

ROAD SURFACING COSTS IN NIAGARA FALLS PARK.

SOME interesting cost data was gathered by Mr. John H. Jackson, Superintendent of Queen Victoria Niagara Falls Park, in connection with a five-mile stretch of macadamizing between Chippawa and Bridgeburg, Ont. This work was included in the 1913 parking program of the Commissioners. The following figures are from the 28th annual report, just published.

Part of the mileage under consideration required a light resurfacing, and another portion required the entire reconstruction of the top courses. For these two operations the following figures will show in detail the amounts that were spent per square yard:

The Light Resurfacing Water Bound Macadam Roadway.

Time—August 5th, 1913, to October 21st, 1913.

Location—Boulevard roadway from Slater's Dock, south.

Average length of haul—3.4 miles from M.C.R. siding, Chippawa.

Area treated—Length 14,625 ft. = 2.77 miles; width 18 ft. = 29,250 square yards.

Labor:	Total.	Per sq. yd.
Loading 2-in. stone and screenings.	\$ 232.56	8 cts.
Hauling	442.95	1.51
Pumping and watering	45.29	.15
Repairing roadway	275.18	.94
Rolling and spiking	97.29	.33
	<hr/> \$1,093.27	<hr/> 3.37 cts.

Material:		
2-in. stone—205.5 tons at \$1.25...	\$ 256.88	.88 cts.
Screenings—150.2 tons at \$1.00...	150.20	.51
	<hr/> \$ 407.08	<hr/> 1.39 cts.

Summary:		
Labor	\$1,093.27	3.73 cts.
Materials	407.08	1.39
	<hr/> \$1,500.35	<hr/> 5.12 cts.

Remarks:
297 cubic yards of stone and screenings were placed on 29,250 square yards.
1 cubic yard of stone and screenings was placed on 98.5 square yards.
Ratio of 2-in. stone to screenings used—1 to .731.
Ton-mile cost of hauling materials—36.2 cts.

Wage Rates:		
Teams	55c. per hour	
Laborers	22c. "	
Foremen	30c. "	
Cost per mile		\$540.00

The Heavy Resurfacing Water Bound Macadam Roadway.

Time—August 1st, 1913, to December 15th, 1913.

Location—Boulevard roadway, from Black Creek, north.

Average length of haul—1.98 miles from Black Creek siding.

Area treated—Length 14,467 ft. = 2.74 miles; width 18 ft. = 28,934 square yards.

Labor:	Total.	Per sq. yd.
Loading 2 in. stone and screenings.	\$ 521.00	1.8 cts.
Hauling	1,509.00	5.2
Pumping and watering	215.00	.8
Repairing roadway	547.00	1.9
Rolling and spiking	425.00	1.5
	<hr/> \$3,217.00	<hr/> 11.2 cts.

Material:

2-in. stone—750 tons at \$1.10	\$ 825.00	2.9 cts.
Screenings—324½ tons at \$1.10 ..	357.00	1.2
	<hr/> \$1,182.00	<hr/> 4.1 cts.

Summary:

Labor	\$3,217.00	11.2 cts.
Materials	1,182.00	4.1
	<hr/> \$4,399.00	<hr/> 15.3 cts.

Remarks:

895.4 cubic yards of stone and screenings were placed on 28,934 square yards.

1 cubic yard of stone and screenings was placed on 32.3 square yards.

Ratio of 2-in. stone to screenings used—1 to .433.

Ton-mile cost of loading and hauling materials—32.3 cts.

Wage Rates:

Teams	45c. per hour
Laborers	20c. "
Foremen	30c. "
Cost per mile	\$1,600.00

At Queen Victoria Park rates for teams, .55c., and men .22c., the above ton-mile cost would be 38.4c.

In connection with the scarifying and re-crowning of this section of roadway a bituminous top was laid on a 2¾-mile length, and the following figures show the cost of different operations in connection therewith:

Tarvia "A" and ½-inch Stone Surfacing.

Time—September 2nd to October 16th, 1913.

Location—Boulevard roadway, vicinity of Usher's Creek.

Length of haul—3.4 miles.

Area treated—Length 14,625 ft. = 2.77 miles; width 18 ft. — 0 in. = 263,250 square feet = 29,250 square yards.

Depth—½ inch.

Labor Cost:	Total.	Per sq. yd.
Loading, hauling and placing stone.	\$ 861.05	2.90 cts.
Loading, hauling and placing tarvia	353.71	1.19
Placing and removing plant	56.50	.19
	<hr/> \$1,271.24	<hr/> 4.28 cts.

Material Cost:

½-in. stone—487.5 tons at \$1.30 ..	\$ 633.75	2.14 cts.
Tarvia "A"—14,307 gallons at 10c.	1,430.70	5.58
Freight, \$188.35; demurrage, \$32	220.35	
Soft coal for heating and operating roller	88.90	.30
	<hr/> \$2,373.70	<hr/> 8.02 cts.

Summary:

Labor	\$1,271.24	4.28 cts.
Materials	2,373.70	8.02
	<hr/> \$3,644.94	<hr/> 12.30 cts.
2.77 miles cost	\$3,644.94	
1 mile cost	1,300.00	
1 square yard cost		12.30

This was a carpet treatment undertaken with refined tar, known as Tarvia "A." The material was shipped in tank cars to the nearest railway siding, and heated by means of a steam boiler to a temperature of 100° F. when it was forced by steam pressure into the distributing apparatus, and then hauled to the site of the work where it was attached to the steam roller. Connection was here