

COSTS OF HAULING ASPHALTIC PAVING MATERIAL BY MOTOR TRUCKS AND TEAMS.

In his report on a proposed municipal asphalt plant for the District of Columbia, Mr. D. E. McComb submitted the following estimates on the cost of hauling asphaltic material in the District. The estimates are based on a haul over the streets of Washington. For hauling with a 5-ton motor truck, the following assumptions are made: Load = 6 dumps = 90 cu. ft. Cost per day, \$12. Speed, 10 miles per hour = 1 mile in 6 min. Estimated time required to load, 9 mins.; unload, 7 mins.; tally, 2 mins.; total, 18 mins. For hauling with wagon and 2 horses the assumptions were: Load = 4 dumps = 60 cu. ft.; rate, \$4.50 per day. Estimated time to load, 6 mins.; to unload, 6 mins.; to tally, 2 mins.; total, 14 mins. Estimated speed of team, 2½ miles per hour (1 mile in 24 mins.). The comparative cost per cubic foot of hauling asphaltic paving material for resurfacing and new work is estimated to be as follows:

	Motor truck. Per cu. ft.	Wagon. Per cu. ft.
½-mile haul	\$0.0067	\$0.0058
1 -mile haul .....	.0083	.0094
1½-mile haul .....	.0103	.0150
2 -mile haul .....	.0121	.0187
2½-mile haul .....	.0133	.0187
3 -mile haul .....	.0148	.0250
3½-mile haul .....	.0167	.0375
4 -mile haul .....	.0190	.0375
4½-mile haul .....	.0222	.....
5 -mile haul .....	.0222	.....

For hauling hot stuff on minor repair work the following estimates are given: Assumed haul by 1-horse cart for distances up to 2½ miles and by 3-ton auto trucks for distances beyond 2½ miles:

Cost of cart haul for average distance of 1¾ miles:	Minutes.
Estimated time required to—	
Load	5
Unload	30
Tally	2
Total	37
To make trip and return	84
Grand total	121

Number of trips per day, 4.	Per cu. yd.
\$2.50 ÷ 4 × 24 cu. ft.	\$0.0260
Add 10 per cent. for delays	0.0026

Cost per cu. ft. \$0.0286

Cost of 3-ton auto truck haul for average distance of 3 miles, 12 miles per hour:

Estimated time required to—	Minutes.
Load	7
Unload	45
Tally	2
Total	54
To make trip and return	30
Grand total	84

Number of trips per day, 6.	Per cu. ft.
\$10 ÷ 6 × 45 cu. ft.	\$0.0370
Add 10 per cent. for delays .....	.0037
Cost per cu. ft.	\$0.0407

The estimate for hauling asphaltic paving material for patching work is based on the following assumption: One horse cart: Load = 24 cu. ft. = 3 dumps, 8 cu. ft. each; cost per day, \$2.50; estimate of speed, 2½ miles per hour; average haul = 2½ miles.

Estimated time required to—	Minutes.
Load	5
Unload (averaged)	30
Tally	2
Total	37
To make trip and return	120
Grand total	157

Number of trips per day, 3; cost per cu. ft. = \$2.50 (÷ 3 × 24)	Per cu. ft.
Add 10 per cent. for delays	\$0.0347
Total cost per cu. ft.	\$0.0382

REFUSE DESTRUCTION AND STEAM RAISING.

The result of an official test of a duplicate front-feed refuse destructor at Nuneaton, which was first utilized for steam-raising purposes in April of last year, appears in the report for 1912 of Mr. F. C. Cook, borough engineer and surveyor of that town.

The contractors were Messrs. Heenan and Froude, Limited, of Manchester, and the cost of the furnace, apart from buildings, was \$3,902.50.

The main results show that during the eight hours of the test the furnace dealt with 61.5 lb. of refuse per square foot of grate area per hour, which is equal to nearly 50 tons per day, and that the water evaporated per lb. of refuse consumed, from and at 212 deg. Fahr., was 1.727 lb.

Very little use was made of the spare coal-fired boiler after the completion of the duplicate destructor. Altogether, the destructors worked for 302 days, and dealt with 2,711 wagon loads and 4,654 cart loads of house refuse, together with 99 loads of trade refuse, equal to a total weight of about 6,382 tons, and representing about 88 per cent. of the total house refuse collected.

The gross cost of labor in destroying the refuse was 36c. per ton, against 42c. in 1911. In 1911 the net cost (excluding capital charges, and deducting the saving in coal) worked out at \$1.18 per ton; but last year there was an actual saving of \$621.25 during the time the destructor was at work, as compared with what the cost of raising steam by a coal-fired boiler would have been over the same period. The result was mainly accounted for by the enhanced price of fuel—viz., 89c. per ton against 55c.—and to the very great increase in the quantity of sewage pumped, which would have led to a corresponding increase in the weight of fuel used in generating steam.

The sum of over \$146 was realized by the sale of tin and galvanized-iron scrap. This is very nearly all profit, as this waste material was previously burned in the tips.