

METHODS AND COST OF SNOW REMOVAL*

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THE areas covered by the South Park Commissioners in their snow-cleaning work include about 67 miles of drives and 175 miles of walks and 90 to 95 acres of skating ice.

The South Park snow-handling equipment at the present time includes five 3-wheeled tractors fitted with detachable V-shaped plows having wing extensions and with detachable revolving street brooms, one 4-wheeled tractor equipped with both V-shaped and straight moldboard attachments, some very large snow-hauling wagons, twenty large 4-wheeled iron plows of the road grader type, seventeen large wooden 4-wheeled tractors fitted with detachable revolving street brooms, one 4-wheeled tractor equipped with both V-shaped and straight moldboard attachments, seventeen large wooden 4-wheeled plows similar to the road graders, six small iron-wheeled plows, used mainly for cleaning snow off sidewalks around the smaller parks, several straight moldboard attachments for auto trucks, and a considerable number of large ajax scrapers, triangle plows, ice shaving machines, etc., for cleaning the fields of skating ice.

About three winters ago a snow-slushing machine was constructed for the purpose of disposing of snow in the downtown district through the sewers instead of loading it on wagons and trucks and hauling it to a dump. This was a small machine, consisting of a water turbine with a supply line to a fire-plug, so patterned that it would hang in a sewer manhole in a wire mesh basket, three free blades connected with the turbine chopping the snow and with the aid of the water from the turbine exhaust forcing or washing it through the wire basket into the sewer where the current of water and sewerage took it away. The basket served to keep pieces of wood, bricks and other rubbish from passing along into the sewer and possibly clogging it.

In January of this year the abnormal snowfall plainly showed the necessity of a powerful and efficient machine to handle snow rapidly and in large quantities. After a little experimental work a 2-disk rotary snowplow was constructed and given some preliminary tests, but the lateness of the season did not permit perfecting it. With more power, however, it gives promise of being developed into a practical affair.

The following statement shows the cost of cleaning snow from the park driveways, the time required for carrying out the work being three days:

First Day (a.m.)—Plowing snow to the gutters from Washington Park stables to 12th Street and Michigan Avenue, over the following driveways:

	Width, ft.	Area, sq. yd.	Length, miles.
Washington Park (part)	40-50	30,000	1.20
Grand Blvd. (centre drive)	55	64,416	2.00
South Park Ave. (35th to 33rd) ..	42	6,122	0.25
33rd St. (South Park to Michigan) ..	42	8,282	0.31
Michigan Ave. (33rd to 12th)	50	67,320	2.25
		176,140	6.01
Cubic yards of snow on drive, at 4 in.			19,571
Cubic yards of snow on drive, at 6 in.			29,357

For a 4-in. snowfall it is estimated that 40 horses (5 right 4-horse hitches and 5 left 4-horse hitches) will be required to plow these drives in five hours before noon. At

the rate of \$6 per 8-hour day for team and driver, the cost will be \$75.

For a 6-in. snowfall it is estimated that 48 horses (6 right 4-horse hitches and 6 left 4-horse hitches) will be required. At the rate of \$6 per 8-hour day for team and driver, the cost for five hours' work will be \$90.

Cost of Plowing Snow Off Above Driveways

	Per mile of drive.	Per 1,000 sq. yd. of pavement.	Per cu. yd. of snow.
For 4-in. snowfall	\$12.49	\$0.427	\$0.00384
For 6-in. snowfall	14.98	.512	.00307
Total cost (without overhead) for 4-in. snowfall			\$75.00
Total cost (without overhead) for 6-in. snowfall			90.00

First Day (p.m.)—In the afternoon half of the teams which plow from the park stables to 12th Street and Michigan Avenue in the morning will plow snow to the sides of the drives on—

	Width, ft.	Area, sq. yd.	Length, miles.
Drexel Blvd. (both drives)	*40	70,224	3.00
Oakwood Blvd.	50	17,060	0.50
Washington Park (part of drives) ..	40-50	20,000	0.80
The other half of the teams will plow—			
Garfield Blvd. (South Park to State)	40	11,733	0.50
Michigan Ave. (55th to 33rd) ...	50	82,228	2.75
*Each.	..	201,245	7.55

Cubic yards of snow on drive at 4 inches	22,360
Cubic yards of snow on drive at 6 inches	33,541

The cost of the afternoon's work (5 hours) will be the same as for the morning's plowing—\$75 for a 4-in. snowfall and \$90 for a 6-in. snowfall. These drives will not be gone over twice, but it is intended to go over the drives between the Washington Park stables and 12th Street on Michigan Avenue twice in order to get them as clean as possible, as the first trip over the drives usually does not remove all of the snow.

Cost of Plowing Snow Off Drives Cleaned in the Afternoon of the First Day

	Per mile of drive.	Per 1,000 sq. yd. of pavement.	Per cu. yd. of snow.
For 4-in. snowfall	\$ 9.94	\$0.373	\$0.00336
For 6-in. snowfall	11.93	.448	.00268
Total cost (without overhead)			\$75.00
Total cost (without overhead)			90.00

Second Day (Nine Hours' Work).—Half of the teams will plow to the gutters on—

	Width, ft.	Area, sq. yd.	Length, miles.
Garfield Blvd. (south drive—State to Western)	40-25	56,601	3.00
Garfield Blvd. (north drive—South Park to Western)	40-25	68,424	3.50
Other half of the teams will plow snow on—			
A.M.—(From park stables to 79th St. and Bond Ave.)—			
Washington Park (part of drives) ..	40-50	10,000	0.40
Midway (south drive)	40	21,910	1.00
Jackson Park (part of drives)	40	44,000	2.00
Yates Ave. (71st St. and Bond Ave. to 79th St.)	32-38	36,500	1.75
P.M.—In the afternoon over the following drives:			
Fifty-first St. (including Drexel Sq.)	40	31,976	0.94
East End Ave.	50	18,700	0.65
Jackson Park (rest of drives in "outer" circle)	40	70,000	3.00
		358,201	16.24

Cu. yd. of snow on drive: At 4 in., 39,800; at 6 in., 59,700.

As this is a 9-hour day, the cost of plowing the snow after a 4-in. snowfall, using 40 horses, will be \$135, at the

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