

REVIEW OF ROAD CONSTRUCTION
COSTS IN MONTANA NATIONAL
FORESTS--FOREST SERVICE /
DEPARTMENT OF AGRICULTURE /

B-125053
CED-77-83
6-10-77

RESTRICTED

Letter report to Senator Lee Metcalf, pursuant to his request, on our review of Forest Service's costs to have roads constructed into timber sales areas in Montana national forests. The scope of our work was limited because, since January 1972, only seven Forest Service contracts were awarded for new road construction in Montana national forests. Three of these roads were in the two forests we reviewed, but only one was designed to standards similar to roads built by timber purchasers.

We reported that it cost the Service more in cases where it contracted for such roads directly, using appropriated funds (public works contracts), than it did in cases where timber purchasers were allowed a credit against the sale price of timber to build the roads or to have them built. This is primarily because the Service has more stringent contracting and contract administration procedures for public works roads and wages paid under public works contracts are higher.

Service officials agreed with our observations and said they were in the process of revising their engineering requirements, contracting procedures, and road design specifications. This should help to eliminate some of the cost and engineering differences now existing under the two methods of building roads.

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COMPTROLLER GENERAL OF THE UNITED STATES
WASHINGTON, D.C. 20548

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JUN 10 1977

The Honorable Lee Metcalf
United States Senate

Dear Senator Metcalf:

In your letter of March 11, 1977, you requested that we review the Forest Service's costs to have roads constructed into timber sales areas in Montana national forests. You asked us to compare the Service's costs in cases where it contracted for such roads directly, using appropriated funds (public works contracts), with the Service's costs in cases where timber sale contracts included an allowance for timber purchasers to build the roads or to have them built. You also asked us to obtain data that might indicate the effects of road building requirements on timber sales competition.

We selected the Flathead and Lolo National Forests for our work because they had the most road construction activity in Montana in recent years. We contacted Service officials, timber purchasers, and road contractors in the area of these forests. The scope of our work was limited because, since January 1972, only seven Service contracts were awarded for new road construction in Montana national forests. Three of these roads were in the two forests we reviewed, but only one was designed to standards similar to roads built by timber purchasers.

In a meeting with your office on May 5, 1977, we said that our limited review in the two Montana national forests showed that it costs the Service more to have roads constructed under a public works contract than it does when timber purchasers are allowed a credit against the sale price of timber to offset road construction costs. This is primarily because of two factors:

- The Service has more stringent contracting and contract administration procedures for public works roads.
- Wages paid under public works contracts are higher.

Service contracting procedures require its engineers to provide a higher quality of engineering service for public works contracts. The Service pays for most public works roads in increments based on actual work accomplished. Service officials told us that determining the amount of work

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scheduled and the amount actually accomplished requires a greater degree of accuracy in the survey and design processes of preconstruction engineering and more precise staking and continuous inspection during the construction engineering phase.

The Service incurs costs for preconstruction and construction engineering under both methods of road construction. However, the Service does not usually identify these costs on an individual project basis. We therefore requested Service officials to estimate these costs. Enclosures I and II demonstrate how much higher the estimated costs are to the Service for public works contracts than for a road constructed under the timber price reduction method.

We could not determine the actual costs of timber purchaser road building because company cost data given us could not be verified. Timber purchaser road credits allowed by the Service may not accurately reflect actual construction costs because the credits are based on estimates, and the amounts bid for timber may be adjusted to absorb inadequacies in the timber purchaser sale credit.

Under public works road contracts, wages are required to be paid in accordance with provisions of the Davis-Bacon Act (40 U.S.C. 276a). In the forests included in our review, a road builder, when contracting with the Service, paid union wage rates which were higher than the Davis-Bacon rates in the area. However, in constructing a road for a timber purchaser, he could pay nonunion wage rates and reduce the number of worker positions that would be required if the work was under union contract. As shown in enclosure III, Davis-Bacon and union wage rates can be 30 to 50 percent higher than nonunion rates.

The number of Service-contracted public works roads may increase as a result of the National Forest Management Act of 1976 (Public Law 94-588, 90 Stat. 2949). The act provides that, for roads estimated to cost in excess of \$20,000, the Secretary of Agriculture should afford qualified small business timber purchasers the option of having the Service contract for roads that would otherwise be built under a timber price reduction method. The Service is revising its regulations, manuals, and orders to implement this provision. According to Service officials, these revisions will streamline the preconstruction and construction

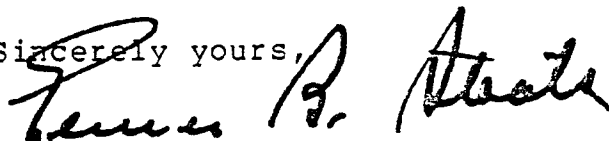
engineering procedures and possibly eliminate some of the cost differences now existing under the two methods of building roads. In addition, the Service is developing a single set of design specifications for public works and timber purchaser roads. This should help eliminate some of the differences in the amount of engineering required for each type of road.

We also analyzed timber sales in the two forests for a 4-year period ending December 31, 1976, to see if there were any clear relationships between the size of the purchase credits for road construction and the numbers of bidders. We found that there were more bidders on timber sale contracts with credits for road construction work than on contracts without such credits. The greater the credit, the more bidders there were. As shown in enclosure IV, contracts with credits above \$100,000 attracted an average of 4.8 bidders compared with 2.6 bidders for contracts with credits under \$20,000. We noted that small businesses were awarded sales contracts for 27 of the 77 sales with purchase credits over \$20,000, including 12 for which the credits exceeded \$100,000.

As requested, we informally discussed the content of this report with Forest Service officials; they had no problem with it.

We trust the information furnished in this report and enclosures will serve your needs.

Sincerely yours,



Comptroller General
of the United States

Enclosures - 4

COMPARISON OF ESTIMATED COSTS
TO THE FOREST SERVICE FOR A ROAD CONSTRUCTED
UNDER THE TIMBER PURCHASER PRICE REDUCTION METHOD
VERSUS A PUBLIC WORKS CONTRACT (note a)

	<u>Timber price reduction method</u>	<u>Public works contract</u>	<u>Difference</u>
PRECONSTRUCTION ENGINEERING (note b):			
Survey	\$ 865	\$ 2,865	\$ 2,000
Design	<u>254</u>	<u>3,100</u>	<u>2,846</u>
	<u>1,119</u>	<u>5,965</u>	<u>4,846</u>
CONSTRUCTION ENGINEERING (note b): (Includes staking, inspecting for compliance, and final calculations)			
	<u>707</u>	<u>4,800</u>	<u>4,093</u>
CONSTRUCTION:			
Clearing, slash disposal, etc.	8,788	8,788	-
Excavation	7,284	8,115	831
Culverts	2,143	2,143	-
Road materials	2,847	2,847	-
Other (includes planting and seeding)	270	270	-
Allowance for moving equipment to site	<u>-</u>	<u>2,216</u>	<u>2,216</u>
	<u>c/21,332</u>	<u>24,379</u>	<u>3,047</u>
Total	<u>\$23,158</u>	<u>\$35,144</u>	<u>\$11,986</u>

a/The road used for comparison was Spring Creek Road No. 2176, which was constructed under the timber price reduction method in the Lolo National Forest, Montana. The 1.4-mile road was designed to 10-foot width and to handle speeds of 10 miles per hour. The purchase credit was calculated in April 1976, and the road was constructed between September 1976 and February 1977.

b/The Forest Service incurs preconstruction and construction engineering costs under both methods of building roads.

c/This amount represents the timber purchase credit allowed by the Forest Service for road construction. A small contractor constructed the road for the timber purchaser for the timber credit plus an allowance for clearing and stacking merchantable timber from the road right-of-way.

COMPARISON OF COSTS TO THE FOREST SERVICE

FOR SIMILAR TYPE ROADS CONSTRUCTED

UNDER A PUBLIC WORKS CONTRACT AND

UNDER THE TIMBER PRICE REDUCTION METHOD

	Firefighter Road No. 896 (public works contract (note a))				South Haskill timber sale road (timber price reduction method (note b))
	Estimated		Actual		Unit price (note c)
	Total cost	Unit price	Total cost	Unit price	
CONSTRUCTION ENGINEERING: (Includes staking, inspecting for compliance, and final calculations)	\$ <u>25,000</u>	\$3,623 per mile	\$ <u>27,622</u>	\$4,003 per mile	\$2,205 per mile
CONSTRUCTION:					
Clearing, slash disposal, etc.	\$ 62,850	\$2,501 per acre	\$ 82,929	\$3,300 per acre	\$798 per acre
Excavation	41,509	\$1.31 per cu. yd.	53,866	\$1.70 per yd.	\$.75 per cu. yd.
Culverts:	16,168		13,794		
15-inch diameter					\$ 7.89 per ft.
18-inch diameter		\$14 per ft.		\$12 per ft.	\$ 8.51 per ft.
24-inch diameter		\$18 per ft.		\$15 per ft.	\$10.38 per ft.
Other (includes planting and seeding)	<u>9,463</u>		<u>14,722</u>		
Total construction	\$<u>129,990</u>	\$18,839 per mile	\$<u>165,311</u>	\$23,958 per mile	\$16,085 per mile

a/The purpose of this road is to provide access for thinning in the Flathead National Forest, Montana. The 6.93 mile road is designed to a width of 10 feet and provides for a speed of 10 miles per hour. The Forest Service estimated the cost in April 1976. The Forest Service was unable to determine estimated and actual preconstruction engineering costs.

b/This road was included in the South Haskill timber sale of the Flathead National Forest, Montana. Its total length of 13.6 miles consists of four segments designed to a 12-foot width and a speed of 10 miles per hour and one segment designed to a 14-foot width to handle speeds of 20 miles per hour. The purchase credit was calculated in March 1975, and most construction took place between July 1975 and June 1976.

c/Unit price calculated based on timber purchaser credit.

WAGE RATE COMPARISON (note a)

<u>Job classification</u>	<u>Union rates (note b)</u>	<u>Davis-Bacon rates</u>	<u>Nonunion rates (note b)</u>
General labor	\$10.26	\$ 8.80	\$ 6.08
Power saw	10.56	9.09	8.16
Skidding cat	13.03	11.01	8.63
Choker setter (note c)	10.45	8.98	-
Scraper	13.18	11.16	8.63
Dump trucks	11.61	9.92	6.29
Crane	13.22	11.19	8.52
Oiler (note c)	12.55	10.52	-
Dozer	13.03	11.01	8.63
Driller	10.56	9.09	6.57
Chuck tender (note c)	10.26	8.80	-
Mechanic	13.15	11.12	8.50
Equipment serv- iceman (note c)	12.94	10.92	-
Average	\$11.91	\$10.12	\$ 7.78
Percent above average nonunion rate	53	30	-

a/The wage rates consist of hourly base pay plus fringe benefits and taxes according to the road contractor providing the data.

b/The union rates were paid in constructing a public works road in 1976. The nonunion rates were paid during the same period by the same contractor in constructing a comparable road for a timber purchaser.

c/Union regulations require oilers or assistants for some equipment. These positions are not used for nonunion jobs.

COMPARISON OF BIDDING INTENSITY FOR
FOREST SERVICE TIMBER SALES IN THE
FLATHEAD AND LOLO NATIONAL FORESTS
 (1973 to 1976)

	<u>No purchase credit</u>	<u>Purchase credit under \$20,000</u>	<u>Purchase credit \$20,000 to \$100,000</u>	<u>Purchase credit over \$100,000</u>
LOLO NATIONAL FOREST:				
Sales	61	15	15	17
Bidders	118	33	48	68
Average	1.9	2.2	3.2	4.0
FLATHEAD NATIONAL FOREST:				
Sales	69	15	23	22
Bidders	188	45	98	119
Average	2.7	3.0	4.3	5.4
TOTAL:				
Sales	130	30	38	39
Bidders	306	78	146	187
Average	2.4	2.6	3.8	4.8