,067.09	53,874.92	---	125,941.80
57B	Nizina-Chitina River.....	67.97	7,794.59	67.97	956.01	---	6,838.58
57C	McCarthy-Kennecott River...	11.13	527.40	11.13	527.40	---	---
57D	Chititu Branch.....	393.33	8,258.75	393.33	2,030.27	---	6,228.48
57E	McCarthy-Green Butte.....	141.68	2,319.68	141.26	2,319.68	---	---
57F	McCarthy Aviation Field....	---	2,925.11	---	344.23	---	2,580.88
57G	Copper Creek Trail.....	---	301.98	---	---	---	301.98
57H	Chitina River Aviation Field	---	735.00	---	---	---	735.00
58*	Hyder-Salmon River.....	---	63.50	---	---	---	63.50
59	Fairbanks Bridge.....	148.98	74,096.01	148.98	12,396.71	---	61,699.30
60A	Valdez Aviation Field.....	---	2,558.24	---	206.59	---	2,351.65

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60B	Upper Tonsina Aviation Field	$ ---	$1,747.47	$ ---	$ 47.50	$ ---	$ 1,699.97
61	Strelna-Kuskulana.....	---	17,106.28	---	4,569.73	---	12,536.55
61A	Kotsina Trail.....	---	16,095.29	---	1,523.74	---	14,571.55
61B	Nugget Creek Extension.....	---	1,630.00	---	1,630.00	---	---
61C**	Elliot-Kotsina.....	---	6,858.42	---	---	---	6,858.42
61E	Farnan Trail.....	---	941.96	---	15.80	---	926.16
61F	Bremner Trail.....	2,187.04	7,402.51	---	46.73	2,187.04	7,355.78
61G	Bremner Aviation Field.....	---	500.00	---	---	---	500.00
62	Dime Creek.....	886.89	79,756.13	886.89	36,053.17	---	43,702.96
62A	Haycock-Bear Creek.....	253.42	771.24	253.42	555.24	---	216.00
62B	Haycock Aviation Field.....	---	2,115.40	---	---	---	2,115.40
62C	Koyuk Aviation Field.....	---	312.98	---	285.90	---	27.08
63	Dunbar-Brooks.....	738.06	32,263.78	738.06	13,034.19	---	19,229.59
63B	Brooks-Livengood Creek.....	548.93	33,772.81	548.93	13,707.95	---	20,064.86
63BA	Amy Creek Branch.....	---	2,363.45	---	300.00	---	2,068.45
63C**	Brooks Tram.....	---	63,455.39	---	45,144.09	---	18,311.30
63D	Brooks Aviation Field Road..	---	713.00	---	---	---	713.00
63E	Livengood Aviation Field....	---	2,778.87	---	624.87	---	2,154.00
64**	Cripple-Lewis Landing.....	---	100.00	---	100.00	---	---
64A	Cripple-Cripple Mountain...	427.28	980.93	427.28	688.93	---	292.00
64AA	Cripple-Cripple Mountain (Winter)	---	860.03	---	248.98	---	611.05
65A	Gulkana-Chistochina.....	5,497.04	355,932.70	5,497.04	88,069.20	---	267,863.50
65B	Chistochina-Slate Creek....	1,037.59	8,170.50	537.59	647.09	500.00	7,523.41
65C	Chistochina-Slane.....	16,529.98	142,804.49	8,529.98	13,628.18	8,000.00	129,176.31
65D	Kechumstuk-Tanana Crossing.	---	1,669.82	---	1,669.82	---	---
65E	Chicken-Kechumstuk.....	---	1,663.50	---	1,663.50	---	---
65F	Grundler-Tanana Crossing...	294.07	12,468.24	294.07	3,095.53	---	9,372.71
65G	Slana-Chisana.....	30,362.29	47,080.18	---	980.12	30,362.29	46,100.06
65H	Tanana Crossing Aviation Field	---	550.00	---	---	---	550.00
65K	Chistochina Aviation Field.	---	2,067.97	---	---	---	2,067.97
66**	Matanuska-Chickaloon.....	---	1,268.30	---	---	---	1,268.30
67	Nome-Teller.....	694.89	12,192.58	694.89	11,892.58	---	300.00
67A	Teller-Cape Prince of Wales	298.49	3,269.47	298.49	3,269.47	---	---
67B	Teller-Bluestone.....	1,806.47	13,756.74	1,806.47	8,080.29	---	5,676.45
67C	Teller-Pilgrim Hot Springs.	33.76	3,171.81	33.76	1,371.81	---	1,800.00
67D	Teller-American River.....	---	906.34	---	56.67	---	849.67
67E	Teller-Aviation Field.....	---	1,071.20	---	318.40	---	752.80

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67F	Tin City-Goodwin.....	$ ---	$2,659.42	$ ---	$561.60	$ ---	$2,097.82
67G	Lost River Aviation Field..	---	121.40	---	---	---	121.40
67H	Wales Aviation Field.....	---	121.40	---	---	---	121.40
67J	Wooley-Gold Run.....	---	29.25	---	29.25	---	---
68	Flagging Trails.....	1,682.07	100,517.19	1,682.07	100,517.19	---	---
70	Miscellaneous Surveys and Reconnaissances.....	680.30	22,184.14	680.30	1,719.06	---	20,465.08
72*	Wrangell Oil Dock.....	---	4,964.97	---	---	---	4,964.97
72A*	Wrangell Cemetery Road.....	---	8,639.22	---	2,350.00	---	6,289.22
73	Marshall Road.....	---	23,569.93	---	8,090.88	---	15,479.05
73A	Kotlik-Marshall.....	505.98	4,120.63	505.98	3,270.63	---	850.00
73B	Stuyahok.....	---	1,660.00	---	---	---	1,660.00
73C	Old Hamilton-Scamnon Bay...	311.98	2,752.16	311.98	898.71	---	1,853.45
73D	Marshall Aviation Field....	---	2,100.00	---	100.00	---	2,000.00
73E	Paimute-Marshall.....	100.00	100.00	100.00	100.00	---	---
75	Anchorage Loop.....	4,032.70	125,574.04	4,032.70	68,570.25	---	57,003.79
75A	Anchorage-Lake Spenard.....	995.23	22,938.04	995.23	12,927.81	---	10,010.23
75C	Chester Creek Boat Landing.	135.00	1,476.18	135.00	693.76	---	782.42
75D	Anchorage Depot.....	172.60	7,556.53	172.60	3,590.18	---	3,966.35
75E	McDonald Road.....	142.28	2,962.31	142.28	1,857.18	---	1,105.13
75G**	East First Street, Anchorage	---	1,023.46	---	---	---	1,023.46
75H	Lake Speanrd Aviation Field	---	277.45	---	---	---	277.45
75I	Oilwell Road.....	290.38	7,588.15	290.38	2,998.16	---	4,589.99
75J	Anchorage Aviation Field...	---	4,768.20	---	154.20	---	4,614.00
75L	Anchorage Loop-Eklutna.....	---	2,525.46	---	---	---	2,525.46
75M	Anchorage-Radio Road.....	27.00	475.09	27.00	27.00	---	448.09
76	Cantwell-Valdez Creek.....	---	10,793.95	---	2,953.75	---	7,840.20
76A	Valdez Creek Aviation Field	---	1,337.10	---	---	---	1,337.10
78	Valdez Depot.....	---	5,266.56	---	5,266.56	---	---
79	Seward Depot.....	51.00	4,222.55	51.00	4,222.55	---	---
80A	McGrath-Takotna.....	---	368.05	---	368.05	---	---
80AA	McGrath-Takotna.....	14.67	5,089.82	14.67	2,907.82	---	2,182.00
80B	McGrath-Telida.....	---	12,376.59	---	5,198.38	---	7,178.21
80C	McGrath-Candle Creek.....	---	305.29	---	305.29	---	---
80D	Nixon Fork-Nixon Mine.....	---	2,384.78	---	36.78	---	2,348.00
90B	Shelter Cabins, 2nd Division	---	39,197.96	---	7,286.66	---	31,911.30
90C	Shelter Cabins, 3rd Division	---	24,720.02	---	2,328.90	---	22,391.12

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90D	Shelter Cabins, 4th Division	$ ---	$42,449.33	$ ---	$5,495.15	$ ---	$ 36,954.18
91*	Yakutat.....	---	50.55	---	---	---	50.55
92A	Bethel-Quinhagak.....	152.67	3,131.88	152.67	1,334.38	---	1,797.50
92B	Bethel-Tuluksak.....	715.22	4,470.35	715.22	2,991.87	---	1,478.48
92C	Akiak-Russian Mission.....	---	1,734.75	---	150.75	---	1,584.00
92D	Bennett's Cutoff.....	---	396.00	---	---	---	396.00
92E	Yukon-Kuskokwim Portage.....	44.70	27,586.36	44.70	1,070.38	---	26,515.98
92F	Quinhagak-Good News Bay.....	---	2,863.27	---	445.50	---	2,417.77
92G	Good News Bay-Togiak.....	---	2,428.57	---	225.24	---	2,203.33
92H	Togial-Nushagak.....	---	8,492.98	---	4,300.82	---	4,192.16
92I	Lewis Point-Naknek.....	---	4,171.66	---	1,539.32	---	2,632.34
92J	Naknek-Egegik.....	---	2,982.84	---	877.84	---	2,105.00
92K	Egegik-Kanatak.....	---	1,168.50	---	818.50	---	350.00
92L	Crooked Creek-Aniak.....	72.00	2,021.74	72.00	1,201.74	---	820.00
92M	Aniak-Tuluksak.....	886.65	4,814.00	886.65	2,299.04	---	2,514.96
92N	Akiak-Canyon Creek.....	---	306.00	---	306.00	---	---
92O	Tuluksak-Foothills.....	---	1,471.94	---	286.82	---	1,185.12
92P	Holy Cross-Kaltshak.....	70.00	1,432.77	70.00	932.77	---	500.00
92Q	Upper Landins-Bear Creek....	1,100.00	9,319.02	1,100.00	5,219.02	---	4,100.00
92R	Dillingham-Snag Point.....	35.75	16,453.33	35.75	35.75	---	16,417.58
93	Chulitna Trail.....	77.12	8,976.56	77.12	2,020.12	---	6,956.44
93A	Bull River Trail.....	153.88	4,669.48	153.88	1,087.16	---	3,582.32
93B	Indian River.....	1,984.64	8,564.27	1,984.64	1,998.04	---	6,566.23
93C	Curry Aviation Field.....	---	4,221.05	---	844.45	---	3,376.60
93E	Hidden River Tram.....	9.28	145.20	9.28	9.28	---	135.92
94	Kodiak-Abberts.....	1,598.08	64,217.15	1,598.08	17,408.64	---	46,808.51
95	Kanatak-Becharof Lake.....	---	30,276.74	---	6,394.43	---	23,882.31
95B	Larsen Bay-Karluk River....	---	962.05	---	---	---	962.05
96	Chickaloon-King River.....	36.00	1,906.68	36.00	1,106.68	---	800.00
96A	Chickaloon-Cable.....	82.00	486.44	82.00	214.15	---	272.29
96B	Chickaloon-Nelchina.....	224.57	8,508.40	224.57	1,008.03	---	7,500.37
97	Suntrana Footbridge.....	---	413.80	---	---	---	413.80
97A	Healy Aviation Field.....	---	491.79	---	---	---	491.79
98	Homer Spit.....	459.80	37,934.55	459.80	5,064.80	---	32,869.75
98A	Nuka Bay.....	---	5,757.75	---	2,106.77	---	3,650.98
98B	Ninilchik Aviation Field...	---	384.18	---	---	---	384.18
98C	Kasilof Aviation Field.....	---	674.52	---	---	---	674.52

No.	Sub-project Name	Cost 1933	Total Cost to 6-30-33	Cost M & I 1933	Total Cost M & I to 6-30-33	Cost Con. 1933	Total cost Construction to 6-30-33
98D	Kasilof Road.....	$ 375.40	$18,533.85	$ 375.40	$1,387.50	$ ---	$ 17,146.35
100	Office and General Overhead	34,192.79	614,516.05	27,354.24	334,838.21	6,838.55	279,677.84
101	Territorial General Overhead	---	71,521.31	---	31,584.89	---	39,936.42
	Total Costs.....	$692,835.32	$19,640,964.35(a)	$542,563.95	$9,212,140.66	$150,271.37	$10,428,823.69
110	Book Value of Plant.....	-18,219.03***	72,128.53	---	---	---	---
111	Supplies and Materials on Hand	20,419.87	227,049.14	---	---	---	---
	Total Expenditures...	$695,036.16(b)	$19,940,142.02	---	---	---	---

*Transferred to other departments
** Abandoned.
***To be deducted, as this amount included in costs from deferred accounts.
(a) Includes $932,280.46 of supervised funds
(b) Includes $1,971.94 General Accounting Office settlements. Does not include $4,809.84 reimbursements and receipts from sales.

The following shows the cost of cooperative projects, with the source of revenue:

Costs in Detail--Cooperative Projects

(Included in preceding table)

		Alaska Road Commission	Contributed	Total
2H	Juneau Wharf	$2,695.78	$155.20(1)	$2,850.98
2J	Juneau Float	--------	26.99(1)	26.99
7D	Fairbanks-Ester	3,017.10	942.13(2)	3,959.23
13A	Nome-Dessie	1,756.47	88.75(3)	1,845.22
14A	Sitka National Monument	458.60(4)	283.03(5)	741.63
15A	Central House-Circle Hot Springs	661.03	45.00(6)	706.03
35D	Willow Creek Extension	5,847.30	75.00(7)	5,922.30
35DB	Lucky Shot-Willow Station	15,397.18	1,980.00(8)	17,377.18
65G	Slana-Chisana	27,324.68	5,037.61(9)	30,362.29
75I	Oilwell Road	225.38	65.00(10)	290.38
	Total	$57,383.52	$6,698.71	$64,082.23

(1) By the U. S. Forest Service, U. S. Bureau of Fisheries and the Alaska Game Commission.

(2) by the City of Fairbanks, The Fairbanks Telephone co. and the Fairbanks Exploration Co.

(3) By the Northern Air Transport co.

(4) Allotted by the National Park Service

(5) By the National Park Service

(6) By F. M. Leach.

(7) By the cold top syndicate

(8) By the Willow creek Mines

(9) By the Nabesna Mining Corporation

(10) By the Pacific International Airways and C. W. Smith

Total Costs--By District

District	Construction	Maintenance and Improvement	Total
Juneau Office and General Overhead (a)	$6,838.55	$27,554.24	$34,192.79
Southeastern	--------	12,459.89	12,459.89
Eagle	--------	8,850.63	8,850.63
Valdez	--------	55,851.52	55,851.51
Chitina	41,049.33	124,607.45	165,656.73
Fairbanks	10,795.93	178,397.80	189,193.73
Southwestern	78,401.98	39,469.65	137,871.63
Kuskokwim	--------	20,091.74	20,091.74
Nome	13,185.58	55,481.03	63,666.61
Total cost	150,271.37	542,563.95	692,835.32
Plant, materials, etc., undistributed			
Total expenditure			2,200.34
			$695,036.16(b)

(a) Includes expenses of Seattle Purchasing Office

(b) Includes $1,971.94 General Accounting Office settlements; soes not include $4,809.84 reimbursements, refunds and receipts from sales.

Construction and maintenance of military and post roads, bridges, and trails, Alaska:

Act of June 12, 1906	$150,000.00
Act of June 20, 1906	35,000.00(1)
Act of Mar. 2, 1907	250,000.00
Act of May 11, 1908	250,000.00
Act of Mar. 3, 1909	350,000.00
Act of Mar. 23, 1910	100,000.00
Act of Mar. 3, 1911	150,000.00
Act of Aug. 24, 1912	125,000.00
Act of Mar. 2, 1913	155,000.00(2)
Act of Apr. 27, 1914	125,000.00
Act of Mar. 4, 1915	165,000.00
Act of Aug. 29, 1916	500,000.00
Act of May 2, 1917	500,000.00
Act of July 9, 1918	100,000.00
Act of July 11, 1919	100,000.00
Act of June 5, 1920	350,000.00
Act of June 30, 1921	425,000.00(3)
Act of June 30, 1922	465,000.00
Act of Mar. 2, 1923	650,600.00(4)
Act of June 7, 1924	725,000.00
Act of Dec. 6, 1924	55,000.00(5)
Act of Feb. 12, 1925	900,000.00
Act of Apr. 15, 1926	900,000.00
Act of Feb. 23, 1927	1,022,500.00(6)
Act of Mar. 23, 1928	925,000.00(7)
Act of Feb. 28, 1929	800,000.00
Act of May 28, 1930	800,000.00
Act of Feb. 25, 1931	800,000.00
Act of July 14, 1932	494,310.00
Act of Feb. 17, 1933	469,300.00(8)
Total	12,836,710.00

(1) For Fairbanks-Council survey.
(2) Includes $55,000 for Valdez dyke
(3) Includes $10,000 for Nome-Kiwalik survey
(4) Includes $600 for survey Juneau Wharf.
(5) Deficiency to cover increase of compensation 1925.
(6) Includes $422,500 for Juneau Wharf.
(7) Includes $100,000 for flood control, Lowell Creek
(8) Includes $3,000 for Juneau Wharf.

Construction and maintenance of wagon roads, bridges and trails, "Alaska fund":	
Fiscal years 1905 to 1932 inclusive	$5,828,612.52
Fiscal year 1933	68,554.93
Total	3,917,167.45
Increase of compensation, War Department:	
Fiscal years 1918 to 1925 inclusive	95,059.50
National cemeteries:	
Fiscal years 1925 t 1932 inclusive	6,704.60
Roads and trials, National Parks:	
Fiscal years 1925 to 1933 inclusive	775,876.37
Fiscal year 1934	7,000.00
Total	782,376.37
National Monuments:	
Fiscal year 1933	500.00
Barracks and quarters:	
Fiscal year 1932	1,252.50
Total Federal appropriations	17,640,270.42

Contributed Funds.

(Act of Congress approved June 30, 1931, Alaska Special Fund.)

By the Territory: (For list of Acts see Annual Report 1932, pages 81-63.) Public roads, bridges, trails, and ferries:	
Fiscal years 1920 to 1932, inclusive	1,449,908.58
Shelter cabins	
Fiscal years 1922 to 1932	98,585.50
Nizina Bridge	
Fiscal years 1922 to 1923	25,000.00
Telephone lines, Seward Peninsula	
Fiscal years 1926 to 1931	13,073.20
Pioneer Cemetery Road	
Fiscal years 1927	3,341.02
Flood Control, Lowell Creek	
Fiscal year 1929	10,000.00

Yukon-Kuskokwim Portage		
Fiscal year 1930		$7,500.00
Valdez Dyke		
Fiscal year 1932		10,000.00
Radio Telephones		
Fiscal year 1932		6,477.34
Total Territory		1,623,895.64
By others:		
Fiscal years 1922 to 1932		146,565.66
Fiscal year 1933:		
Willow Creek Mines	$2,100.00	
Nabesna Mining Corporation	3,220.00	
Pacific International Airways	50.00	
City of Fairbanks	770.00	
Gold Top Syndicate	75.00	
Fairbanks Telephone Co.	82.13	
C. W. Smith	15.00	
Northern Air Transport	88.75	
Fairbanks Exploration Co.	90.00	
F. M. Leach	45.00	
Government Agencies, Juneau	182.19	
National Park Service	283.03	7,001.10
Total others		153,566.76
Total Contributed Funds		1,777,462.40
Total Supervised Funds (see Annual Report, 1932, pages 64 to 66)		2,840,147.35
Grand total, all funds		22,257,880.17

Source: Annual Report of the Alaska road Commission, Juneau Ak. Fiscal Year, 1933. Mimeographed.