

Shunpike Road, End Sections, 1.195 Miles Long.

This improvement covers both ends of the old Shunpike. The center portion, which is on top of the first Watchung mountain, consists of solid trap rock which is being blasted out by the quarry company near whose crusher the road runs. By permitting the quarry company to take out this stone the cost of removing the rock is reduced more than one-half.

The southern section, just completed, begins at Westfield avenue and extends northerly 5,100 feet to a point near the top of the mountain. The second section begins 1,568 feet north of the section just described and ends at Morris avenue, Summit. This second section is built over an entirely new right of way and further is carried underneath the tracks of the Rahway Valley railroad, thus eliminating another railroad grade crossing.

The maximum grade was reduced from 14 per cent. to 6½ per cent. The width of the graded roadway is thirty-three feet, upon which is laid a water-bound macadam pavement sixteen feet wide and eight inches deep. Like all mountain roads the cost of the pavement is the smallest portion of the total cost, being \$8,903.25 on a total cost of \$23,773.31.

Detailed statement of the cost of the Shunpike road, end sections, township of Springfield, county of Union. Total length, 6,309.3 feet, or 1.195 miles.

Kind of pavement, macadam.
Width of paved way, 16 feet.
Length of paved way, 6,309.3 feet.
Depth, 8 inches.
Width between slopes or curbs, 33 feet.

Foundation, type C, 11,871 square yards; Surface, type A, 11,871 square yards, at 75 cents; total,	\$8,903 25
Earth excavation, 13,872.5 cubic yards, at 50 cents; total,	6,936 25
Rock excavation, 1,658.4 cubic yards, at \$1.80; total,	2,985 12
Under drain, 4-inch tile, 187 lineal feet, at 30 cents; total,	56 10
Under drain, 4-inch tile underwalls, 150 lineal feet, at 45 cents; total,	67 50
Gutter, cobble, 1,577 square yards, at 80 cents; total,	1,261 60
Earth excavation outside road, 537 cubic yards, at 60 cents; total, ..	322 20
4-inch macadam driveways, 372 square yards, at 60 cents; total, ..	223 20
Concrete for retaining walls, 90 cubic yards, at \$8.00; total,	720 00
New cast-iron pipe, 232 lineal feet, at \$2.00; total,	464 00
Old cast-iron pipe reset, 84 lineal feet, at 20 cents; total,	16 80
Force account, removing trees, connecting water from spring with culvert, 3 runways and 1 inlet,	130 00
Crushed stone, 21.175 tons, at \$2.50; total,	52 94
Three driveways to new houses,	48 00
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	\$22,186 96
Inspection,	477 00
Engineering,	1,109 35
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Total cost of road,	\$23,773 31
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Lump sum, contract price,	\$20,507 25
Amount allowed by State,	23,773 31
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Forty per cent. of above, State's share,	\$9,509 32
Less credit by cost of inspection already paid by State,	477 00
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Amount due by State,	\$9,032 32
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Maximum grade before,	14.0 per cent.
Maximum grade after,	6.5 per cent.

We hereby certify that the above road is finished in all respects in strict compliance with the plans and specifications.

J. L. BAUER,
JOHN J. MACKENZIE,
Engineer.
Inspector.